

Applying Design Thinking to Develop an Innovative
Assessment Design Framework in an Initial Teacher
Education Course

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Abstract

In the last decade there has been a growing interest in improving the nature of assessment to enhance student learning in higher education. At its best, assessment can motivate and influence the student's direction and approaches to learning. It is widely accepted that assessment should be valid, reliable, and transparent. Despite what is known about quality assessment, the literature suggests that these conceptualisations are not always practised. This thesis seeks to reflect on current Initial Teacher Education assessment practices by integrating student, academic and high-school teacher perceptions. The overall objective of this research was to develop an innovative assessment framework that resolved key issues, including depth of understanding, engagement with assessment, and achieving authentic and sustainable assessment practices. An important consideration was to ensure any optimised assessment did not increase the marking and feedback workload for the academics.

Aligning to Participatory Action Research (PAR) methodology principles, this thesis adopted design thinking as a qualitative methodological approach in the research inquiry process to explore and develop solutions to the complex assessment issues identified by literature and participants in this research. As proposed by Stanford d.school, design thinking is a structured method of thinking processes used in problem solving, with consultation of end-users to develop prototypes and devise solutions. Under the umbrella of PAR, this research incorporated the design thinking mindset and its structured approaches to investigate perspectives which then enabled creation of assessment frameworks. This research consisted of two phases:

Phase One focused on end-users' perspectives and experience of usual assessment practices that occurred pre-Covid-19, in a face-to-face teaching and learning setting. Semi-structured interview analyses revealed that despite acknowledging and understanding the importance of assessment and feedback processes, end-users were not completely satisfied with their assessment experiences. Students wanted assessment with more clarity and transparency providing them with authentic opportunities. While academics and high-school teachers wanted more student engagement in assessment. Assessment workload constraints affected both students' and academics' assessment and feedback experiences. Based on these understandings, the assessment framework was ideated and developed into a scenario-based experience assessment prototype.

After this stage, the pandemic pushed teaching, learning, and assessment practices to a digitally supported remote delivery, which meant that the framework adopted in Phase One could not be tested for effectiveness. Phase Two evolved from these social distancing Covid-19 restrictions which caused new problems and challenges in delivering and completing assessment. In light of

this, the same design thinking stages and procedures as Phase One were adopted. Analyses discovered academics and teachers experienced tensions between their usual pedagogical practices and the limited social cues available to them in the online environment. It appeared that students did not necessarily know how to collaborate, which was magnified in the online environment. Therefore, a new fit-for-purpose assessment framework prototype was developed for the digital emerging environment to support end-users in facilitating, monitoring, and assessing collaboration.

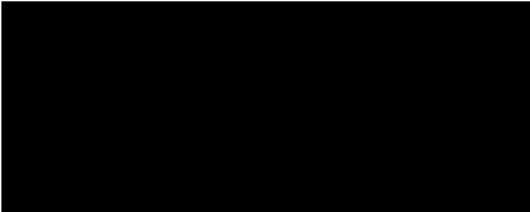
This thesis presents practical assessment alternatives in these universal and situational assessment environments, to equip students with knowledge and skills to excel in future employment settings. The lessons thereby learned from adopting the design thinking approach as a results-driven planning method in this study may assist others in exploring this more novel approach to qualitative research. It is anticipated that the findings of this research will contribute to promoting and sustaining changes to improve teaching, learning, and assessment in higher and teacher education.

Student Declaration

I, Melissah Thomas, declare that the PhD thesis entitled “Applying design thinking to develop an innovative assessment design framework in an Initial Teacher Education course” is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

I have conducted my research in alignment with the [Australian Code for the Responsible Conduct of Research](#) and [Victoria University’s Higher Degree by Research Policy and Procedures](#).

All research procedures reported in this thesis were approved by the Low-Risk Human Research Ethics Committee at Victoria University (HRE19-064).

A large black rectangular box redacting the signature of the student.

Signature

Date 13/07/2022

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Chapter 1: Introduction

"We can't solve problems by using the same kind of thinking we used when we created them."

- Albert Einstein

Background and Rationale

Despite its slow start, the assessment debate in higher education is rapidly gaining momentum. Compared to its counterpart 'teaching and learning pedagogies', research about assessment has not gained the same impetus. With its fundamental role as an indicator and requirement of course completion, assessment is complex. It is entangled in the learning process supporting the growth of learners by ideally leading to improved teaching, learning and curriculum approaches. Assessment should reflect the ever-evolving skills and competencies required in the twenty-first century. The last decade has shown growing interest and additional research on improving assessment to enhance student learning and outcomes in higher education settings. This research project is positioned within this broader teaching and learning landscape focused on exploring assessment approaches and design in teacher education through a novel approach, using design thinking.

Assessment is essential to the learning environment (Ramsden, 2003). It should be subject to rigorous continuous improvement (Boud & Dochy, 2010). In higher education, assessment is a determining factor of achievement and course completion. Assessment informs, directs, and determines teaching and learning practices by collecting evidence through various measures. At its best, assessment can motivate and influence the student's direction and approaches to learning (Biggs, 1998; Biggs & Tang, 2011; Boud & Molloy, 2013a; Lizzio et al., 2002). Information about teaching and learning can be inferred from assessment performances to alert what needs to be modified in future courses (Ramsden, 2003). Assessment is critical to assist students in developing multiple skills and knowledge required for professional applications and in life-long learning. Essentially, assessment is the driver of the learning process. Its prime purpose is to promote learning.

What should good assessment look like? It is widely accepted that assessment should be valid, reliable, and transparent (Biggs & Tang, 2011; Ramsden, 2003; Sambell et al., 1997). It needs to connect clearly and evidently to standards and outcomes (Ramsden, 2003). In 2010, Boud and Associates developed propositions to guide assessment reform towards better assessment practices and enhanced learning

experiences and achievements for higher education students. Their assessment principles focused on the learning partnerships between academics and students with shared learning responsibilities, such as in the feedback process, to ensure the assessment design meets the needs of diverse students in valuable learning experiences (Boud & Dochy, 2010). Black and Wiliam (1998) also suggested that solid assessment programs improve classroom learning experiences. Therefore, the elements of teaching and learning presented in this thesis are interwoven into assessment practices aiming to promote effectiveness and student outcomes.

Students continue to report dissatisfaction with assessment and feedback in their university courses, both in Australia (Krause et al., 2014), and the UK (QAA, 2015). Whilst they have appreciated variety (Sambell et al., 1997) and alternative forms of assessment to the traditional exams and essays (Struyven et al., 2003), students have expressed displeasure at heavy assessment workloads and unsuitable assessment types, which have resulted in surface approaches to learning (Lizzio et al., 2002). This was supported by Wass et al. (2018) who also found that students elicited negative emotions to inadequate assessment practices, such as timing and weighting. Likewise, Wass et al. (2018) found heavy workload caused students to surrender to surface learning approaches. Compounding the problem students have with assessment is that they have difficulty unpacking assessment criteria (Carless, 2006), and learning in assessment can be affected by assessment timing and type (Lynam & Cachia, 2018). The students' academic maturity and academic-student relationship can also impact learning in assessment (Lynam & Cachia, 2018). Davis and Dargusch (2015) also found that relationships, particularly trust between the student and academic, influenced the uptake and use of assessment feedback.

Feedback on assessment submissions is also an issue with students. More specifically they regard feedback practices as inadequate (Winstone & Carless, 2019), with particular regard to time, quality, and discernibility (Winstone et al., 2017). In contrast, from the educator perspective, Carless' (2006) academic participants from Hong Kong felt they provided more useful and sufficiently detailed feedback than their student participants perceived. Despite academic concerns that students are only interested in the assessment grade (Sinclair & Cleland, 2007), there is growing evidence to support student feedback engagement (Carless, 2006; Mulliner & Tucker, 2017; Zimbardi et al., 2017). However, barriers of digital platforms in some Learning Management Systems (LMS) prevents ease of accessing feedback over grades (Winstone et al., 2020). Given the range of problems identified with assessment, higher education must adopt

continual improvement to enhance approaches. This perpetual development is especially important in light of potential quality improvement transformations in higher education in response to internal and external institutional changes that are occurring (Kaplan, 2020b).

Despite what is known about quality assessment, the literature suggests that these conceptualisations are not always practised. For example, although Offerdahl and Tomanek's (2011) experienced biochemistry teaching academics demonstrated a change in thinking towards a better understanding of assessment for learning, they did not reflect this learning in their teaching practices. Norton et al.'s (2013) UK academics who were new to lecturing also felt that they could not always put their new assessment learnings into practice. Additionally, Bearman et al. (2016) demonstrated that academics struggled thinking past what they already practised to what assessment could be. In their discussions of reframing assessment, Boud et al. (2018, p. 1107) astutely asserted that "it is apparent that change does not come easily" despite the recent developments in assessment literature. Aside from the notion that change is hard and requires effort and support, this gap between knowing and doing is most likely a culmination of complexities of assessment and its many functions (Boud, 2000). Any change in higher education can be challenging and complex (Kaplan, 2020a; Trowler & Bamber, 2005). Further, staff can resist assessment change (Deneen & Boud, 2014).

Comparatively to other disciplines associated with performance, Initial Teacher Education (ITE) assessment has additional imperatives. Assessment practices must also respond to calls to improve graduates' overall teacher quality and prepare graduates for the classroom (Craven et al., 2014). Consequently, assessment programs must adhere to externally driven audit processes and ensure clear links to teaching standards (AITSL, 2018). Modelling quality teaching, learning and assessment is often utilised in ITE programs to provide students of teaching with opportunities to experience quality teaching and learning themselves (Darling-Hammond, 2006; Loughran & Hamilton, 2016; Moore & Bell, 2019). This thesis seeks to examine current ITE assessment practices by integrating student, academic and high school teacher perceptions. Leveraging these perceptions, the thesis also presents practical assessment alternatives, designed with input from students, academics, and expert practitioners from teaching, to equip students with knowledge and skills to excel in future employment settings.

Higher education is at a crossroads. On top of the current economical, societal, and digital transformations already occurring, Covid-19 has brought about further

adjustment in higher education (Kaplan, 2020b). Globally, Covid-19 has dictated that teaching, learning and assessment practices change in light of its highly contagious infection rates and the restrictions introduced in an effort to contain the virus. In 2020 in response, education made an agile shift to online practices. Although managed differently in different sectors and institutions, the standard features of synchronous and asynchronous combinations were adopted to keep teaching, learning and assessment alive. At present, higher education is still experiencing this momentous time in history, with global impacts resonating with social distance teaching, learning and assessment practices, which have been implemented to reduce transmission of the highly contagious infection rates of Covid-19. This momentous period in education history may ensure new best practices remain or indeed even further improve. Much has been learned during these times, which has also required shifts in thinking to ensure optimal practices remain. While this thesis did not initially aim to explore and report on perspectives and experiences of education and assessment in Covid-19 times, it has embraced this pivot in learning which has come about organically *en route*. Higher education has been handed an amazing opportunity to reimagine what practices could look like in a post-Covid world. Analysing the lasting changes of the global pandemic on educational practices is paramount. These learnings will impact future designs of post-covid higher education teaching, learning and assessment.

Significance

One intended outcome of this research is a contribution to the body of knowledge about assessment practices in higher education. In particular, given higher education is at a critical juncture (Kaplan, 2020b), made even more imperative due to Covid-19 (Kaplan, 2020a), this research intends to scrutinise what assessment practices were like pre-Covid-19 and compare them against what has emerged. The aim is to identify what has 'worked before' and what is now working in the context of digitally supported remote learning. In summary, this thesis endeavours to contribute to this continual professional development to present and compare perspectives of stakeholders whilst they experience pre- and post-Covid-19 assessment practices.

A second intended outcome was to contribute potential solutions to practical assessment problems faced by others. To date, it appears that there is limited research on practice perspectives of assessment design. Boud et al. (2018) suggest that,

“This understanding of assessment as ‘practice’ will therefore serve two related purposes: it is an essential precursor to supporting the adoption

of the desirable features of assessment referred to above while providing researchers with a new perspective on exploring assessment as a socially situated phenomenon.” (p. 1108)

Given that there is limited research on the ways academics design assessment (Bearman et al., 2017), this thesis also provides a practical approach for designing assessment. This research provides this practice approach to assessment design by outlining and demonstrating a novel method. Boud et al. (2018) suggest that “a practice perspective provides a rich portrayal of assessment” and continues on to suggest “knowledge of these actual assessment practices may inform more effective assessment policy” (p. 1116).

This thesis depicts three aspects of practice:

- 1) the lived experiences and perceptions of stakeholders in usual and situational (Covid-19 times) assessment practices,
- 2) an approach to assessment construction using design thinking, and
- 3) two created assessment frameworks.

As a result, although the assessment perspectives and assessment designs are contextualised to ITE in this research, sharing these assessment design approaches which incorporate design thinking may be applicable to other disciplines in higher education contexts. The aim is to expand knowledge and experience to add to limited practice theory perspectives of assessment in higher education.

A third outcome of this research is to demonstrate a novel use of design thinking in two contexts:

- 1) as a designing tool in assessment development, and
- 2) as an approach to qualitative research.

The demonstrated experience in using design thinking to develop innovative solutions to complex assessment problems will add to the limited research on using design thinking in education settings. This thesis pursues an alternative approach to what is traditional in academia: design assessment involving the complex nature of stakeholders’ wants and needs from assessment. The aim is to explore whether design thinking could be a practical approach in facilitating new assessments to meet the complex needs of stakeholders in various settings. This research provides the practical approaches undertaken in the assessment design procedure through design thinking

principles, together with reflections of effectiveness, which may convey transferability to other institutions and disciplines.

This research adopts design thinking as a qualitative methodological approach in the research inquiry process. Ideally design thinking tackles complex problems so that practical, implementable solutions are achieved. Under the umbrella of Participatory Action Research (PAR), this research has accordingly incorporated the design thinking mindset and its structured approaches to investigate stakeholder perspectives which then enables creative design of assessment. While the design outcome was necessary, it was also critical to uncover the evident and concealed factors by thinking in divergent and convergent ways (Brenner et al., 2016). As a result, revolutionary insights, connections, and iterations enable the unknowns to be discovered (Willis, 2007) and thereafter be connected to reflexive, rigorous, coherent, and rich qualitative methods (Saville Young, 2016). The lessons thereby learned from adopting the design thinking approach as a research method in this study may assist others in exploring this more novel approach of qualitative research.

Research Questions

This research is focused on designing assessment that resolves key issues, including depth of understanding, engagement with assessment, and achieving authentic and sustainable assessment practices. A key consideration has been to ensure any optimised assessment design does not increase the marking and feedback workload of academics. Stemming from these aims, the following questions guide this study:

1. What are the lived ITE assessment experiences of students, academics, and high-school teachers?
2. What do students, academics, and high-school teachers want and need from ITE assessment?
3. How can assessment design enhance depth of understanding, engagement with assessment, provide authentic and sustainable assessment practices, whilst improving the marking efficiency for academics?

After the Covid-19 pandemic arose mid-way through this research, an additional research question was added to reflect the changes occurring to teaching, learning and assessment at the time:

4. What shifts in perspectives have occurred due to Covid-19 and the change into digital remote learning?

Definition of Terms

As recommended in qualitative research, the following terms are defined to assist understanding and context (Berg, 2001).

Academic: This study uses 'academic' to describe a university teacher. This definition does not consider the various academic levels, such as tutors, lecturers, professors, nor consider the complex nature of academic identity (Feather, 2016).

Define the problem: This term, also referred to as 'define' in the literature, is the second stage of the design thinking process undertaken to "determine the extent of the problem" under investigation (Wolniak, 2017, p. 250).

Design thinking: Design thinking is a structured, iterative method of problem-solving based on the human-centred design approach (Giacomin, 2015; IDEO.org, 2015). It is a collaborative, creative process that includes consultation with end-users to develop prototypes and devise solutions (Tschimmel, 2012).

Digitally supported remote delivery: In response to the highly contagious effects of Covid-19, many institutions implemented some form of remote learning. This term refers to the method of teaching and learning that occurred during the digital transformation from face-to-face to mostly synchronous online teaching and learning due to Covid-19 social restrictions. This definition differs from other usual forms of online learning, including online, hybrid or distance education, which have a long history in higher education (Carrillo & Flores, 2020).

Empathise: Empathise is the first stage of the design thinking process (Wolniak, 2017), which "involves developing a sense of empathy towards the people you are designing for, to gain insights into what they need, what they want, how they behave, feel, and think, and why they demonstrate such behaviours, feelings, and thoughts when interacting with products in a real-world setting." (Mortensen, 2020, para 3)

End-user: Taken from the Oxford Dictionary of English (2015), an end-user is "the person who actually uses a particular product". In the case of this research, students, academics, and high-school teachers are the end-users of the assessment product.

Ideate: Ideate is the third stage of the design thinking process (Wolniak, 2017), which uses techniques, such as brainstorming, to generate "as many creative ideas as

possible” (Wolniak, 2017, p. 250) and aiming to reach “radical design alternatives” (Plattner, 2010, p. 3) from which a prototype can be created.

Initial Teacher Education (ITE): ITE refers to an accredited higher education program that delivers teacher education training to develop the knowledge and skill required to teach in school settings (VIT, 2022).

Prototype: Prototype is the fourth stage of the design thinking process, which presents solutions visually for end-users to provide feedback on its design and operation (Wolniak, 2017).

Student: The term student is used to describe a person learning at a higher education institution. In this research, the students are pre-service teachers (PST).

Teacher: This study uses the term teacher to describe a person who plans, prepares, and teaches programs in the school sector. This definition does not consider the various class levels (DET, 2021b). This research focuses on teachers within the high-school sector only.

Overview of the Study Design

This research followed a PAR methodology. The practice approach of designing assessment with the input of stakeholders consisted of two phases. The research followed the design thinking stages as outlined by Stanford d.school (IDEO.org, 2015) and in research by Wolniak (2017). Phase One focused on end-users’ perspectives and experiences of usual assessment practices that occurred pre-Covid-19. An assessment framework was then ideated and designed as a prototype ready for implementation in face-to-face teaching environments. After this stage, the Covid-19 pandemic pushed teaching, learning and assessment practices to a digitally supported remote delivery, which meant this framework could not be tested for effectiveness within the timelines of completing the PhD project. Given this critical development, Phase Two evolved from these social distancing Covid-19 restrictions which caused new problems and challenges in delivering and completing assessment. In light of the above, the same design thinking stages and procedures as Phase One were adopted and a new fit-for-purpose assessment framework prototype was developed for the digital emerging environment.

Overview of Thesis Structure

The thesis structure follows the chronological development of the research. It begins with Phase One, which progressed during pre-Covid-19 face-to-face teaching, learning and assessment environments. Chapter Two presents the literature surrounding assessment concepts in higher education in a pre-Covid-19 context. It outlines the literature connected to defining effective assessment in higher and teacher education contexts, the assessment and feedback relationship and provides context to pinpointing academic workload as a focus in assessment design.

Chapter Three describes the PAR methodology where the theoretical frameworks are presented and connected to the research design for both phases of the research. Here, design thinking is explained, aligned to PAR processes, and presented as the research design. The research activities are briefly explained in Chapter Three, with further detail relevant to the two phases of the research (pre- and post- Covid-19) presented in the chapters following.

Chapters Four and Five present Phase One findings and discussions in a pre-Covid-19 context. Chapter Four describes the methods adopted in the empathy stage of design thinking and the findings and discussions from end-users' assessment perceptions and experiences. Chapter Five features the ideation and prototype stages of design thinking, including the methods, findings and discussions from the ideation workshop and prototype development.

Chapter Six introduces Phase Two of the research undertaken while digitally supported remote delivery was implemented post-Covid-19. The literature surrounding higher education's shift into the remote environment and online teaching, learning and assessment pedagogies is also considered.

Chapters Seven and Eight deliver the findings and discussions in the post-Covid-19 context. Chapter Seven describe the methods, findings and discussions of the empathy interviews undertaken post-Covid-19. Chapter Eight describes the methods, findings and discussions of the post-Covid-19 ideation and prototype stages of Phase Two.

Finally, Chapter Nine concludes with a synthesis of key research findings and an outline of research strengths, limitations, implications and recommendations for future research and practice.

Chapter Summary

While higher education assessment has always been challenged to become more relevant and supportive for course design and student evaluation, the advent of Covid-19 and the resultant shift to remote digital learning has made that challenge more urgent and critical. The aim of this thesis is to provide a framework and inspiration so that meaningful progress can be made. The next chapter begins the critical review of the literature surrounding assessment knowledge in pre-Covid-19 higher education.

Chapter 2: Phase One: Pre-Covid-19 Literature Review

“Assessment is the engine which drives student learning.”

– John Cowan (Musician, film director)

Introduction

Effective assessment practices have gained more and more interest in academia in higher education. There is now an increased culture of understanding that assessment practices should similarly evolve alongside improvements to teaching and learning pedagogies, which have a considerable amount of research. Furthermore, this evolution is vital in improving the road map of intersecting lines between teaching, learning and assessment in the student’s higher education experience towards their destination of degree completion. Therefore, a critical analysis of the current assessment research and its counterparts will be included in this chapter. This literature review introduces the research context, placing this action research project amongst higher and teacher education assessment knowledge, practises, and designs.

Defining Assessment

Defining assessment is more complex than it initially seems. The current assessment literature contains many different positions and nuanced definitions of assessment, which have evolved over time (Cookson, 2018). Much of the assessment literature focuses on assessment’s role in measuring learning. For example, Joughin (2009) offered assessment as “judgements about students’ work, inferring from this what they have the capacity to do in the assessed domain, and thus what they know, value, or are capable of doing” (p.16), and Bearman et al. (2016) defined assessment as “the graded and non-graded tasks, undertaken by an enrolled student as part of their formal study, where the learner’s performance is judged by others (teachers or peers)” (p. 547). Definitions of assessment in school contexts have similarly focussed on assessment as measurement. In his early call for assessment reform in schools, Masters (2013) offered, “the fundamental purpose of assessment is to establish where learners are in their learning at the time of assessment” (pp.5-6). Additionally, the Australian State of Victoria’s Department of Education and Training (DET, 2021a) defined assessment in school contexts as “the ongoing process of gathering, analysing, and interpreting evidence; reflecting on findings; [and] making informed and consistent judgements to improve student learning” (para 1). These definitions in both higher education and school contexts share the broad view of assessment as the

evaluations and judgements made on students' capabilities, which is a compelling assertion given assessment's role in certification and accreditation in higher education contexts.

When defining assessment, emphasis should also be placed on its multiple purposes (Boud, 2000). Bearman et al. (2020) note that "assessments prescribe more than what students should know, they also denote how they should come to know as well as showing what they know and can do with this knowledge" (p. 15). Focusing on assessment's role in the feedback process, Black and William (1998) define assessment "as encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (pp. 7-8). Therefore, it is essential to understand the various roles of assessment in higher education.

Assessment, however, is more than the evaluation it provides. As Masters (2013) offers, assessment "is conceptualised as the process of establishing where students are in their long-term learning and what progress they are making over time, usually in terms of their developing knowledge, skills and understandings" (p. 6). While Masters' reflections are focused on school settings, these fundamental features of growth and progress over time apply to essential higher education principles. Higher education assessment should similarly be viewed as progress and development of knowledge and skill, encouraging lifelong learning and growth, and success in future endeavours (Tudge, 2021). Ideally, assessment definitions should reflect these emerging qualities of advancing students' personal learning development. However, this view provides some tensions with higher education's regulatory role of standards achievement, where measurement is against a predetermined standard and not necessarily personal learning and growth alone. Furthermore, adhering to accreditation and certification of external regulatory bodies adds additional assessment challenges for ITE courses.

Arguably in its most significant role in higher education, assessment functions as a means for students to complete their course by achieving predetermined standards to begin careers (Ramsden, 2003). This foundational role of assessment as a driving force to certification and accreditation arguably encompasses and influences the intricacies of the other assessment roles. The mere fact that higher education assessment can result in course completion or non-completion, impacting future employment, renders the point made by Bearman et al. (2020) that "assessment is power" (p. 24). However, the power of policy and regulatory agencies also goes beyond just assessment in courses. Higher education assessment is also positioned

within the neoliberal economic competitiveness and performative contexts of many higher education settings (Olssen & Peters, 2005), and these contexts can influence differences in governance between sectors and institutional cultures (Raaper, 2017). Clegg and Smith (2010) demonstrated that assessment strategies within these policies were indeed messy, complex, and influenced by these institutional strategies and cultures. Price, Carroll, et al. (2011) also demonstrated that institutional policies could challenge quality assessment practices. Therefore, higher educational contexts can provide an assessment conundrum of providing valuable learning that stretches thinking and learning, whilst also confined to reaching predetermined measurable outcomes governed by systems and regulations. This is not to argue that externally driven audit processes are not essential, nor to suggest that quality assessment is not possible within neoliberal or institutional cultures – indeed both can be true – but to spotlight there are many pressures and moving parts to assessment design which subsequently impact contexts and learning experiences. As Bearman et al. (2016) assert, higher education assessment “should balance complex purposes and interdependent purposes including accreditation and portrayal of achievements” and that “assessment activities should focus on learning and discourage mechanical approaches to study” (p. 547).

Given the pressures of certification, the assessment experience can influence and elicit students' emotions. Research by Lynam and Cachia (2018) demonstrates that adverse emotions, such as stress, can negatively affect engagement with assessment, and positive emotions conversely increase assessment performances. Emotional responses, including emotional maturity and preconceived ideas of grades, can also influence how students act upon feedback obtained (Pitt & Norton, 2017). The assessment program alone can cause anxiety and unwanted pressures, which can greatly impact how the student engages with the assessment and, in turn, impact the quality of learning (Gibbs, 1992). Moreover, Carless (2006) established that both students and academics were acquainted with these emotional connections to assessment. Consequently, it is essential to consider student welfare and wellbeing in the assessment process and, as Rust (2002) recommends, include a reasonable workload with “non-threatening and non-anxiety provoking” assessment environments (p. 156).

The multiple, complex, and interwoven roles of assessment lend themselves to the discourse of reframing assessment based on informed judgment (Boud, 2007). Above all, assessment's most significant role is attained through the process of judgement

about the learner and judgement about the learning. Judgment about measurement and certification is undoubtedly vital in this framing, but so is the act of improving on judgements made. This discourse acknowledges the imperative role of the academic, but more importantly, does not omit the learner's role. Here, the learner can be reflexive and self-regulated to make judgments about their learning and act upon these learnings, such as through developing evaluative judgement (Tai et al., 2018). In essence, assessment is central to student learning (Bearman et al., 2016; Black & Wiliam, 1998); therefore, strong design connections between assessment and learning are needed to acknowledge the entanglement of teaching, learning and assessment. This thesis highlights the interwoven assessment complexities from three end-user perspectives, students, academics, and high school teachers. More importantly, it proposes an alternative assessment design that enhances the learning experience for the student, addresses concerns of end-users and aligns within the pre-determined systems of accreditation.

Assessment's Entanglement in Teaching and Learning

As assessment is understood to drive student learning (Bearman et al., 2016), literature demonstrates assessment design to influence students' learning methods and impact the quality and depth of learning through the adoption of surface or deep approaches (e.g. Boud, 1995; Boud & Molloy, 2013a; Gibbs, 2006; Struyven et al., 2003). Sometimes, students have been shown to employ techniques to optimise their marks with the least effort (Struyven et al., 2003). Assessment can considerably impact where students spend their time and energy, allowing focus on what is significant just for assessment and consequently determining the direction and process of their learning (Boud & Molloy, 2013a). This "backwash effect" of assessment determines and directs student learning, not necessarily by the curriculum's sequence of learning (Biggs, 1998; Biggs & Tang, 2011). Therefore, assessment practices in higher education can be a pivotal element of teaching and learning. Careful consideration must go into assessment design, to ensure it is consistent with pedagogy and the curriculum, negating the negative connotations of this "backwash" motivation. Considerations regarding assessment design should focus on this notion of student motivation and deep experience and deliberate its connections to curriculum and student learning experiences.

These integral roles of assessment are crucial to consider when designing assessments in higher education. There are recognised understandings in higher education that assessment quality must be of a high standard to reflect validity,

transparency, and reliability appropriate for its proposed purpose (e.g. Biggs & Tang, 2011; Gerritsen-van Leeuwenkamp et al., 2017; Ramsden, 2003; Sambell et al., 1997) as well as allow for different perspective and modes of learning (Krause et al., 2014). The standards from which the assessment is developed must be explicit and relate directly to the curriculum, and the criteria from what it will be assessed, must also be transparent (Ramsden, 2003). These assessment features are central to addressing student needs coupled with assessment roles. Therefore, it is important to emphasise the learning-oriented nature of assessment at the forefront of the learning process, where assessment is focused on the learner and provides opportunities for feedback and subsequent growth and development, such as embodied in Masters' (2013) definition of assessment as advancing personal development.

The learner-oriented driver of assessment change is coupled with the notion that higher education assessment is shifting from 'assessment *of* learning' towards 'assessment *for* learning' and 'assessment as learning' (Torrance, 2007). Wiliam (2011) describes 'assessment *for* learning' as

“... any assessment for which the first priority in its design and practice is to serve the purpose of promoting students' learning. It thus differs from assessment designed primarily to serve the purposes of accountability, or of ranking, or of certifying competence” (p. 10).

'Assessment *for* learning' emphasises the learner as an active participant in the learning. Earl (2014) suggested assessment should focus on this courtship between teaching and learning. Therefore, 'assessment *for* learning' practices allow students to be motivated in their achievement and be involved in their own learning (Stiggins et al., 2007), and that assessment is designed in such a way for this continuous and formative learning (Earl, 2014). 'Assessment as learning' is equivalently focused on aligning assessment to learning, with the student developing their self-monitoring and self-regulation in assessment (Earl, 2014). This focus on learning in higher educational contexts was first spotlighted by Torrance (2007), and more recently in Boud and Dochy's (2010) assessment reform work. Torrance (2007) offered that 'assessment as learning' moves further beyond 'assessment for learning' to further focus assessment experiences to highlight the learning. Boud and Dochy (2010) pinpointed the greatest effect when “assessment is designed to focus students on learning” and “assessment is recognised as a learning activity that requires engagement on appropriate tasks” (p. 2).

Constructivist approaches to teaching and learning, which have influenced and moulded some aspects of higher education, are inherently connected to assessment as the driver of learning. This notion of students as active learners is a key feature of constructivist approaches (Bada & Olusegun, 2015; Birenbaum, 2003), where learning develops through cognition (Vygotsky, 1987). Students combine new learnings with those already obtained and make sense of knowledge as construction and not necessarily just passive obtainment (Phillips, 1995). Additionally, there is an importance placed on the social nature of knowledge construction, such as with social constructivism, where knowledge is a social construction through collaboration with peers, teachers, and others (Palincsar, 1998). Higher education's shift towards these constructivist and social constructivist approaches aligns with self-regulation and authentic approaches to the interwoven planning of teaching, learning and assessment practices (Loyens & Gijbels, 2008).

Similarly to constructivist approaches, and drawing from active learning traditions such as Dewey (1913) and Vygotsky (1987), the situated learning theory is often adopted in higher education classrooms to promote student engagement in learning experiences. Situated learning is aligned with social constructivism as it allows students to learn through participation with meaningful authentic contexts and social interactions (Stein, 1998). Situated learning builds on knowledge and understanding through higher-order thinking process and interactions and collaborations with others (Stein, 1998). Although traditionally an instructional approach, assessment design could also benefit from consideration of these perspectives to plan for authentic, problem-centred contexts to enhance learning opportunities when assessing.

Designing Assessment in Initial Teacher Education (ITE)

When designing curriculum and assessment programs, Australian universities must ensure they abide by the Higher Education Standards Framework 2021 (Threshold Standards) (Tudge, 2021) and Education Services for Overseas Students Act 2000 (amendments made in 2021) (Birmingham, 2021), which both outline the minimum quality requirements of offered courses. In addition to these standards, universities offering ITE courses must also certify that these regulatory requirements are combined with the Australian Professional Standards for Teachers (AITSL standards) (AITSL, 2017), increasing additional intricacies to the delivery of curriculum and assessment of these programs.

In 2011, the Australian Ministerial Council for Education, Early Childhood and Youth Affairs outlined a nationally agreed approach to improve teacher quality and

accountability through its accreditation processes. The approach (since updated in 2019) focused on two aspects: 1) continuous improvement of ITE programs to help improve teacher quality; and 2) to deliver transparent programs with clear links to teacher standards and the accreditation process (AITSL, 2019). This advance was significant as this was the first time a national approach to accreditation was formed. The Australian Teacher Performance and Development Framework (AITSL, 2018) was developed through national consultation by the Australian Institute for Teaching and School Leadership (AITSL) and set the scene for sustainable school improvement. The AITSL standards are positioned within the framework, which focuses on facilitating improvements in teacher quality, including the quality of graduate teachers, by reaching at a minimum, nationally agreed standards (AITSL, 2017). Seven teacher standards are organised under three domains of teaching: Professional Knowledge, Professional Practice and Professional Engagement. Within these three domains, the standards are further broken down into focus areas with specific descriptors outlining what is expected of teachers. There are also particular descriptors for different stages in a teaching career. These teaching standards are used throughout career development to set professional learning goals, facilitate reflection on teaching success, and position for future competencies. ITE providers must ensure that the graduate teacher enters the first level of the Australian Professional Standards for Teachers with course completion and has consequently demonstrated the required skills and knowledge.

In 2014, the Teacher Education Ministerial Advisory Group (TEMAG) appraised the quality of ITE programs claiming the programs were not preparing ITE graduates to be successful in terms of the profession's demands, enabling them to be 'classroom ready' (Craven et al., 2014). The ITE graduates' knowledge of assessment practices was noted as a deficit, particularly the evidence-based "knowledge to use assessment data to inform and improve their practice" (Hickey, 2015, p. 19). Following the recommendations of the TEMAG report, the quality assurance of graduates within ITE programs was tightened by the Australian Commonwealth Government through publishing of the Students First policy (Australian Government, 2015), through the main aim of improving teacher quality and consistency, ensuring institutions provide evidence of the impact of their courses. The Teaching Performance Assessment Expert Advisory Group within AITSL was appointed to strengthen this national agreement on standards to assist ITE institutions in implementing their consistent assessment tools. One such Teaching Performance Assessment tool (AITSL, 2021) being implemented in several Australian ITE institutions, including the university focused on in this research, is the Assessment *for* Graduate Teaching (AfGT) (Clinton,

2018). Aiming to support the validity and reliability of assessment, the AfGT allows students (pre-service teachers) to demonstrate, in a final evaluation, how they meet the AITSL Standards at the Graduate Level in multiple ways. While this current research study is not pinpointing Teaching Performance Assessment, it highlights the importance, complexities, and intricacies of ITE assessment needing to be closely linked to institutional regulatory requirements, in addition to teaching standards to enhance the quality and consistency of its teaching graduates.

Professional Learning and Engagement for Teachers

Educators have a long history of reflecting on and analysing their teaching practices to improve teaching, learning, and assessment practices (York-Barr et al., 2001). Originating with Dewey's (1913, 1933) reflective practice of learning from experience, these practices draw from traditions such as conscious reflection which broadly considers deliberate cognitive awareness and consideration of these reflective processes to improve practice (Tomlinson, 1999a, 1999b), and lifelong learning (York-Barr et al., 2001). These conscious reflective practices, coupled with social constructivist approaches as described above, are central to this study and align with the principles of the chosen PAR methodology.

Analysis tools such as practice architectures support educators to analyse their "sayings", "doings", and "relatings" of teacher practice (Kemmis et al., 2014, p. 30). For example, Mahon et al. (2016) offer practice architectures as a theoretical resource to challenge and improve teaching practices by reflecting on current practices and the conditions in which they occur and findings ways to transform teaching and learning. Exploring Norwegian pre-service teachers' perceptions of preparedness, Sjølie & Østern (2021) demonstrate "how *cultural-discursive, material-economic and social-political* arrangements work together in a complex interplay that influences the student teachers' learning practices" (p. 276) using practice architectures. They emphasise the importance and complexity of teacher education within these practice architectures and various learning conditions (Sjølie & Østern, 2021).

Structured collegial situated learning frameworks also support teachers' collaborative inquiry into their practice. Some popular examples include the Community of Inquiry (CoI) which is a framework developed to foster trust and support in a blended learning higher educational community (e.g. Cleveland-Innes et al., 2013; Garrison et al., 2000; Garrison & Vaughan, 2008;); SoLT which is common in higher education teaching practice (e.g. Felten, 2013; Pat & Lee, 1999); and Professional Learning Communities (PLC) which frame collective inquiry to improve teachers' professional learning (e.g.

DuFour et al., 2008; Kim & Klassen, 2018). These examples of reflective analysis of practice interconnects with the AITSL focus on professionalism in the teacher standards, for example within the professional engagement domain (AITSL, 2017), and quality assurance measures. That is, the AITSL standards build in quality assurance for 'classroom readiness' required by the government (Craven et al., 2014), as these standards are used to measure graduates' capabilities and competencies. The standard reflects how teachers work through a social construction of knowledge (Palincsar, 1998), coming together to inquire, discuss and improve their practice as a social practice. Thus, various group learning frameworks, such as noted here by different authors, have been demonstrated over time to be valuable in different applications and important to consider in ITE assessment design.

In addition to colligate professional engagement considerations, assessment should also consider modelling best classroom practices. Students (pre-service teachers) require opportunities to experience effective assessment practices in ITE if they are to practice effective assessment methodologies within their own classrooms (Stiggins, 2002). ITE assessment practices can determine whether students (pre-service teachers) are assessment literate (Willis et al., 2013). Assessment literate teachers understand the principles of good assessment (Stiggins, 2002), recognise different forms and appropriate uses, and understand how assessment influences learning and adjust teaching accordingly. Research by Volante and Fazio (2007) and Graham (2005) demonstrated that pre-service teachers are more likely to assess in ways that they are accustomed to or have previously experienced, which may be outdated and not necessarily pedagogically sound.

The demand for ITE to be practice focused on developing assessment skills was explored by Charteris and Dargusch (2018), who suggest there is a need for developing assessing capability through "building awareness of and skill in the variety of assessment modes and ensuring understanding of validity, reliability, and task design in assessments" (p. 355). Assessment literate and capable teachers are developed through pre-service teachers' critical inquiry into their own experience and practice while being assessed in their course. This is further connected to the practice architectures and complex classroom ecologies that play a role in preparing pre-service teachers' assessment capabilities (Dargusch & Charteris, 2018). Therefore, academics modelling best practices in their curriculum and assessment programs exposes pre-service teachers to effective assessment alternatives, in addition to their practicum experience in the school settings.

It should also be noted that explicit teaching of these effective approaches should also be undertaken simultaneously. DeLuca and Klinger (2010) emphasised the need for direct instruction of effective assessment designs and approaches in improving assessment literacy. Therefore, any modelling and practicum approaches should be coupled with curriculum focused on explicit teaching of multiple assessment approaches to enhance these notions of assessment literacy and capability, and encourage 'classroom readiness' (Craven et al., 2014).

Assessment Approaches

Blended with assessment's complex multi-purposes and externally driven audit processes are its associated context approaches. Each assessment element contains different foci to improve students' learning experiences thereby influencing design methods. In the literature, students have been demonstrated to appreciate experiencing a variety of assessment types, in particular when the elements enhance learning experiences and assessment validity (Sambell et al., 1997). When students view the assignment as inappropriate, they can be less inclined to connect deeply with content and apply surface approaches (Lizzio et al., 2002). Students appreciate and engage more with student-led assessment that builds on individual skills and contains an aspect of choice and possible creativity (Lynam & Cachia, 2018). Whilst acknowledging there are other forms of assessment, the section below outlines the central styles associated with and discussed in this research, including sustainable, authentic, formative and summative, and self and peer assessment.

Sustainable Assessment

Sustainable assessment features heavily in literature, with its intent to focus on student needs. Sustainable assessment was initially defined as "assessment that meets the needs of the present without compromising the ability of students to meet their own future learning needs" (Boud, 2000, p. 151); unquestionably an obligation for higher education as it focuses on shifting towards a learner-oriented mode of assessment *for* learning. Since its entrance into the literature, Boud and Soler (2016) suggested that there have been two main roads of travel: literature focused on "applications in particular contexts" (p. 403) (for example, applying to online learning environments), and "development of particular practices" (p. 404) (for example, self-assessment techniques in portfolios, and formative and summative assessments). Phase One of this current research targets sustainable assessment pathways by meeting in-person assessment needs, in contrast to online assessment contexts and how assessment

could be designed to promote knowledge transfer through authentic learning. Boud (2000) suggests, “that in order for students to become effective lifelong learners, they need also to be prepared to undertake assessment of the learning tasks they face through-out their lives” (p.152). Sustainable assessment develops learning and prepares students for future environments and challenges, including the development of professional practice (Boud, 2010). Additionally, research by Ajjawi et al. (2020) demonstrates that students want assessments pertinent to their current and future work contexts. Sustainable assessment can be a means towards independence, by developing self-regulated learners (Fastré et al., 2013), reflexive learners (Boud, 2007), and students’ evaluative judgement (Tai et al., 2018).

Despite the benefits of sustainability in assessment, there can be difficulties of implementation in practice. In their research comparing assessment practices across two contrasting international educational institutions, Nguyen and Walker (2016) outline the challenges of implementing current sustainable assessment frameworks as a result of the complexities of institutional contexts and accompanying assessment histories and cultures.

Authentic Assessment

As vital as the practice of sustainable assessment is the notion of authenticity in assessment. What began as “authentic academic achievement” (Archibald & Newman, 1988) and then merged into integration with authentic assessment (Cumming & Maxwell, 1999), literature has since explored somewhat divergent definitions of authentic assessment, most likely due to differences in contexts (Gulikers et al., 2004). Barnett (2007) connects authenticity to the core ideals of assessment in higher education, in that the “authentic being will embrace assessment for it wishes to test itself, to push itself to its extremes, to live on the edge” (p.36). Here, authenticity aims to propel the student into “knowing and interacting with the world” and having a sense of potential (Barnett, 2007, p. 30). This notion of the student taking control and direction of their own learning by taking risks connects to Bearman et al.’s (2020) recommendation of agency in assessment. Authentic assessment described in these ways is focused on abetting lifelong learning qualities and skill sets required to develop students as educational beings.

In particular, this research resonates with Gulikers et al.’s (2004) definition of authentic assessment derived from the higher education perspective: authentic assessment as “an assessment requiring students to use the same competencies, or combinations of

knowledge, skills, and attitudes, that they need to apply in the criterion situation in professional life” (p. 69). In their conceptualisation of authentic assessment, Gulikers et al. (2004) offer five dimensions that affect authenticity: the task, physical context, social context and assessment result or form. The task should include a real-life problem that is meaningful and connects to the profession’s context. The physical context should reflect realistic environments, time constraints, and resource availability. The social context should also reflect real-life contexts to consider when collaboration and individual tasks are undertaken in the profession, considering similar tasks that reflect authenticity.

Authentic assessment in teacher education aims to ensure students of teaching are best equipped for the teaching profession’s demanding nature and are ‘classroom ready’ (Craven et al., 2014). There is a demand for universities to prepare students at the graduate level and with sustainable capabilities that will allow them to effectively deal with situations in their future careers, from personal management, collaborations, unexpected and unique situations and challenges (Krause et al., 2014). Therefore, considering the context of this research, including the unique and demanding features of ITE, this concept of authenticity is imperative for making meaningful connections to teaching skills and classroom contexts.

Like many other performance disciplines, ITE assessment is not just about testing direct knowledge of content. In many cases, ITE assessment has incorporated additional methods than the traditional essay and exam structures, understanding that other practices may involve a better pedagogical focus and consideration of students’ educational existence and development (Barnett, 2007). Darling-Hammond (2006) promoted the importance of allowing connections between theory and practical concepts, including through means of performance assessments (Darling-Hammond et al., 2010), which are all deeply connected with the needs of authentic assessment.

In the school setting, authentic assessment has been suggested to provide opportunities for deep learning (Bohemia & Davison, 2012), promote self-regulation (Swaffield, 2011), and motivate and inspire students (Lombardi, 2008). The literature also supports the social-constructivist approaches to learning through collaborative dialogue and peer feedback opportunities in authentic assessment (Koh, 2017). Therefore, it is worthwhile for students of teaching to experience authentic assessment themselves and consequently recognise its importance in the learning program. Students need to understand where they stand pedagogically, how they are going academically, and how they can improve in their understanding of professional

practice, not just in the present, but building upon skills throughout their career. Literature has highlighted this importance of establishing lifelong learners and allowing recognition of the program as a platform of ongoing learning and continuous improvement (Coolahan, 2002; Schleicher, 2018). Therefore, ITE assessment should aim to assist students to identify and understand assessment as a means of constant reflection and learning, both within the constraints of the higher education course and within their future classrooms.

Formative and Summative Assessment

Conventionally, the primary dimensions of assessment discussed in the literature include formative and summative assessment. Initial influential work by Black and Wiliam (2009) defined formative assessment through its underlying role:

“Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited” (p. 9)

Contextualised to school contexts, this classroom definition of formative assessment may not provide the whole picture in higher education with contrasting classroom ecologies. Aspects of informal formative assessment may be more challenging to conduct in higher education contexts, especially with large student cohorts that are not necessarily classroom contextualised. There is widespread acceptance in the literature that formative assessment involves assessment during the learning process that promotes learning improvement (Black & Wiliam, 2009; Sadler, 1998; Stiggins, 2005). This connects deeply to the concept of ‘assessment *for* learning’, and as a result, the terms are often interchanged, and literature has demonstrated sometimes conflicting understandings of both (Klenowski, 2009). Stiggins (2005) noted an important distinction between formative assessment approaches and ‘assessment *for* learning’ approaches: “the former intend[s] to inform the teachers about student achievement, while the latter also wants to inform students about their own learning” (p. 328). Both assessment forms aim to promote and build student learning despite subtle differences.

Contrastingly, summative assessment is usually a final assessment at the end of a learning period, course, or subject. In higher education, summative assessment holds certification purposes, where students are evaluated on what outcomes they have or have not demonstrated. This role of summative assessment as an 'assessment of learning' approach has somewhat negative connotations. For example, Barnett (2007) offered that "summative assessment has the power to control, to classify students arbitrarily, to limit their educational development and to impair their own sense of themselves" (p.39). However, Barnett (2007) also suggested that if summative assessment is understood to provide students with rich learning experiences and develop them with life-long learning skills, while also understanding that summative assessment can have a formative focus, then a focal shift within the heading of 'summative assessment' in higher education is not such an unrealistic task. While this research does not necessarily aim to pinpoint the affordances or limitations of defining the formative, summative or 'assessment *for* learning' formats, it is located within these discussions of recognising effective assessment processes and understanding how assessment influences learning, improvement and the student as the centre of these experiences.

It is also important to consider the usefulness of substantial feedback in an assessment task that occurs at the end of the semester's learning in a summative fashion does not allow the student further opportunities to act on the feedback (Bearman et al., 2014). Broadbent et al. (2018) reflect on implementing a different assessment structure for a large cohort of students, placing higher importance on the features of formative assessment. The summative assessment program within this Australian case study was given features from formative assessment (building on student proficiency and creating opportunities to act on feedback to improve performance), where the main assessment tasks were linked and scaffolded. The student was required to reflect upon practices and act on feedback to improve on the subsequent assessments (Broadbent et al., 2018). In a university in Germany, Buchholtz et al. (2018) also demonstrated the possibility of integrating formative and summative assessment programs outlining the complementary opportunities provided from each combined into an improved assessment program. These studies suggest that integrating these formative elements in the assessment program positively impacts student learning, which has also been demonstrated to be true in both online and blended learning environments (Broadbent et al., 2021). It seems reasonable that the progression and future innovations of assessment design should come from the removal of the distinction between formative and summative assessment, since "all assessment is formative in some sense, while

only some assessment is both formative and summative” (Jackel et al., 2017, p. 42). Thus, assessment programs should be designed to promote learning and progression through ongoing feedback and improvement opportunities.

Self and Peer Assessment

Self and peer assessment have been used in higher education for many years due to their enhancement in learning approaches. Offering simple definitions, Adachi et al. (2018) explain self-assessment as where “students judge and make decision about their own work against particular criteria” and peer assessment as to where “students judge and make decisions about the work of their peers against particular criteria” respectively (p. 295). Noting a deficit in this definition of self-assessment, Andrade (2019) suggests the inclusion of the objective of its use, where the purpose is “to generate feedback that promotes learning and improvements in performance” (p. 2). Andrade’s supplementary inclusion of fostering learning and development is equally applicable to peer assessment’s objective. These definitions highlight the judgement and decision-making learning process as central in considering where they might fit in the learning by contemplating and reflecting on objectives of student-centred learning experiences, which aligns with the notion of developing students’ evaluative judgement (Tai et al., 2018), and ‘self-feedback’ in tandem with self-regulated learning (Panadero et al., 2019).

Pedagogical Benefits of Self-Assessment. In their theoretical and practical manuscript on self-assessment, Panadero and Alonso-Tapia (2013) note that the literature often couples two theoretical perspectives when defining self-assessment. Panadero and Alonso-Tapia (2013) describe the pedagogical inclusion of self-assessment, where the student is asked to reflect on their work in the classroom as part of the teaching, learning and assessment process (self-evaluation), and the self-regulatory approach, where the student carries out their iterative self-monitoring, motivated learning strategies (Zimmerman & Moylan, 2009). Thus, self-regulation and self-evaluation assessments coupled together in the learning program seeks to enhance students' ability to self-assess and thus improve self-regulation. Taken from Panadero's earlier work, Panadero and Alonso-Tapia (2013) define self-assessment as "the qualitative assessment of the learning process, and of its final product, realised on the basis of pre-established criteria" (p. 556), which aligns with Andrade's (2019) suggested learning focus. They included a "qualitative assessment" component intended to promote reflection rather than focus on a numerical value, as with self-grading or self-rating (Panadero & Alonso-Tapia, 2013). Hence emphasising assessment's role in learning to establish progress and growth in capabilities (Masters, 2013), rather than just grade focused assessment.

As expected, self-assessment has been demonstrated in the literature as important in self-regulation due to incorporating reflexive and reflective approaches (Alonso-Tapia & Panadero, 2010; Panadero & Alonso-Tapia, 2013; Wang, 2017; Zimmerman & Moylan, 2009), and ipsative approaches (Malecka et al., 2021). Yan et al.'s (2020) Hong Kong high-school student participants, who utilised an ongoing reflexive self-assessment diary, found improved achievement and self-efficacy. Ratminingsih et al.'s (2018) Indonesian school students found self-assessment valuable in improving independence. Using self-assessment to improve English fluency, Duque Micán and Cuesta Medina's (2017) adult participants studying at a technical college suggested that self-assessment aided the identification of strengths and limitations while reflecting on their practice. The benefits of self-assessment have also extended to developing transferable skills, understanding standards and enhanced learning (Adachi et al., 2018). Moreover, in a postgraduate educational psychology course in New Zealand, Bourke (2018) demonstrated that self-assessment could have authentic, learning oriented imperatives.

Pedagogical Benefits of Peer Assessment. Peer assessment has also been demonstrated in the literature to have many metacognitive benefits (Adachi et al., 2018; Carnell, 2016; Liu & Carless, 2006; Strijbos & Wichmann, 2017; Tai & Sevenhuysen, 2018), lead to a better understanding of standards (Tai et al., 2016), and enhance active learning (Chew et al., 2016). Peer assessment has been demonstrated to be both an opportunity to motivate students (Planas Lladó et al., 2014), and a challenge to delve deeply into the processes (Adachi et al., 2016). Boud et al. (2001) suggest that

“Peer learning is effective when there is a willingness to focus on learning as a social as well as an individual activity, a desire for the development of skills in cooperating and working with each other and a valuing of the importance of students challenging each other” (p. 26).

Compared to self-assessment, a distinctive benefit of peer assessment is that it allows for learning through collaboration, which fosters “understanding and working with the idea of difference” (Boud et al., 2001, p. 26), such as with a range of different ideas and values or personal attributes, experiences, and knowledge. Providing students with opportunities to interact by giving and receiving feedback has also been demonstrated as valued by students and increased course engagement (McCarthy, 2017). Sridharan et al. (2019) demonstrated that students accurately and consistently evaluated formative peer assessment. In ITE contexts, opportunities to practice providing feedback to others will assist in interpreting assessment data and making consistent judgments, which are demonstrated as important standards in teaching (AITSL, 2017).

Self and Peer Assessment Challenges. As with all assessment practices, there appear to be challenges to the implementation of self and peer assessment practices. Adachi et al.’s (2018) Australian academic participants from various disciplines, including education, perceived self and peer assessment as costly and time consuming, and considered that students may superficially approach learning while undertaking these assessment methods. Liu and Carless’ (2006) tertiary student participants from Hong Kong had concerns about the reliability of peer assessment measurement, disruptions of hierarchy, and time and workload constraints. Sridharan et al.’s (2019) student participants illustrated a rating bias when the peer grade contributed to the summative score. Additionally, social loafing in these peer collaborations can influence student perceptions of fairness (Tucker & Abbasi, 2015). Additionally, the literature has established that students often perceive peer feedback

as limiting compared to the academic's knowledge and expertise (Carless et al., 2006; Chew et al., 2016; Planas Lladó et al., 2014; Tai et al., 2016). Despite the challenges to implementing self and peer assessment, they are assessment approaches that have metacognitive and pedagogical benefits. As Adachi et al. (2016) assert, "inhibitors can become enablers once they are overcome" (p. 15). While the constraints should be considered, their pedagogical enhancement to learning programs renders their inclusion in the assessment and learning program. How the challenges can be controlled for necessitates thought, and a focus of this research.

Assessment and Feedback Relationship

One cannot discuss assessment without mentioning feedback, and often the lines between the two can inappropriately blend together (Winstone & Boud, 2020). As Winstone and Boud (2020) argue, assessment and feedback are fundamentally connected and "entangled together in both policy and practice" (p. 2), limiting the function and effectiveness of feedback, which is often a task done after the assessment. Here, the assessor (and learner) understands the relationship between assessment and feedback as not limited to that of a predictable partnership but instead acknowledges that they are both linked and stand alone with important distinct roles.

The definition of feedback has shifted in the last decade from information being 'communicated to the learner' (Shute, 2008) and 'provided by an agent' (Hattie & Timperley, 2007) to a stronger focus of being learner-centred. The traditional view of feedback as the written comments only provided post-task has now been abandoned in much of the contemporary literature. This is a welcomed shift in thinking to mirror the discussions and practices of pedagogy within teaching and learning which have seemed to evolve towards this focus of the learner being at the centre of design and development (Boud & Molloy, 2013a; Carless, 2015). More recently, the feedback discussion has erupted, redefining it as a focus on what the student does rather than what the teacher provides. This act of 'doing' for the student extends beyond the reading of written comments from the teacher but forms a multi-faceted collection of behaviours that engage them to be in control of their own learning. Therefore, this research is guided by definitions of feedback where the student as the learner is emphasised, including Boud and Molloy's (2012):

"Feedback is a process whereby learners obtain information about their work in order to appreciate the similarities and differences between the

appropriate standards for any given work, and the qualities of the work itself, in order to generate improved work.” (p. 6)

Likewise, Carless and Boud's (2018) eloquent definition extends upon this to emphasise the student's role in uptake and use of feedback: “feedback is defined as a process through which learners make sense of information from various sources and use it to enhance their work or learning strategies” (p.1315).

Notably absent from these definitions is the term ‘teacher’. This is not to take away from the critical role of teaching academics but to emphasise the student's responsibility in learning. As with the notion of sustainable feedback where the student is “targeting, generating, and interpreting feedback, and in communicating and engaging with it” (Hounsell, 2007, p. 106), the teacher should not be the only point of contact where feedback is obtained and manipulated. Interestingly, the Australian ITE students in research by Davis and Dargusch (2015) wanted a somewhat reciprocal exchange in response to the exertion of energy and effort in completing the assessment by way of teacher-provided feedback. Their student participants believed the academic should “show mutual respect by providing ‘adequate’ feedback in a timely manner” (Davis & Dargusch, 2015, p. 186). This perception highlights the differing perceived feedback roles of students and academics in the assessment process, trending towards the traditional feedback culture of the academic as the provider. Despite recognition in assessment and feedback research of the value of collaborative, student-centred approaches, perceptions of traditional student/teacher roles in feedback persist, creative barriers when implementing newer approaches.

More recently, the framework of ‘feedback literacy’ (Carless & Boud, 2018) has extended this discussion on the teacher creating an environment where the student has multiple opportunities to use, provide and model feedback; where the teacher is the facilitator of the feedback environment, and not just the feedback generator (Carless & Winstone, 2020). In a systematic review of the literature, Ryan et al. (2020) note three key elements of the learner at the centre of the feedback process: 1) learner impact, where feedback must benefit the learner (focused on learning outcomes or lifelong learning skills); 2) sensemaking, where learners must be able to interpret and use the feedback; and 3) agency, where the learner must have autonomy in the feedback process (Ryan et al., 2020, p. 3). Therefore, as with assessment, feedback is important for student learning and improvement, to close the gap between present and future performance (Sadler, 1989). The student requires knowledge and insight to make sense of where they are positioned in the learning, so they have a guide to

improve on unit outcomes. Subsequently, to demonstrate those improvements, students require opportunities to do so, in multiple opportunities and an arrangement of different assessment types (Yager et al., 2013). Exceeding this, effective assessment is acknowledged to have timely, good quality feedback which has a feedforward focus (Hattie & Timperley, 2007; Mulliner & Tucker, 2017). Feedback of this nature then allows for improvement possibilities and the development of additional skills, including evaluative judgement (Tai et al., 2018).

The need for this definition shift has come about for several reasons. Firstly, the disconnect between teacher and student perceptions of feedback has necessitated change. Research has demonstrated somewhat negative and uncommitted student attitudes towards the feedback they receive (e.g. Lizzio et al., 2002; Price, Handley, et al., 2011; Wass et al., 2018; Winstone & Carless, 2019; Winstone et al., 2017). In the literature, students have reported feedback to be inadequate (Winstone & Carless, 2019), including criticism of the quality of feedback, insufficient turnaround times, and difficulty in understanding the feedback (Winstone et al., 2017). Other research has illustrated the differing feedback perceptions between academics and students (e.g. Carless, 2006; Dawson, Henderson, Mahoney, et al., 2018; Glover & Brown, 2006). Carless (2006) demonstrated several differing perceptions, including the amount and usefulness of feedback provided, students valuing grades above feedback, and fair marking. Academics have been concerned about student feedback use and lack thereof (Sinclair & Cleland, 2007). However, there is evidence suggesting that students engage and use feedback provided to them (Zimbardi et al., 2017). Dawson, Henderson, Mahoney, et al. (2018) surveyed staff and students from a range of faculties at two Australian universities about their view of the purpose and effectiveness of feedback. Staff perceptions of feedback tended to be focused on the feedback process and design, suggesting effective modes of rubrics, face-to-face feedback, digital recordings, iterative and timeliness feedback. Students' perceptions of feedback focused on the content of comments, suggesting features should be of high-quality, usable, sufficiently detailed, attended to affect and appear to be about the student's work (Dawson, Henderson, Mahoney, et al., 2018). While timeliness is seen as an important feedback feature in literature (Hattie & Timperley, 2007), students in Dawson, Henderson, Mahoney, et al.'s (2018) study regarded timeliness as only a secondary consideration, as long as the information is presented in time for students to complete the next task. These differing perceptions do not seem too peculiar given the different positions of these stakeholders, as in traditional cases of assessment and feedback,

where the teachers are designers and students positioned as receivers. Thus, creating an additional barrier to change of traditional perceptions.

These perceptions indicate a need to consider how rich feedback experiences can be integrated into the curriculum and assessment program. Connecting student and teacher perceptions of feedback and improving the effectiveness and efficiency of feedback use can improve assessment experiences in higher education (Barker & Pinard, 2014). With this view, anticipating a more aligned understanding between stakeholders may result in a more committed and improved feedback culture overall. These stakeholder perceptions demonstrate the complex nature of assessment and feedback and signal the need to understand and consider individual and collective experiences when designing assessment. Therefore, this research study will supplement the assessment and feedback literature by exploring and building from academic and student perspectives, with accompanying high-school teacher assessment perspectives.

Much literature on pedagogy and curriculum suggests the need for it to be more learner centred (Biggs & Tang, 2011; Rust, 2002), and in many cases, ITE current practice reflects these improvements. Ramsden (2003) emphasises the importance of the academic's support and empathetic understanding of student needs within the learning process. Therefore, as assessment is interwoven with teaching and learning (Winstone & Boud, 2020), it seems sensible that assessment and feedback would make a similar shift towards student-centred learning as an autonomous consideration.

Feedback research, like the framework of 'feedback literacy' discussed earlier in this review, often takes a social constructivist approach. Aligning with the social constructivist learning theory, the feedback process is considered as this shared construction of knowledge through the dialogue between learners, teachers, and peers (Price, Handley, et al., 2011). Here, feedback is co-constructed through "a safe and mutually respectful relationship for the purpose of challenging a learner's (and educator's) ways of thinking, acting or being to support growth" (Ajjawi & Regehr, 2019, p. 653). This relationship and shared trust among members once more pinpoints the learner as a vital participant in the sense making and feedback process signalling a necessary shift in responsibilities and accompanying perspectives.

Furthermore, the teacher-student relationship seems to be evolving in higher education towards a partnership of the learning process, from centuries of Western university tradition that positioned the student as the passive recipient of expert wisdom. The

teacher-student relationship is a complex dynamic process that evolves over time, and is continuous and variable (Karpouza & Emvalotis, 2019). A strong teacher-student partnership can enhance student “engagement and learning, personal development, positive relationships, and skill development/employability” (Ollis & Gravett, 2020, p. 13), and can positively influence engagement with feedback (Ajjawi et al., 2021). Additionally, Harris et al. (2018) found the contrary situation, that a relational disconnect can lead to students avoiding asking for help. Despite a perpetual hierarchical power imbalance favouring the teacher, there has been a fundamental shift in valuing reciprocity in student-teacher relationships in higher education (Karpouza & Emvalotis, 2019). That is, the meaningful relationship is co-created, and while the teacher may initially be in the driver seat, the student takes the map and directs the learning.

The Importance of Trust

To foster this teacher-student relationship, trust should be built between the teacher and student. This is important for a variety of reasons. One such reason is focused on student learning and the student feeling sufficiently comfortable to trust, take risks, and engage in critical dialogue to challenge thinking and progress learning. As stated by Curzon-Hobson (2002), without trust the student is not encouraged or “willing to question and overcome their understanding of their interrelationships in the world” (p. 266). Trust can create a sense of comfort for the student to share personal stories, experiences, and perceptions during the learning process to provide richness in the learning experience. Additionally, in a reciprocal fashion, for the academic to provide a genuine listening ear so that students “sense the teacher’s willingness and passion to hear their efforts towards, and see and provide for, their re-creation of unique potentiality” (Curzon-Hobson, 2002, p. 269), together with a sense of honesty as trust can be built through perceptions of the teacher’s honesty (Snijders et al., 2020). Furthermore, to address the influence of the imbalance of power in the student-teacher relationship, trust can be developed through engaging in critical and ongoing dialogue to manage the dynamics between each level and pass some of the perceived power to students (McLean, 2018). This ongoing dialogue is not only important for trust building, but also in the feedback process to encourage dialogue about learning (Sutton, 2009), and agency and accountability (Charteris, 2016).

Secondly, trust is important in the feedback process. In traditional assessment forms, the student must trust the teacher to provide valuable and supportive feedback and the student willing to reflect and apply the feedback (Carless, 2009). A student-teacher

relational connection has been demonstrated to positively influence student motivations and engagement with feedback (Ajjawi et al., 2021). As feedback can elicit both positive and negative emotions (Molloy et al., 2013), trust is vital to mitigate negative effects and allow for the acceptance and application of the feedback (Carless, 2013). Together with trust, acknowledgement of the “integral influence of emotion on the feedback processes” can assist in improving feedback behaviours and subsequent learning (Molloy et al., 2019, p. 98).

As the ITE student becomes the teacher and begins to teach, these modelled practices of trust building may assist in their understanding of the importance of the teacher-student relationship-building process, which is confirmed in research as essential to learning in school settings (Allen et al., 2021; Libernate, 2012; Murray & Pianta, 2007; Rosenfeld et al., 2000). As academics come to know their students and become familiar with how they learn, a relationship can be built to enhance trust (McLean, 2018), which can also increase levels of engagement (Bryson & Hand, 2007; Snijders et al., 2020). When students feel that the academic is there for support, their motivation can increase (Leenknecht et al., 2020). Furthermore, if students experience effective assessment and feedback practices, these modelled opportunities can assist in providing students with feedback exemplars (Buhagiar, 2013; Struyven et al., 2010; Swennen et al., 2008). These teaching, learning and assessment modelled moments mentioned above may be applicable in their own future classrooms, building capacity for teaching and assessment ‘classroom readiness’.

Academic Workload

There is no doubt student learning should be at the forefront of assessment decisions and design considerations. However, this research recognises the need for spotlighting academics’ workload in the assessment process. The academic’s assessment workload is an aggregation of practices: designing and creating assessments, connecting assessments within and between units, peer review (informal and formal), producing materials (instructions, supporting materials, rubrics), implementation, student questions, and providing timely and quality feedback. While this is manageable for many, academic voices in the literature have been concerned about increasing workloads impacting the quality of feedback they provide (Bailey & Garner, 2010), as giving meaningful written feedback can be time consuming (Glover & Brown, 2006). Unmanageable workloads can lead to burnout (Sabagh et al., 2018) and ultimately impact other areas of teaching, research or administration (Hemer, 2014); therefore, workloads require sustainability for good teaching. Assessment practices may be one

element within workloads that may be managed more effectively, thus a focus of this research.

There are several established coping strategies suggested in research to manage assessment workloads. Brown et al. (1997) put forward suggestions of procedures for efficient marking including setting smaller assignments spread out across the course; marking rigorously in one block of submissions until the assessment criteria structure becomes natural then allowing marking to occur whenever convenient; placing more importance on formative assessment and less effort in the summative assessment end with fewer comments; the use of criteria comment banks with a few individualised comments included. Brown et al. (1997) suggested a model whereby only the first assignment is given detailed feedback, which informs students on improvements for the remaining assessments to which they must apply to improve. While observing that Brown et al. (1997) noted these strategies some years ago, anecdotal evidence and personal experience suggests these strategies are still relevant today. Elton and Johnston (2002) suggested allowing some assessments to be graded at a satisfactory or not satisfactory level, taking away the extra time required to assess the standards against a criterion marking scheme, such as a rubric. Group assignments are a way to reduce the amount of summative marking when all group members receive the same feedback, however, this type of structure holds challenges in itself, including plagiarism and freeloading (Biggs & Tang, 2011). Furthermore, rubrics are now commonplace, based on the understanding that rubrics can reduce the assessing and feedback workload by an estimated 40 per cent (Atkinson & Lim, 2013). However, students can find rubrics impersonal, sometimes wanting additional personalised comments (Hemer, 2014).

The inclusion of peer and self-assessment practices has been documented in the literature to speed up the assessment process for educators (Biggs & Tang, 2011; Boud & Homles, 1995; Brown et al., 1997). However, the application of peer assessment to reduce academics' workload should be used with caution. While the peer feedback process is widely understood to have great metacognition benefits, students can see the peer assessment process as a reallocation of staff workload (Wilson et al., 2015). Additionally, research by Adachi et al. (2018) has indicated that academics may not identify this time saving feature in practice. Therefore, the justification of the inclusion of peer assessment should initially be decided owing to its pedagogical place within the course.

The initiative to include technology to address assessment workload has been the subject of much research in the literature. Technology may play a role in reducing the workload; however, there does not seem to be a one size fits all approach. Bennett et al. (2017) observed educators adopting technology in assessment to address time and money constraints where more efficient forms of assessment could be implemented to provide automated feedback to students, such as online quizzes. In a study by Pardo et al. (2017), technology was explored to assist educators in student communication using learning analytics in a blended learning environment. Unfortunately, the application was with an engineering course, with online multiple choice and heavy content summative tasks, both of which are not applicable nor directly translate to useful ITE assessment and similar qualitative assessment practices.

In an extensive literature review on technology used in feedback design, Dawson, Henderson, Ryan, et al. (2018) found that digital recordings, such as audio, video or screencast recordings, where the asynchronous feedback on an assessment submission was given, featured most often. They found that academics generally favoured these methods due to the time reduction in verbal feedback compared to written comments and increased student engagement with the feedback (Dawson, Henderson, Ryan, et al., 2018). Likewise, Broadbent's (2020) first year undergraduate students from an Australian university also favoured audio feedback as an effective, personalised mode of feedback. Collaborative online tools also allow for a convenient place for students to provide peer feedback and extend the dialogue (Yang et al., 2011). Automated feedback can also be used; however, this can limit individualised and personable feedback, that students indicate a preference for (Hemer, 2014). Given that technology advances at a rapid rate, and the Covid-19 pandemic has forced increased use of technology systems for teaching, learning, and assessment, how technology can assist assessment is worth considering. However, its use should always yield and align to pedagogical considerations to ensure quality assessment and feedback is provided to the student.

Despite the growing research on effective assessment and feedback frameworks that address the importance of enhancing practices for improved student learning, limited research has comprehensively discussed the impacts on academic workloads. This research incorporates a focus on assessment design impacts on academic workload, while also welcoming the shift to students as both feedback generators and receivers in developing feedback literacy (Molloy et al., 2020), in an effort to shift the emphasis off

the burdened academic workload and responsibility onto the student. As Carless and Winstone (2020) suggest in their conceptual paper on framing feedback literacy,

“The feedback conundrum can only be tackled by teachers and students working together in designing and implementing purposeful feedback processes. We are not proposing more staff time devoted to providing feedback, but instead a re-focusing of efforts to where they can become more productive” (p. 10).

Chapter Summary

This chapter has reviewed the higher education assessment literature and offered some of the existing student and academic perspectives from other studies.

Assessment is complex. It is vitally important to the learner as a motivator, an indicator of achievement, knowledge and skill development, and course completion. Assessment is inherently connected to feedback, with each having distinct features and functions. Assessment and feedback have emotional connections, which can impact student learning approaches. Moreover, assessment is influenced by and impacts the workload of academics. There is widespread understanding in the literature that assessment must be of a high quality, valid, reliable, and varied in format. Sustainable and authentic assessment approaches attempt to meet future learning needs of the individual and professional demands.

Assessment and feedback designs also carry considerable accountabilities. Assessment design in teacher education in Australia must adhere to several frameworks, including the Higher Education Standards Framework (Threshold Standards) 2021 (Tudge, 2021) and Education Services for Overseas Students Act 2000 (Birmingham, 2021), and certify these requirements alongside the AITSL teaching standards. In response to government-initiated reviews of practice, assessment aims to assist graduates in being ‘classroom ready’ and improve graduate teacher quality. Given it is critical to understand assessment’s complex nature, with both similar and varied stakeholder views, and intricate regulatory requirements when designing assessment, the next chapter will present this research’s methodology outlining how these intricacies were further explored.

The next chapter outlines the theoretical foundations and presents the well-established Participatory Action Research as complementary to design thinking approaches. The design thinking method stages are further described, and the associated research

activities explained. The research activities of this study were interrupted by the Covid-19 pandemic. To accommodate this interruption, the following chapter also explains the methods in two phases: pre- and post-Covid-19. Accordingly, the focus of this research incorporated new layers of theory and practice which inform Phase Two of the study and will be introduced and reviewed in Chapter 6, for the commencement of the post-Covid-19 sections of this study.

Chapter 3: Methodology

Introduction

This chapter explains the methodology context of this research, including the theoretical foundations. It will rationalise the research design under the heading of the pragmatism paradigm with underpinnings of constructivism and explain connections to the Participatory Action Research (PAR) methodology. The additional feature of the methodology adopted in this research centres on contextualising design thinking within the well-established research framework of PAR. Therefore, this chapter outlines and justifies PAR design as an appropriate research method for creating, implementing, and testing the target innovative assessment frameworks. The design thinking method is explained, and links are made between with this method and PAR.

The features of the research are outlined, including the research questions and study design with presentation of the two phases, labelled Phase One and Phase Two, with an explanation of how they were connected. The research activities following design thinking approaches are explained with participant selection, data collection and analysis methods. Finally, ethical considerations are outlined, and processes of ensuring trustworthiness are explained.

Research Aims and Questions

The overall research objective was to develop an innovative assessment framework that resolved several common assessment issues including depth of understanding, engagement with assessment, achieve authentic and sustainable assessment practices, and improve the marking efficiency for academics. As a result of the restrictions to face-to-face teaching due to Covid-19, there was an additional opportunity to explore shifts in teaching and assessment practices into remote learning. Consequently, this research further developed fit-for-purpose innovative assessment frameworks, addressing the assessment issues mentioned above, in both the face-to-face and remote delivery environments.

This research follows the well-established research field of the Scholarship of Teaching and Learning (SoTL) (Felten, 2013; Pat & Lee, 1999), as the innovative assessment frameworks designed in this study were developed through student inquiry, as well as through a partnership with students. The frameworks fall within the specific context of one university in Melbourne, Australia; however, it is hoped that the frameworks would be able to be applied to other assessments within ITE courses, and possibly to other

contexts in higher education, aligning with the importance of SoTL in improving educational practice.

A complementary consideration of this research was the needs of the academic, which is an area in literature that is not widely researched, to ensure the newly designed assessment frameworks did not increase the amount of time it takes academics to grade and mark assessments. Therefore, the research questions were framed to explore understandings of quality, authentic assessment from the views of students, academics and high-school teachers.

The research was driven by the following questions:

1. What are the lived ITE assessment experiences of students, academics and high-school teachers?
2. What do students, academics, and high-school teachers want and need from ITE assessment?
3. How can assessment design enhance depth of understanding, engagement with assessment, provide authentic and sustainable assessment practices, whilst improving the marking efficiency for academics?
4. What shifts in perspectives have occurred as a result of Covid-19 and the change into digital remote learning?

Methodological Paradigm

The overarching methodological paradigm underpinning the research was pragmatism, which is one of the more newly defined worldviews and becoming increasingly popular in its use by mixed-methods researchers (Teddlie & Tashakkori, 2003). The construction of knowledge within the pragmatism paradigm is pluralistic and problem centred with the importance placed on the questions asked (Creswell & Clark, 2018; Creswell & Poth, 2017). While this research is qualitatively focused, and not mixed methods in its design, the research questions were being answered from a novel, combined approach of design thinking as the core focus of this study. Therefore, a pragmatic paradigm understanding that there may be multiple ways of approaching knowledge in different situations was chosen (Creswell & Clark, 2018).

The initial goal of this research was to understand the perspectives of stakeholders directly involved in the assessment experience and subsequently create an assessment framework based on this knowledge. Therefore, underpinning the pragmatism paradigm was this construction of social knowledge forming the basis of

this research, aligning the ontology to constructivism (Gray, 2013). Including a wide range of views was an important consideration to this research, thereby following a constructivism ontology (Creswell & Poth, 2017). The ontology and epistemology are interconnected to a constructivism paradigm in this phase of the study, as the unique experiences of participants was a key consideration and inclusion in the assessment design process and an important feature of design thinking. The knowledge here is co-constructed and shared across the research team and participant groups affiliating with the constructivism paradigm (Hatch, 2002).

Within this co-constructed constructivism environment, the research pursued the participants' experiences, attitudes, and perceptions on the factors that determine successful assessment practices to help develop the innovative assessment frameworks. Additionally, the connections to a social constructivist approach are evident, as the research placed emphasis on the socially constructed knowledge through the interaction of participant voices and assembled knowledge (Creswell & Poth, 2017; Palincsar, 1998). Aligning with the underpinnings of phenomenology, there was an understanding that there are many socially constructed assessment realities (Cohen et al., 2002). Thus, this research draws from a number of research traditions to fit the purpose of co-constructing assessment with stakeholders and aligning with an overall pragmatic research paradigm.

The research goal was to understand student perspective and attitudes towards assessment, how they understood assessment and what they require from quality assessment. Likewise, the attitudes and perspectives of the academics was required to gain an understanding of their views of sustainable and authentic assessment, and factors that may impact the successful use of assessment, as well as to understand assessment pressures and potential ways to overcome these burdens. These end-user assessment realities were conceptualised through interviews to understand the social, emotional, and logistic issues surrounding ITE assessment. This is, again, following the phenomenological approach of understanding the end-users' perspectives and lived experiences (Groenewald, 2004). True to the nature of phenomenology, themes were extracted from interview recordings to ensure validity and accuracy of the qualitative research (Creswell, 2012).

The pragmatic methodology, underpinned by constructivism and phenomenology, allowed the research to adopt a design approach that is popular in business design, but not as widely used in educational scholarly research. Design thinking was implemented as the research approach to solve the problems connected with the research

questions. Design thinking is an iterative approach to solve complex problems and “seek to understand the user, challenge assumptions, and redefine problems that might not be instantly apparent with our initial level of understanding” (Dam & Siang, 2018, p. 1). The following section will describe the features of design thinking, present how design thinking processes have been used by others in the past, and offer how design thinking was incorporated and aligned with the widely acknowledged PAR approach to shape the design of the new ITE assessment frameworks.

Design Overview

This research was designed with a PAR basis with the goal of improving assessment practice for stakeholders within the context of ITE. Action research, according to Koshy (2010), “creates knowledge based on enquiries conducted within specific and often practical contexts” (p. 4). Action research was ideal for the setting of this research as the method was collaborative amongst the research team and participants, through the combination of dialogue and reflection, in a participatory nature. The methodology embraced the recognised cyclical iterations of PAR including planning, acting, and reflecting (Mills, 2011). The research design was created in two phases: Phase One and Phase Two. Phase One planning periods took the form of gaining an understanding of participant attitudes, understandings, and experiences towards ITE assessment, alongside consulting and aligning these with literature. The acting periods were the development process of the innovative assessment framework, which followed through cycles of iteration of reflection. As with PAR practices, the assessment framework was continually refined in a succession of iterations considering participant feedback. Therefore, the research was participative with the end-users informing the assessment design (Koshy, 2010). Additional planning, acting and reflecting periods took place in the second phase of the research where the Covid-19 face-to-face teaching restrictions resulted in a shift into digitally supported remote learning. Also aligning with these PAR principles, this research followed the design thinking procedures to explore and develop solutions to the complex assessment issues identified by literature and participants in this research.

Design Thinking

Design thinking is not a new concept. It is widely used in product development and business industries. As David Kelly, the founder of Hasso Plattner Institute of Design at Stanford University (d.school), states “it’s a method for how to come up with ideas” (Camacho, 2016, p. 88). As proposed by the Stanford d.school, design thinking is a

structured method of thinking processes based on the human-centred design approach (Giacomin, 2015). It is a defined process used in problem-solving, with consultation of end-users to develop prototypes and devise solutions. It is a collaborative process that holistically incorporates creativity coupled with end-users' perspectives. Design thinking leads to transformation and innovation of products or prototypes, through using problem solving techniques (Tschimmel, 2012), where "expert designers are solution focused rather than problem focused" (Razzouk & Shute, 2012, p. 343). These solutions or devised products are often innovative for these businesses, as "instead of applying their knowledge merely to the creation of new products and services, they can develop new tools which help organisations to move with more creativity and efficiency in innovation processes" (Tschimmel, 2012, p. 2).

At the centre of its values, design thinking aims to produce creative outcomes to specific problems (Camacho, 2016). However, creativity enhancement can extend beyond the product alone. As analysed by Thoring and Müller (2011), design thinking can be described through evolutionary creativity, where the creativity exists with the individual, the collective and the system. The creativity within the system is determined with the generation of ideas, the selection, and subsequent retention of ideas (Thoring & Muller, 2011). A number of studies have also found that the creative outcome can come from the improved creativity skills in the individual as a result of experiencing the design thinking process (e.g. Clemente et al., 2017; Guaman-Quintanilla et al., 2020; LaPensee & Doshi, 2020; Saggat et al., 2017). Therefore, this way of learning through design thinking aligns to a constructivist methodology (Noweski et al., 2012).

Design thinking has shifted over time from being done by an experienced team of designers with a fixed problem, to recognising all people as innovators and the importance of heterogenous expertise (Liedtka et al., 2017). This combining of diverse expertise of knowledge aims to combine a vast range of ideas, thereby potentially creating a more innovative concept or prototype in the end, where the colloquial phrase 'many hands make light work' applies. However, the selection of these 'many hands' should be considered to address the team's dynamics. In a "build the right kind of team" description on the Interaction Design Foundation website, Dam & Siang (2021) outlines that "T-shaped people", who have extensive vertical knowledge in their field but can also "reach out and connect" horizontally with fellow team members are needed to collaborate effectively (para. 4). Therefore, this research took advantage of this perspective to incorporate diversity in the research team and in participant groups.

Design thinking in educational contexts does not have a significant number of scholarly contributions. This does not imply that design thinking practices are not readily used; after all, teachers face complex problems in teaching and planning that lend themselves to solutions derived from design thinking (Henriksen et al., 2020). Henriksen et al. (2017) explained design thinking as “an applicable skill across different educational problems of practice” (p.150). Lockyer (2018) suggested that design thinking frameworks could assist teachers as designers, and Retna (2016) demonstrated that teachers valued design thinking approaches and its affordances in skill development. Design thinking has also been demonstrated to be a useful strategy in designing school curriculum (Shively & Palioloni, 2018), and in the redevelopment of higher education programs (Broadbent & Lodge, 2020). Moreover, Culén and Gasparini (2019) advocate for design thinking to be incorporated into STEAM (Science, Technology, Engineering, Arts, Mathematics) subjects to promote collaborative, creative ways of tackling wicked problems in the sciences and promote an authenticity of student experience. Furthermore, the design thinking lens is utilised as a theoretical framing for Koehler & Mishra’s (2005) TPCK (Technological Pedagogical Content Knowledge) model. Norton and Hathaway (2015) advocate for teacher education curriculum integrating a design thinking lens to provide teachers with tools to solve complex problems, allowing for flexibility due to discipline complexities. Consequently, design thinking and its methods in solving complex and varied problems seem highly compatible in educational contexts, despite differences in professional environments. This current research utilises the design thinking approach in conjunction with PAR methodology as the theoretical foundations in solving end-users’ complex and interwoven ITE assessment problems.

Noting there are variants in design thinking models (Watson, 2015), this research chose to follow the Stanford d.school model due to its reputation as one of the original contributions of the model. According to d.school, the five stages or ‘modes’ of design thinking include empathise, define (the problem), ideate, prototype, and test (Plattner, 2010). The empathise stage investigates what the product user or ‘end-user’ wants and needs from the product and identifies the associated problems and challenges (Wolniak, 2017). The importance is placed on getting to know the end-user by fully immersing and engaging in their experience and uncovering their thoughts and feelings about the product or problems (Plattner, 2010). The define stage focuses in on the end-users’ needs that have come to light in the empathise stage and assembles towards one specific outcome goal (Plattner, 2010; Wolniak, 2017). Ideate attempts to create as many possible solutions as possible to the defined problem, aiming for wild ideas to

emerge (Plattner, 2010; Wolniak, 2017). One solution is picked for its validity and ease of implementation and developed further into a tangible product in the prototype stage (Plattner, 2010; Wolniak, 2017). In the testing stage, the prototype is analysed for functionality and effectiveness (Wolniak, 2017). The structured design thinking guides applied in this research have specific processes that allow for divergent and convergent thinking at various points of the method (Brenner et al., 2016), aiming to shift the usual perceptions of problems and to introduce different viewpoints to produce better products. These design thinking processes were incorporated together with PAR methodology as the focus and context of this research as similarities exist within their structure and purpose.

Aligning PAR with Design Thinking

There are notable similarities that exist within the intentions, processes, and outcomes of both PAR and design thinking. These similarities influenced the decision to include both as methodologies into this research as they are both valued around solving a problem. The principle of PAR is that “it commences with an interest in the problems of a group, a community, or an organisation” (Stringer, 2014, p. 38). Design thinking, while actioned on the process of design and creativity, more broadly considers the issues and problems within these design spaces, and other contexts such as in business and social sciences (Wolniak, 2017), and more recently in the context of education (Noweski et al., 2012; Scheer et al., 2012). The problem or problems considered in both PAR and design thinking do not usually have straightforward and simple solutions but require a more detailed consideration and structured process of innovation.

As a result of the problem being at the core of these methodologies, both PAR and design thinking present a structured outline in the investigation process. The PAR methodology places emphasis on initially building a picture of the end-users or stakeholders within a social process of data collection, which is then analysed and embedded into a research action and further tested (Stringer, 2014). The three-phase model of PAR follows an investigatory flow of a planning process through thinking about the problem, coming up with a solution, and an acting and testing process where the effectiveness of the solution is evaluated. The design thinking structure follows this same flow, with a similar emphasis on testing the effectiveness of the solution to PAR, with a more directed direction and potential structure for finding a solution.

In PAR, the researcher is often left to decide themselves about the potential way to solve the problem. They might decide to follow already determined structure which is derived from literature, or they may derive one themselves, working in teams or alone. Either way, PAR is focused on the investigatory flow as a whole through acting, testing, and reflecting stages. Contrastingly, design thinking promotes a clear structure to the solution finding process, often with divergent and convergent thinking at appropriate times in the process (Brenner et al., 2016). Many tools exist to broaden and contract thinking, and determine ways forward. This allows our usual, more automatic ways of thinking to be abandoned to allow for a new problem-solving strategy and innovative solution (Dam & Siang, 2018). Here, the key distinction between design thinking and PAR is the position of the researcher. In PAR methodology, the researcher is a part of the research, they bring their own knowledge and experiences intertwined into the research. Design thinking, while not as heavily emphasised, has the researcher¹ with potential lack of knowledge in the area under investigation. Instead, they bring their design thinking skills and knowledge to creative processes to facilitate a product or solution. The value added here is the knowledge of the right approaches to solve the challenge.

Design thinking and PAR both emphasise the importance of evaluating and reflecting upon the efficacy of products or solutions, making subsequent changes where applicable and repeating with iterations. Both PAR and design thinking are there to be transformative. Both identify a need and initiate a distinct change in the highlighted issue. These non-linear cyclical iterations of stages are prominent features of PAR and design thinking. Stepping through iterations of defined stages ensures each stage helps to define the overall solution, and redefinitions when revisiting stages can occur when insights are learnt. This allows for deeper reflexive thought about the issues and moves towards potentially stronger implemented solutions and outcomes.

The processes of design thinking are often multidisciplinary with the assumption that multidisciplinary teams will provide greater creativity (Dam & Siang, 2021). Although this assumption has been debunked by Von Thienen et al. (2011), multidisciplinary skill sets are still often utilised in practice. Likewise, the PAR method is a suitable approach for multidisciplinary teams or contexts to adapt to solve problems or concerns.

¹ although not necessarily noted as a researcher, the intentions and processes of the investigator are similar

The strong alignment between design thinking and PAR processes, as outlined above, is the rationale for the two methodologies adopted for the design of this research study. These similarities are represented in Table 1 below.

Table 1

PAR and Design Thinking Similarities

Intention	Processes	Outcomes
<ul style="list-style-type: none"> used to consider issues and/or resolve problems addressing people's needs transformative value is added by the researcher 	<ul style="list-style-type: none"> non-linear cyclical iterations processes of planning processes of acting or testing reflecting upon procedures and/or products (often multidisciplinary) 	<ul style="list-style-type: none"> practical solutions to problems/concerns reflexive and reflective

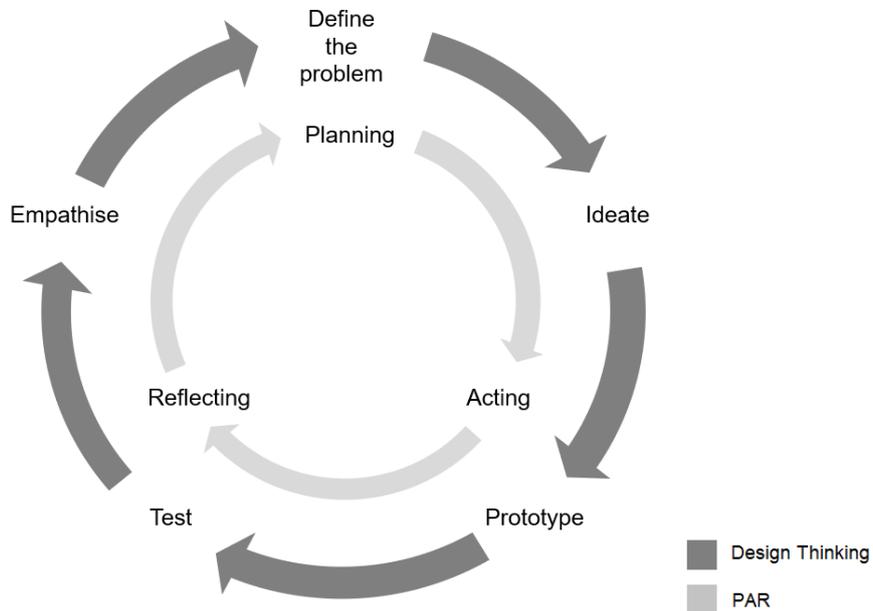
While the PAR procedure follows the 3 cyclical stages of planning, acting and reflecting (Mills, 2011), as previously mentioned, the design thinking framework as proposed by the Stanford d.school further breaks these down into 5 steps: empathise (Stage 1), define (the problem) (Stage 2), ideate (Stage 3), prototype (Stage 4), and test (Stage 5) (Wolniak, 2017).

The planning process in PAR incorporates the design stages of empathise, define the problem, and ideate. This is where the groundwork is done; the scene surrounding the problem is set, well researched, defined, and a plan of action ideated. The PAR acting process aligns with the prototype designing and testing of design thinking phases. Here the intervention is created, tested and measured for its effectiveness. The measures and notions of the reflecting process in PAR are also aligned with the testing phase of design thinking.

While a discussion of how the PAR and design thinking stages are presented here, it should be noted that the distinction and distance between each stage in both PAR and design thinking is blurred and not necessarily well defined. For example, the measures and activities undertaken in the planning phase in PAR support the framing of an intervention in the acting phase (Herr & Anderson, 2005). Presented below, Figure 1 was created to illustrate the parallels and overlaps between the method stages for both processes.

Figure 1

Illustrating Stage Parallels Between PAR and Design Thinking



Through combining the design thinking and PAR processes in this research, it was considered there would be multiple and mixed data collection opportunities, such as interviews, empathy maps, end-user journeys, and workshops, which will be detailed in a later section of this chapter. The sequence of research activities through the two phases of this study will first be outlined in the following section.

Study Design

Both phases of this research pursued the stages of design thinking as outlined in research by Wolniak (2017). Firstly, empathising with end-users (Stage 1) was undertaken to understand the assessment perceptions and experiences of stakeholders. Then, the problem was defined (Stage 2), drawing on the empathy findings and consideration of the literature. Ideation (Stage 3) involved structured activities during an Ideation workshop where solutions were co-created. One of these solutions was chosen to develop further into a prototype (Stage 4) and presented to end-users for feedback. Improvements were made until a final prototype was ready for implementation. Below articulates how these design thinking processes were utilised in generating input from end-users in this research.

Phase One – Pre-Covid-19

Design Thinking Stage 1 – Empathise. Consulting and empathising with end-users are important features of the design thinking process. Empathising has been connected with creativity in research (Form & Kaernbach, 2018), and aiding creativity by empathising allows us to choose better ideas as we gain wider viewpoints (Grant & Berry, 2011). It is important to adopt an objective beginner's mindset to challenge assumptions (Henriksen et al., 2017), and to understand the end-user for which the product is to be designed so that their "needs, thoughts, emotions and motivations" are understood (Mortensen, para 1). Empathising with end-users is achieved through observations, interviews or surveys and documented through the creation of empathy maps. An empathy map is a visual tool constructed on a persona of a fictional person which is based on a group of end-users (Tschimmel, 2012). The persona allows the researcher to align qualities of what is known about the end-users, including attributes and experiences to the product or problem at hand. This helps to give a visual representation to clearly understand the end-user's priorities and needs, known as pain and gain points.

In this research, semi-structured interviews were used to gather information from end-users and facilitate the empathising process, termed empathy interviews. Academics were interviewed to gain an understanding of their assessment concerns, motivations when designing assessment, student engagement, students' approach to learning, and academic workload. Subsequently, students were interviewed to understand and empathise with their concerns and needs in assessment in reference to the aims of this project. High-school teachers were asked for their experience of what skills and knowledge is needed in the profession; looking in terms of the assessment design needs in the context of professional practice. Themes were then extracted from the interviews of the three user groups (academics, high-school teachers, and students) via design thinking procedures aligned to thematic analysis (Braun & Clarke, 2006). This data was entered into empathy maps, which is a design thinking method for creating personae for each user group.

Design Thinking Stage 2 – Define the problem. The key themes obtained from the thematic analysis in Stage 1 were aligned with literature by the researcher to give a clear, informed idea of the problem. This problem was further defined and presented during the Ideation workshop to academic participants

Design Thinking Stage 3 – Ideate. Ideas for the assessment design framework were generated in a co-creation Ideation workshop with several academics. The workshop began by giving an overview of the considerations from literature and the key findings gathered from empathy interviews.

The assessment context in this research was the development of a teaching unit plan. A unit plan is a conventional ITE assessment in many institutions as it is an authentic task that teachers regularly perform in the profession. Lesson sequence planning is a requirement in graduating teachers' final assessment and within the accreditation of ITE programs mandated by the Australian Institute for Teaching and School Leadership (AITSL, 2019). With a brief search on institution websites who offer the Master of Teaching Course, the mention of a unit plan or curriculum planning document was located three times at Victoria University, four times at the University of Melbourne, and 22 times at Monash University, usually linked to a curriculum specialist unit. This limited search does not, by any means, signify an extensive search on exactly how the institutions are incorporating curriculum development or the learning sequence planning in their courses. A more in-depth analysis may provide larger numbers, as the descriptions of assessment such as 'project' may describe a task that includes the development of curriculum sequencing. However, these numbers illustrate the unit planning task as a widely used curriculum planning structure within assessment practices at several institutions.

Construction of a unit plan requires numerous skills, and the teacher needs to consider various aspects to the teaching and learning experiences included. In this study, the unit plan was developed in two contexts of junior secondary (year 7-10) or senior secondary (year 11-12) education. The workshop focus was ideating for an assessment framework that incorporated these two contexts.

The Ideation workshop provided a space for collecting data on two aspects of the research. Firstly, it provided data on the ideation process and the perceptions of participants towards this ideation process. Secondly, it provided outcomes of the ideation process and potential assessment framework prototypes to explore and develop further.

Design Thinking Stage 4 – Prototype. After narrowing down potential ideated solutions in the Ideation workshop, it was developed further by the research team into a Minimal Viable Product (MVP). Widely used in the Lean Startup model (Müller & Thoring, 2012; Ries, 2011), the MVP is another user-centred innovation business

process. The MVP is the unrefined product that facilitates early feedback without high investment of resources (Ries, 2011). In this research, the MVP assessment framework prototype was created based on the outcomes of the ideation workshop, whilst also taking into account the literature and learnings from the empathy interviews (see [Chapter 5](#) for detailed description of the MVP procedures).

Consistent with the PAR process, which follows a model of repeated cyclical iterations (Stringer, 2014), changes were made to the assessment framework based on the feedback given from end-users in an iterative fashion. After making changes based on end-users' feedback, another assessment framework was created and then sent to the next end-user. Once data saturation was reached, the assessment framework was accepted as ready for implementation.

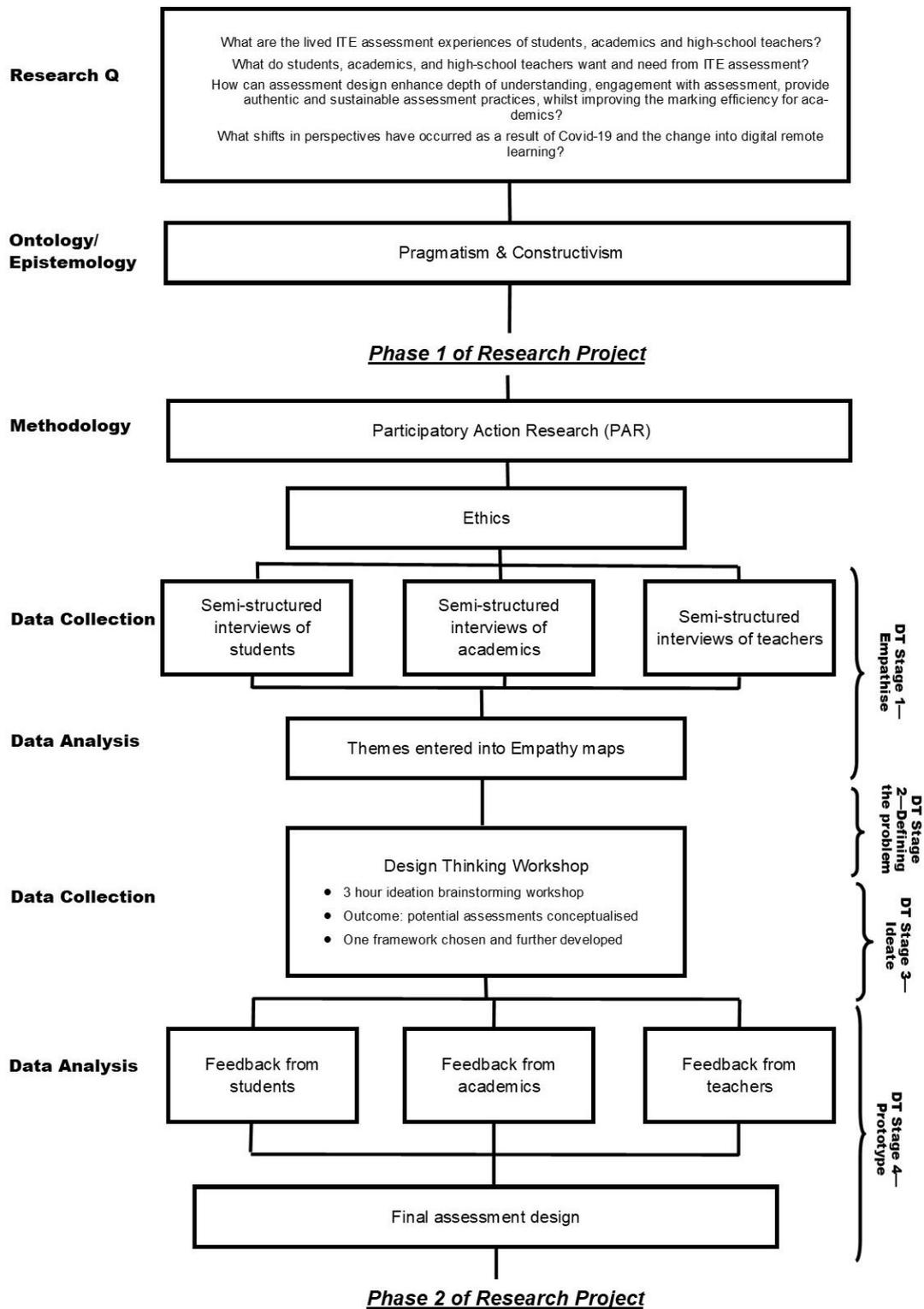
The above-mentioned structure was chosen to allow for greater participation from time-poor participants and to also ensure participation was not an onerous task, as most participants were only asked to contribute to the research twice (once during empathise and another during prototype stage). Participants involved in the Ideation workshop would contribute three times (once each during empathise, ideate and prototype stages).

Design Thinking Stage 5 – Test. The last stage in the design thinking process is usually to evaluate the prototype and test its effectiveness and functioning (Wolniak, 2017). Unfortunately, this last stage was not able to be achieved (as originally planned) due to the Covid-19 restrictions influencing a change into digitally supported remote teaching. The created assessment framework (in what became the first phase of this study, pre-Covid-19) required face-to-face teaching to test its suitability, acceptability, and effectiveness. Therefore, this post-test data could not be gathered as teaching conditions remained remote for the remaining duration of this PhD research. Nevertheless, Covid-19 provided an opportunity to explore what was emerging in the teaching, learning, and assessment shift into remote learning through a further iteration of the design thinking process in the context of remote teaching and learning (Phase Two).

Figure 2 visually represents the design approaches and actions conducted in Phase One of the research. The specific research activities in each element of the study are detailed in the following Methods section.

Figure 2

Research Design Approaches and Actions Conducted in Phase One



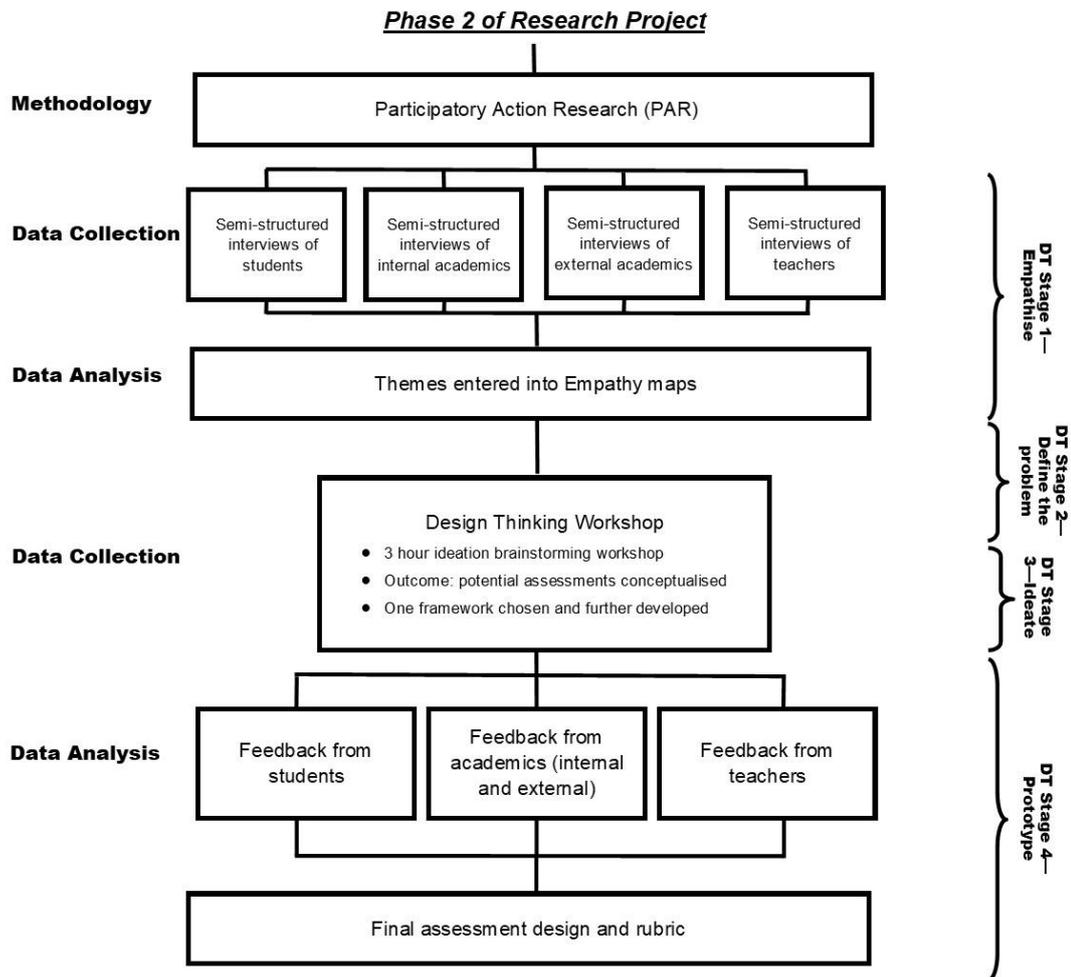
Phase Two – Post-Covid-19

Given the constraints of remote teaching that occurred from the shift into online learning due to the Covid-19 pandemic, new problems emerged in delivering and completing authentic ITE assessments in addition to those already explored in the first phase of the study. These were explored in Phase Two, which was undertaken at the end of 2020, and beginning of 2021 after almost two full (Australian) semesters under remote learning and teaching conditions. Again, the design thinking stages were applied to determine assessment approaches that were best practice in digitally supported remote teaching in Covid-19 times. It was proposed that this phase was likely to uncover different data to data previously collected due to the naturalistic intervention of Covid-19 and a shift into digital remote learning. Consistent with the PAR iterative processes, it was seen as an additional opportunity to explore how the perspectives of end-users have changed in a remote learning environment and develop a different, remote delivery suited assessment approach prototype. Therefore, the same design thinking procedures as Phase One were followed by empathising with end-users, defining the problem, ideating and prototyping a fit-for-purpose assessment for the remote learning and teaching environment. The research activities and approaches in Phase Two were used in the same way as Phase One, to be able to compare the two phases of teaching-learning-assessment design thinking (pre- and post-Covid-19 shifts).

Phase Two of the research project is visually illustrated in Figure 3 below.

Figure 3

Research Design Approaches and Actions Conducted in Phase Two



Method – Phase One

Overall Aims of Phase One

The intention of this phase of the research was to develop a compassionate understanding of the end-users’ wants and needs from assessment by accessing their assessment understandings and experiences, to develop a deep understanding of the person for whom the assessment will be developed for. This phase saw the creation of the new assessment framework based on the construction of participants’ knowledge and experience. This social inquiry into the end-user’s understandings and experiences about ITE assessment was done by adopting design thinking approaches and procedures and lead to the construction of new understandings of an assessment framework structure.

Participant Selection and Recruitment

There were two points in the design thinking process where participants were recruited into Phase One; Stage 1 (empathise) and Stage 3 (ideate). The following section outlines the recruitment processes and sample groups.

Design Thinking Stage 1 – Empathise. Three groups of participants were selected for initial interviewing: students, academics and high-school teachers. Design thinking considers those who are significant in the problem-solving process as important stakeholders in the product design, in the case of this research, the assessment design. While there are many stakeholders in ITE, it was considered there were three groups that are most important in terms of outcomes of assessment design having direct impact. These were students (pre-service teachers), academics, and high-school teachers.

In the context of the institution where the research was taking place (a post-graduate ITE course in an Australian University), high-school teachers play a significant role in the delivery of the assessment. Additional to their work in high schools, these teachers are employed by the university to deliver workshops during the term to share their valuable professional expertise and currency of practice and complement the coursework. These workshops allowed students to connect with experienced high-school teachers within their respective subject specialisations to gain a deeper understanding of the nature of the profession by sharing real-world teaching experience and expertise. Additionally, these high-school teachers helped facilitate the students' development of the unit's second assessment that required the students to develop a unit plan, and subsequently assess their work. It was also considered important to include these end-users into this research as they had a current perspective of knowledge and skills required in the profession and could impart and contribute these to the assessment design.

Academics were likewise considered important end-users. They were the deliverers of curriculum, pedagogy, and assessment. They had particular expertise from the higher education perspective through the lens of the needs and requirements of ITE.

The students were considered the most important stakeholders in these three end-user groups. Assessment determines achievement of their degree, and the extent that they perform well, may determine the quality or 'job readiness' at the end of their qualification. Additionally, while it is important to consider assessment as a motivator to

learn the curriculum (Ramsden, 2003), it is arguably more important for these students of teaching to understand what good assessment practices look like so they can impart that knowledge in their career and practice good assessment practices themselves. There is much research on the attitudes of students on assessment (Day et al., 2018; Sambell et al., 1997) and feedback (Atkinson & Lim, 2013; Davis & Dargusch, 2015; Mulliner & Tucker, 2017; Ryan et al., 2019); however, there is limited literature about approaching from the design thinking angle of empathising with these students. Therefore, to understand academic, high-school teacher and student end-user groups' perspectives on assessment, semi-structured interviews were conducted to empathise according to the first phase of design thinking (Wolniak, 2017).

The lead researcher made initial contact with students enrolled in one of the two core units that are focused on curriculum and pedagogy in secondary education at the beginning of Semester 2, 2019. Contact was made by visiting each tutorial in person to seek expressions of interest. During the address, the researcher outlined the intentions of the study, what would be required to participate, why it would be worthwhile for them to participate, and ethical considerations.

One week later, a follow up email was sent to all students with the Participant Information and Consent Forms (see [Appendix A](#)). Permission was sought from the students who expressed interest and asked for their written consent to participate in two interviews:

- 1) an interview to understand their thoughts towards assessment in ITE (aligning to empathise Stage 1 of design thinking), and
- 2) a second interview for feedback on the assessment design framework (aligning to prototype Stage 4 of design thinking).

Stratified sampling procedures were developed, with purposive sampling from expressions of interest to ensure diversity of participants. Specific characteristics of strata sought were based on gender identity, specialisations (two teaching methods), their enrolment as a domestic or international student, and the number of months into their ITE course.

However, as only six students approached the researcher initially, these participants were included to address the above stratification quotas. To fill the remaining strata characteristics, a second email was sent to the cohort addressing a balance of gender and specialisations. In response to this email, five more students expressed interest in

the study. A total of 11 students consented to participate in Phase One of the research. The list of student participants by representation can be found in Table 2 below.

As these students were completing a Master of Teaching course, they were mature-aged students who had already completed at least one Bachelor course either in Australia or overseas. Many had additional responsibilities, including families and employment. Students undertaking the Master of Teaching (Secondary) at the university in focus complete their professional practice in a high-school setting at a scheduled time in their course delivery. There are no differences in course delivery for domestic and international students. There were, however, some differences in the timing of in-school placement weeks for students. School placement scheduling can sometimes vary between individual students aligned to the availability of host schools with matched teaching specialisations. Therefore, there can be some variability in school experience that participant students bring into their engagement with this research inquiry.

Table 2

Representational Characteristic of Student Participants in Phase One

Gender	Domestic/ International	Represented specialisations
8 Women	7 Domestic	5 Humanities
3 Men	4 International	3 Health
		3 Business/Commerce
		2 Science
		2 Middle Years
		2 Media
		2 Language Other Than English (LOTE)
		1 Physical Education
		1 Information Technology (IT)
		1 English

Simultaneously, all staff teaching in the ITE programs at the university were invited via email to participate, these included academics, lecturers, unit convenors, and course chairs, as well as the high-school teachers. The email asked for expressions of interest and outlined the nature of the study, participation requirements, why it was worthwhile and ethical considerations. Eight academics and five high school teachers consented to participate in Phase One of the research. Table 3 presents the representations characteristics of the academic and high school teacher participants. To avoid compromising confidentiality of participants from the small university department, specific details about academics and high-school teachers have intentionally not been presented.

Table 3

Representational Characteristics of Academic and High-School Teacher Participants in Phase One

Employment role	Gender	Represented specialisations
Academics	3 Women 5 Men	NA
High-school teachers	4 Women 1 Man	Accounting Business/ Commerce Drama English Health Literature Physical Education Psychology Welfare

While there is no definitive criterion of sample size in qualitative interviewing techniques (Baker & Edwards, 2012), the sample size of initial empathy interviews in for each user-group was deemed acceptable as final interviews did not result in identification of new concepts or concerns, reaching theoretical data saturation (Bowen, 2008; Fusch & Ness, 2015). Consenting participants from each user-group represented a varied range of participant depth of knowledge and experience with cross disciplinary backgrounds. While it was considered that data saturation was reached, it was also important for interviews to represent a diverse sample to acknowledge the diverse student population for which the assessment design was to be designed for.

Design Thinking Stage 3 – Ideate. After the consideration of the end-user’s perspectives from the empathy interviews, an Ideation workshop was chosen to assist in the co-creation of the prototype assessment design. Academic participants were purposely selected from the empathy interview sample pool, to allow for a reflection of complementary skills and perspectives within the sample (Suri, 2011), with criteria including a range of assessment development and teaching experience, a gender balance, and a range of roles in unit development and delivery.

An email was sent to three academic participants to invite them to participate in the Ideation workshop, which they could either decline or accept. All three participants agreed to participate, thus creating a focus group of six people when added to the three from the research team (student lead researcher and two supervisors), which has been suggested within the ideal range of focus group size (Kitzinger, 1995). Including

those from the research team, five females and one male ideated in the focus group workshop. It was considered that, despite an imbalance of gender, genders were represented within the group and consistent with the gender distribution in teacher education, and a balance of experience and unit development roles, and design thinking and research expertise was included.

The potential power issue of recruitment was acknowledged as resting with the invitees rather than the recruiting student researcher. Exclusion to the participant group was managed by sending an email to participants who were interviewed, outlining the progression of some participants to the design thinking Stage 3 ideate activities and the rationale behind participant selection for this aspect of the research.

Participants gathered at the university campus after the completion of Semester 2, 2019, for the design thinking Stage 3 Ideation workshop. This was determined as a more convenient time, where academics had finished much of their teaching and potentially had more time to be able to allocate to a three-hour workshop.

Phase One Research Activities

Qualitative data in Phase One was collected during Stage 1 (empathise), Stage 3 (ideate), and Stage 4 (prototype) of the design thinking framework. The data collected in this phase of the research is represented in Table 4 below.

Table 4*Research Activities Undertaken in Phase One*

Phase of research	Research activity	Participants	Stage of design thinking	Date
Phase 1	Semi-structured individual empathy interviews	- 8 academics - 11 students - 5 high-school teachers	Stage 1: Empathise	July 2019
	Empathy maps: - academics collated together - high-school teachers collated together - 11 student empathy maps		Stage 1: Empathise	July – August 2019
	Ideation workshop	Research team and 3 other participants	Stage 3: Ideation	October 2019
	Prototype feedback interviews	Participants from initial interviews: - 3 academics - 5 students - 3 high-school teachers	Stage 4: Prototype	December 2019 – January 2020
	User Journeys		Stage 1 and Stage 4	

The following section describes these research activities, including how data was collected and analysed according to design thinking approaches.

Empathy Interviews. Individual semi-structured interviews were conducted with academics and students to gain a perspective of empathy, and to understand their wants and needs in terms of an assessment in ITE. The perspectives from teachers were gained through answering questions via email or over the phone, whichever was the preference of the participant. It was noted that a more empathetic and wholistic understanding would take place in a face-to-face interview, where facial expressions, body language, and tone of voice would impart information and meaning on the spoken words. However, the choice of teachers to contribute via the more impersonal method was made to allow for greater participation of these time poor participants. These teachers were not necessarily local to the institution but scattered over Victoria. The majority of these teachers were working full time teaching high-school, and it was noted that it may be difficult to set aside time for an interview on campus. Therefore, it was decided that they would be more likely to contribute to the research if it was via email or on the phone.

Interviews with the 11 students and eight academic participants took place on campus in a closed room and were voice recorded with participants' permission. These interviews were typically 20-30 minutes in duration. The lead researcher asked some get to know you questions with the aim to make participants feel as comfortable as possible so that they would be willing to open up and share their feelings and potential discomforts with current assessment structures and practices. The interview guiding questions contained prompts on the themes of assessment design, engagement, level of understanding, feedback and authentic assessment. The academics and teachers had the additional theme of academic workload (see [Appendix B](#) for interview prompts).

While there are several different methods recommended to gain an empathetic perspective of end-users, such as observations and photo or video studies (Brenner et al., 2016; Mortensen, 2020), semi-structured interviews were chosen as a research activity. This decision was made on the basis of two factors. Firstly, in usual qualitative PAR practices, interviews are often a default method of qualitative data collection as they provide a flexible space to be able to explore participant attitudes and behaviours, including insight to the participant's lives and experiences (Drever, 1995; King et al., 2018). Secondly, an interview provides a face-to-face interaction where a personal and more intimate setting can be set up for body language, tone of voice and use of language to be analysed in a holistic way. Within the context of design thinking, the purpose of empathising is to gain a compassionate understanding of what the end-users identify as important, of a concern, including their wants and needs. A deeper understanding of the end-user unfolds as a result of observing verbal and non-verbal behaviour whilst interacting and engaging with end-users (Plattner, 2010). Therefore, a semi-structured interview ensured the core questions centred around the aims of the research to ensure they were addressed, but also allowed for the participants to explore ideas that were a concern or a desire for them.

Four high-school teachers opted for email response, and one chose to be interviewed over the phone while the lead researcher took written notes. While it is noted that these different interview modes may result in differences in acquired data, in the comparison of interview transcripts of face-to-face interviews to phone interviews, Sturges and Hanrahan (2004) indicated that there were no significant differences between the different collection methods. In addition, the inclusion of email was deemed sufficient, as McCoyd and Kerson (2006) found that interviews using email can result in highly thoughtful, detailed responses. However, it was noted that the non-verbal cues, such

as participants' emotional reactions were missing that in a face-to-face interview would prompt further probing questions. So to enable the high school teachers to elaborate further on their wants and needs, the email questioning was structured to direct them to examine their past experiences in delivering and marking higher education assessments, as well as their perceptions of specific knowledge and skill crucial to the profession. In addition, options to add additional comments opened opportunities for the high school teachers to expand on their responses.

Empathy Maps. First developed by Scott Matthews of XPLANE (Gray et al., 2010), empathy maps visually represent the 'persona' of the end-user by identifying what the persona is thinking, seeing, hearing, and feeling. This research adopted the 2017 updated version (available at <https://gamestorming.com/empathy-map/>) to include the 'Goals', 'Pains', and 'Gains' of the persona (Gray, 2009). The purpose of representing themes on empathy maps is to visually represent the range of participants within each group, including the extremes and the middle band.

In this research, individual empathy maps were created for each of the student participants, represented with individual 'personas' to illustrate the themes pertaining to that particular user-group. The academic and high-school participants were grouped together as one 'persona' end-user group, so participants were not identifiable to other colleagues, as the data was presented to other academic participants during the Ideation workshop. Phase One empathy maps are presented in [Appendix C](#).

A hybrid approach to the empathy interview analysis of data was utilised, that aligns with both the design thinking approach and traditional qualitative research. The transcripts were analysed using the empathy mapping procedures used in the design thinking process (Gray, 2009; IDEO.org, 2015), and aligned to Braun and Clarke's (2006) inductive thematic analysis procedures. Braun and Clarke's method of thematic analysis was chosen due to its practicality and clarity in qualitative analysis, as well as the flexibility it provides in applications to various methodological paradigms, including phenomenology. Firstly, familiarisation was undertaken by reading each transcript before coding began. The perspectives of ordinary and unexpected themes from the interviews were isolated as open codes (Creswell, 2012), and entered into empathy maps for each end-user group (academics, students, and high-school teachers) based on what participants were thinking, feeling, hearing, and seeing, and centred around identification of pain and gain points. An inductive approach was also used to allow additional important themes to emerge without the constraints of research expectations and other structured methodologies (Thomas, 2006). Although an empathy map for

each end-user would generally be developed in a business context, one cumulative empathy map was created for all academics and one for teachers. This was justified to protect participant confidentiality as they came from a small department within the university. After the empathy maps were created, relationships between the open codes were identified for each end-user group (academics, students, and high-school teachers). Similar to the processes of axial coding in qualitative analyses (Braun & Clarke, 2006), the coding process was further refined through systematic sorting and re-grouping of code categories. These categories were re-assembled to form the themes used to create each end-user group's Insight Statement. A further description of the data analysis conducted in Phase One is offered in [Chapter 4](#), with a presentation of these themes alongside Insight Statements.

The use of thematic analysis allowed for patterns of themes across all end-user interviews to be identified, analysed, and reported as 'Insight Statements'. Used in the ideation stage of design thinking, Insight Statements are brief statements that convey the overall findings and key themes to direct focus on perspectives in the ideation process (IDEO.org, 2015). Triangulation, from the different participants within each end-user group, validated the qualitative emerging themes (Creswell, 2014).

The empathy maps were presented in the Ideation workshop to visually immerse the participants in the end-user experience. The visual maps were used to help create the design of the assessment framework, based also on the comparison with literature, with the wants and needs of the end-users in mind. These empathy interview findings and analyses are presented in [Chapter 4](#). The following section explains the processes and rationale behind the Ideation workshop.

Ideation Workshop. The Ideation workshop was chosen as a research activity to continue the intent of design thinking co-creation of design (Plattner et al., 2012) with collaboration of end-users. The workshop structure was based on the pre-existing framework of design thinking (Wolniak, 2017) outlined previously in this chapter, which shifted between the design thinking stages 2 (define) and 3 (ideate). The overall workshop discussions were planned around the overview of findings of the initial interviews (empathy maps), to explore possible ideas through brainstorming and grouping ideas into themes to define possible achievable outcomes of an assessment framework.

The ideation stage of design thinking considers not only the voices present in the workshop, but those who are significant as important stakeholders in the product

design, in the case of this research, the assessment design. Therefore, the first part of the workshop, aligning with Stage 2 of design thinking (define), incorporated a discourse around specifying the end-users' wants and needs through an overview of the findings of the initial empathy interviews. This was intended to set the context of the need behind the innovative assessment framework and who the innovation will be designed for; it provided an outline of lessons learned so far. Participants being informed of the perspectives of the end-users is an important step in the ideation process, as consideration of the people for whom the prototype is being design for is essential (Tschimmel, 2012), which assists in defining the problem.

The second part of the workshop aligned to Stage 3 (ideate) of design thinking. This consisted of individual and collaborative activities, including brainstorming techniques often using in design thinking (Plattner, 2010) and design thinking sprints (Knapp et al., 2016). These techniques are often highly structured and contain allocated time to construct a creative environment with a sense of pressure, which stimulates teamwork and reflection towards innovative problem solving. This is notably different to usual focus group qualitative research methods, where the data is driven more freely by group interactions and communications (Kitzinger, 1995). While participant interactions are equally important in design thinking sprints, they are more controlled and allow for both individual and collective interplay.

At the end of the workshop, participants and the research team were asked to fill out a short survey with questions that reflect on the workshop process. A detailed outline of the Phase One Ideation workshop method is presented in [Chapter 5](#), including the outcome of the findings and discussion connected to literature.

Assessment Framework Prototype Feedback Interviews. After the Ideation workshop, one ideated solution was chosen by the researcher to develop further into a prototype. Participant feedback was sought and applied to the prototype to make improvements in cyclical iterations.

Participants from the empathy interview sample were emailed individually and one at a time to schedule an interview time to discuss the prototype via an informal open interview. The lead research took written notes while participants were informally asked what they liked about the prototype, any issues that they could foresee, and improvements that they would like to suggest. Three academics, five students and three high-school teachers provided feedback in these assessment framework

feedback interviews. After data saturation was considered reached, the final version was accepted as ready for implementation.

A detailed outline of the prototype method, including feedback from participants and the associated changes made to the assessment design are presented and discussed in [Chapter 5](#).

User Journeys. To fully immerse the research in the design thinking process, user journeys were created by the lead researcher (see [Appendix F](#)). Used often in product development, user journeys are visual maps of points of experience for an end-user (Plattner, 2010). User Journeys were chosen to create a timeline of points of communication and experience between the end-users and their relationship with the assessment framework. The user journeys from the assessment under consideration for redesign in this study were presented to participants in the ideation workshop with the aim to prioritise features and functionality of the assessment framework. This provided the holistic view of the usual experience from the three end-user groups, with the aim to keep these end-users at the centre of any decisions made in the workshop. This also aided the evaluation of the assessment framework from the end-user's perspective through triangulation of another data source to ensure any designed framework was tailored to the end-user timeline and experience.

Method – Phase Two

Overall Aims of Phase Two

Covid-19 provided an opportunity to explore what was happening to the teaching, learning, and assessment shift into digitally supported remote learning that was occurring at the time of this research. This phase of the study aimed to explore the new problems in delivering and completing assessments in this new environment, in addition to those already explored in Phase One. These concepts were explored using the design thinking processes and perspectives in the same way as completed in the pre-Covid-19 Phase One. Therefore, highlighting the pre and post Covid-19 shifts in perspectives.

Participant Selection and Recruitment

Following the same recruitment procedure as Phase One, there were two points in the design thinking process where participants were recruited into Phase Two; Stage 1 (empathise) and Stage 3 (ideate).

Design Thinking Stage 1 – Empathise. The same three end-user groups as Phase One were recruited for Phase Two: students, academics and high school teachers employed at the university. It was noted that participant fatigue was unlikely as the interviews for Phase One were conducted twelve months prior. An additional participant group of academics from other traditional (research and teaching focused), public institutions was added to this phase to increase richness and scope of the data. Similar recruiting procedures to Phase One were followed, which are articulated below.

Students studying a Master of Teaching (Secondary) and enrolled in one of two ‘Specialisation Curriculum and Pedagogy’ units in Semester 2 in 2020 were invited to participate at the beginning of the semester. The researcher made initial contact with students by visiting each scheduled synchronous online tutorial to seek expressions of interest. During the address to students, the researcher outlined the intentions of Phase Two, what would be required to participate, why it would be worthwhile for them to participate, and ethical considerations.

One week later, a follow up email was sent to all students with the Participant Information and Consent Form (see [Appendix G](#)). Permission was sought from the students who expressed interest and asked for their consent to participate in:

- 1) a Zoom interview to understand their thoughts towards assessment in ITE (aligning to Stage 1 of design thinking), and
- 2) a second Zoom interview for feedback on the assessment design framework (aligning to Stage 4 of design thinking).

Stratified sampling procedures were used combined with purposive sampling from these expressions of interest to ensure diversity. The strata characteristics were sought based on gender identity, specialisations (teaching methods), enrolment as a domestic or international student, and number of months into their ITE course.

Initially, only eight students expressed interest in participating. These participants were entered into the strata groups and a second recruiting email was sent out to the cohort seeking the stratification quotas that were not filled. Thereafter, a further six participants consented to participate. Table 5 presents the 15 student participants with their representational characteristics.

Table 5*Representational Characteristics of Student Participants in Phase Two*

Gender	Domestic/ International	Represented specialisations
12 Women 3 Men	7 Domestic 8 International	5 Business/ Commerce 4 Middle Years 4 Humanities 3 English 3 English as an Additional Language (EAL) 2 Psychology 2 Media 2 Mathematics 2 Language Other Than English (LOTE) 1 Visual Art 1 Science 1 Music

Simultaneously, an email invitation was sent to university staff (academics and high-school teachers) who already participated in Phase One, outlining the nature of the second phase of the study, and asking for expressions of interest. The email outlined the participation requirements in this additional phase, ethical considerations and why it would be worthwhile to participate. An email invitation was also sent to all other staff teaching in the ITE programs who were not part of Phase One, asking for expressions of interest and outlining participation requirements as above. Overall, seven high school teachers and ten academics consented to participate in Phase Two, five of these participants had also participated in Phase One. Table 6 below presents their representational characteristics.

Table 6*Representational Characteristics of Academic and High-School Teacher Participants in Phase Two*

Employment role	Gender	Represented specialisations
Academics	4 Women 6 Men	NA
High-school teachers	6 Women 1 Man	Art Business/ Commerce Drama English English as an Additional Language (EAL) History Humanities Language Other Than English (LOTE) Maths Media Music Physical Education Science

Additionally, to extend the diversity of the academic sample, expressions of interest were sought from academics from other institutions. The research team approached their own professional teacher education networks via email for expressions of interest. Five experienced ITE academics (three women and two men) consented to participate. Further detail of Phase Two empathy interview participants is presented in [Chapter 7](#).

Design Thinking Stage 3 – Ideate. Following the same procedure to Phase One, purposeful procedures of recruiting internal academics from the Phase Two sample pool were applied. To keep consistency, the three individuals who participated in Phase One ideation workshop were invited to participate in this research activity. It was also considered that these participants would be familiar with the ideation processes as they had contributed in the previous year. All participants accepted the invitation email; however, one participant withdrew on the day of the workshop due to personal reasons. Including the research team, the workshop consisted of five people, within the acceptable focus group sample range (Kitzinger, 1995). It was hoped the workshop could be conducted face-to-face; however, social restrictions due to Covid-19 resulted in the workshop being conducted via the video conferencing Zoom platform using an online whiteboard tool, Miro (www.miro.com).

Phase Two Research Activities

The same research activities were conducted as Phase One. Table 7 below presents the research activities and when they were conducted in Phase Two.

Table 7

Research Activities Undertaken in Phase Two

Phase of research	Research activity	Participants	Stage of design thinking	Date
Phase 2	Semi-structured individual empathy interviews	- 10 academics - 15 students - 8 high- school teachers - 5 academics from 4 external institutions	Stage 1: Empathise	August – December 2020
	Empathy maps: - academics collated together - high-school teachers collated together - 15 student empathy maps		Stage 1: Empathise	September – October 2020
	Ideation workshop	Research team and 2 other participants	Stage 3: Ideation	February 2021
	Prototype feedback interviews	Participants from initial interviews: - 2 internal academics - 2 students - 3 high-school teachers - 2 external academics	Stage 4: Prototype	March 2021 – April 2021
	User Journeys		Stage 1 and Stage 4	

Empathy Interviews. Semi-structured interviews were conducted with all participant groups in Phase Two via the videoconferencing tool Zoom. Fifteen students, 10 academics, and eight high school teachers were interviewed (20-30 minutes duration) from August until October 2020. This adaptation to have all participant groups participate in an online semi-structured interview in Phase Two was implemented to access richer data compared to that of email or phone correspondence with the school teachers in Phase One.

As the restrictions of Covid-19 meant that interviews could not be conducted in a face-to-face setting, it was deemed appropriate to collect data via the videoconferencing platform. While there is limited literature that critically analyses the process of qualitative data being collected via the Zoom platform compared to that of in-person, the tool was considered appropriate as a means of qualitative data collection in the Covid-19 restrictions. A concern of using the videoconferencing tool included the lack of observable body language and potential for the participant to not feel as comfortable in the online setting thereby not gaining a rapport with the participants, which would influence the quality of the data being collected. Despite this concern, Archibald et al.'s (2019) participants experiencing interviews through Zoom described their experience as favourable over other platforms, including telephone and in-person interviews. Participants are deemed to be still able to hold a rapport with the researcher on these videoconferencing platforms and are able to respond to nonverbal cues made by the researcher, thereby being able to develop a connection with the researcher (Archibald et al., 2019; Deakin & Wakefield, 2014). While it was noted that there were limitations in collecting interview data in this manner, the videoconferencing method was familiar to most participants, who were immersed at that time in videoconferencing-mediated teaching and learning, and allowed for the preservation of some non-verbal cues.

Similar pleasantries were used to make the participant feel at ease as in Phase One, to encourage the participant to feel comfortable and allow for the flow of conversation to potentially discuss discomforts and feelings about their current educational situation. The interviews contained the same prompts on the original themes of assessment design as Phase One, assessment design, engagement, level of understanding, feedback and authentic assessment and academic workload. Additional questions relating to participant perceptions on the shift into online teaching and assessment were added. The interview prompts are presented in [Appendix H](#). Interviews were recorded with the permission of the participant and transcribed.

Empathy Maps. As in Phase One, the perceptions and needs related to assessment themes connected to each participant group, which were analysed using thematic analysis and design thinking procedures, were entered into empathy maps (see [Appendix I](#)). The student participants were individually represented with each empathy map representing each deidentified participant. However, the themes from the academics and high-school teacher were collated together into one persona per participant group so that the participants in the Ideation workshop could not identify the responses of their colleagues.

Through a hybrid approach, aligning with both the design thinking approach and traditional qualitative research, the same Phase One procedures for analysis of this data were followed. Transcripts were read for overall familiarisation, then each line re-read, and open codes created and entered into empathy maps. The coding process was refined through sorting data, noting relationships between open codes, including similarities and differences of perspectives and key issues (Braun & Clarke, 2006; Creswell, 2012). These codes were further developed through systematic sorting and re-grouping of code categories, which were then grouped into themes. Triangulation, from the different participants within each end-user group, validated the qualitative emerging themes (Creswell, 2014). Patterns of themes were identified, analysed and reported as Insight Statements, which are brief statements that convey overall findings and key themes to direct focus on perspectives in the ideation process (IDEO.org, 2015). A further explanation of the Phase Two data analysis is offered in [Chapter 7](#), with a presentation of these themes and Insight Statements.

Ideation Workshop. Once again, the Ideation workshop was chosen to aid in the development of the ideation of assessment design through the collaboration and input of end-users. In this phase of the research, the restrictions to face-to-face gatherings culminated in a video conference Zoom workshop. Given the ongoing restrictions in the research location of Melbourne (Covid-19 in-person gathering restrictions persisted for all of 2020 and into 2021), it was deemed appropriate to include the workshop as a video conference. The collaborating was conducted via an online whiteboard tool, Miro (www.miro.com) that allowed all participants to add written ideas in addition to the Zoom verbal collaborations.

Similar procedures to the Ideation workshop conducted in Phase One were used ([Appendix J](#)), based on the pre-existing framework of design thinking (Wolniak, 2017) outlined previously in this chapter, which shifts between design thinking Stage 2 (define) and Stage 3 (ideate). The overall workshop discussions were planned around the overview of findings of the initial semi-structured interviews (presented to participants in empathy maps), to explore possible ideas through brainstorming and grouping ideas into themes to define possible achievable outcomes of an assessment framework. At the conclusion of the workshop, participants and the research team were asked to complete a short survey with questions that reflect on the workshop process (see [Appendix K](#)). [Chapter 8](#) describes the Ideation workshop processes and presents and discusses the findings with connections to current literature.

Assessment Framework Prototype Feedback Interviews. Following the same process as with Phase One, after the Ideation workshop was complete, one solution was developed into a prototype. Participants who undertook initial interviews were emailed inviting them to provide feedback on the created prototype. This prototype was sent to those who responded, and an interview time was scheduled to discuss the prototype via an informal open interview conducted on Zoom while the lead researcher took written notes. At the conclusion of each interview, the feedback was included in the following iteration of the prototype. In Phase Two, two academics, two students and three high-school teachers provided feedback on the design. [Chapter 8](#) explains the prototype method detail and presents participants' feedback and further discusses features of design.

User Journeys. The same user journeys as Phase One were used as the features and functionality of the assessment framework remained consistent (see [Appendix F](#)).

Ethical Considerations

Ethics approval was granted by the Low-Risk Human Research Ethics Committee at the university. The ethics application (HRE19-064) addressed social and psychological risks to participants, conflicts of interest, benefits of participation, informed consent procedures and confidentiality.

Voluntary participation with written informed consent was obtained. Participants were clearly informed of the intention and purpose of the research, the procedures, and the benefits of their participation. It was explained to participants that they could stop answering questions at any time and withdraw from the research for any reason. The rigorous confidentiality procedures were outlined to participants. To address privacy, no identifying information is used in this research, apart from the university in which the research was undertaken. Pseudonyms and aggregations of academics' and teachers' participant data into combined end-user empathy maps have been used to address confidentiality. Participants were informed as to how the results of this study would be used. Data will be kept for 5 years post-publication in university secured storage.

Ensuring Trustworthiness

To ensure trustworthiness, this research implemented strategies suggested to enhance the rigour of qualitative research (Shenton, 2004), to establish credibility, transferability,

dependability and confirmability (Lincoln & Guba, 1985). The following section describes how each criterion was addressed using a variety of methods.

Credibility

To address internal validity of this research, several approaches were undertaken. While this research utilised the more novel approach of design thinking, it did so whilst aligned to the well-established PAR methodology. In doing so, this research gathered data employing methods that were derived from usual qualitative practices. Where applicable, novel approaches are comprehensively explained in this thesis for transparency. Additionally, regular peer debriefing and vetting of themes and outcomes were undertaken with the research team during data analyses.

Triangulation of data to verify findings and insights (Taylor et al., 2015) was adopted in both phases in this research, during the empathy and prototype feedback interviews. Another form of triangulation involved purposefully selecting participants from a range of strata, to develop a diverse sample representing a range of individuals (Shenton, 2004). This triangulation is further enriched by including the three end-user sample groups of students, academics (internal and external), and high-school teachers. Whilst conducting the interviews, the research employed a range of strategies to assist in establishing rapport, which has been suggested in the literature to assist in promoting honesty in participation (Shenton, 2004). Additionally, the researcher clearly outlined withdrawal rights and rigorous confidentiality procedures.

It should be mentioned that the involvement of the researcher in PAR can bring about ethical issues of power in unequal relationships (Löfman et al., 2004; MacDonald, 2012). The researchers (two supervisors and one student) involved in this project were academics teaching in the College of Arts and Education at the university. The unequal student teacher relationship was addressed by ensuring the researchers were not teaching in the units where this study was taking place. In the Ideation workshop participation, it was considered that the 'power' in this circumstance was positioned with the academic participants who were more experienced higher education academics and researchers.

As with the processes of qualitative research and PAR methodologies, the researcher serves as a means of data collection (Baum et al., 2006). Potential sources of bias in this research could come from my background experiences and therefore require consideration in this dissertation. My experiences teaching in secondary and higher

education sectors and acquaintance with curriculum and assessment planning may well have influenced the research process. My combined past experiences of seeking to create supportive, engaging classroom environments and curriculum and assessment programs by adopting open dialogues with students at both levels were central to my interpretation of the data and formation of the assessment design. From the perspective of establishing rapport with participants and facilitating open dialogue, this personal preference enhanced the data collection. In data analysis, this preference bias was minimised through peer review with supervisors and member checking of assessment framework prototypes during development.

As the lead researcher in this dissertation, I was responsible for all data collection. Additionally, during the Ideation workshop in Phase One, which was led by my primary supervisor, I took part as both a researcher and as a participant, alongside the research team and three other participants. I led the Ideation workshop in Phase Two, again taking part as both researcher and participant. I completed a written reflection at the end of the workshops to document the collaboration, notable occurrences, concerns that were addressed, and issues that were raised. Reflected in these combined positions of practices within this study, according to Löffman et al. (2004), I was an 'insider' as I shared educational employment and engagement with the participants as well as investigating change alongside the participants in a cocreation of assessment design. This collaboration is an important feature of PAR methodologies (le May & Lathlean, 2001) and one intentionally chosen for this research.

Transferability

Since the findings of this research cannot be generalised due to its small sample size, it has provided very detailed approaches to the methodological and method decisions and procedures. Detailed descriptions of the research's settings, boundaries, and extended time periods spent in contexts are included, to allow practitioners to assess the transferability of findings to their own contexts (Lincoln & Guba, 1985).

Dependability

To enhance reliability, the detailed methodological descriptions provide sufficient detail to enable this study to be replicated by other researchers. Additionally, this study utilised multiple sources of overlapping data, including empathy interviews, empathy maps, Ideation workshops, prototype feedback interviews and user journey maps.

Additionally, regular checking of processes, data collection and analyses was undertaken by the research team.

Confirmability

Acknowledging the difficulties of objectivity and encroachment of researcher's biases (Shenton, 2004), this research addressed confirmability by triangulation of data, admission of boundaries and limitations, and disclosure of the researcher's background and beliefs, as outlined above. The method details the systematic approaches to the qualitative analysis procedures and the theoretical underpinnings to address these data collection and analysis choices.

Chapter Summary

This chapter has explained the pragmatism and constructivism theoretical underpinnings of the PAR methodological design. It has placed the design thinking concept within the PAR framework and explained the decisions to include both. It has outlined the features of the two phases of the research and detailed the research activities, involving data collection methods and analyses. The next chapter begins the data analysis presentation and discussion where the data collected in Phase One of the project (pre-Covid-19) will be further outlined.

Chapter 4: Pre-Covid (Phase One) Stakeholder Perspectives: Empathy Interview Findings and Discussion

“We think we listen, but very rarely do we listen with real understanding, true empathy. Yet listening, of this very special kind, is one of the most potent forces for change that I know.”

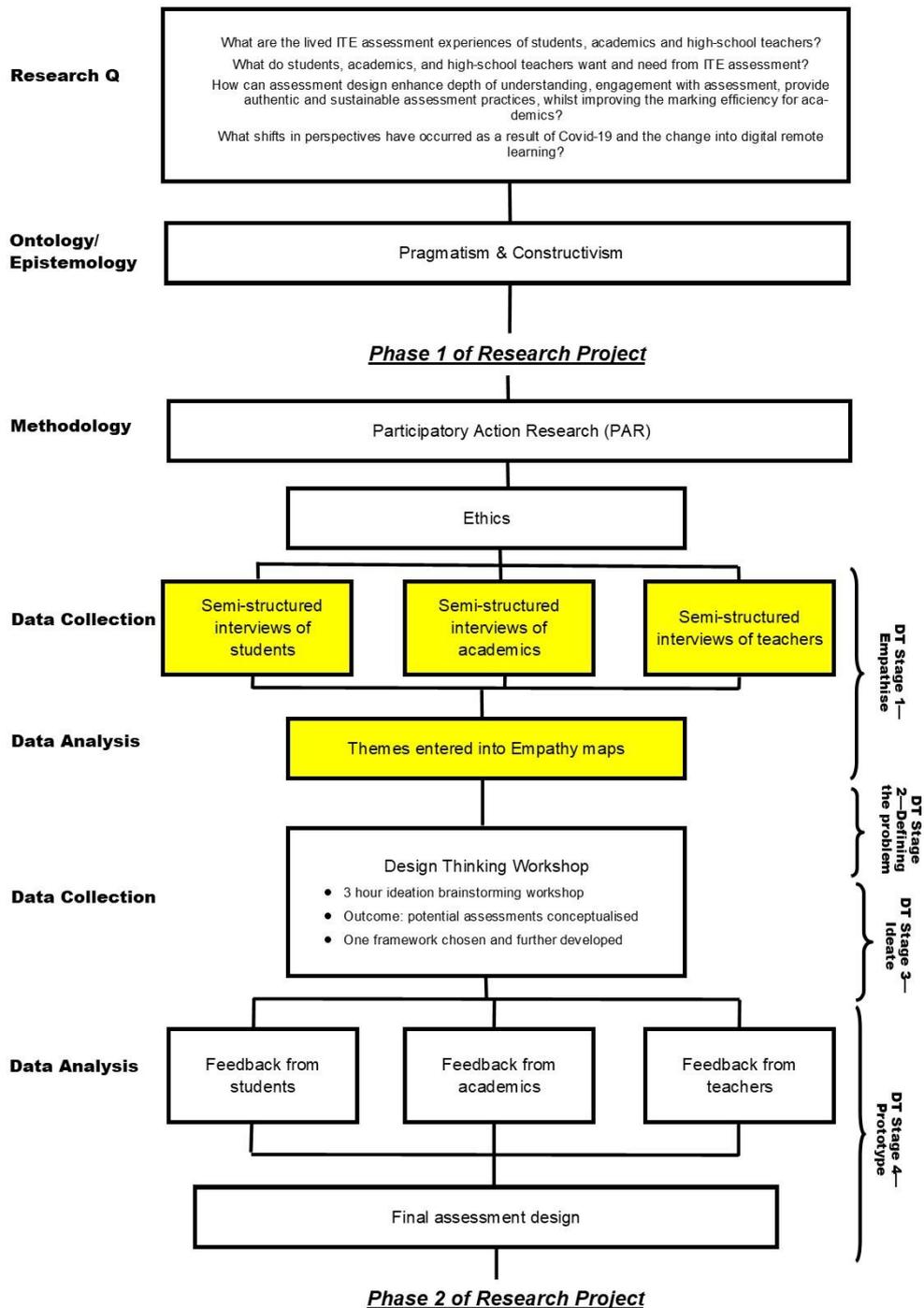
- Carl Rogers (Humanistic Psychologist)

Introduction

Phase One of this research was conducted in 2019, when universities were following usual face-to-face teaching, learning, and assessment practices. This research aimed to develop an innovative assessment framework that resolved several common assessment issues including depth of understanding, assessment engagement, achieve authentic and sustainable assessment, and improve marking efficiency of academics. As presented in the previous chapter, the research design of this phase followed design thinking procedures of empathising with end-users, identifying the problem, ideating and designing prototypes (see Figure 4 below). This chapter will present the analysis and findings of the first stage of design thinking: empathise (IDEO.org, 2015; Wolniak, 2017). The data was collected through semi-structured interviews, analysed and entered into empathy maps using thematic analyses aligned to design thinking approaches. These points are highlighted in Figure 4 to illustrate their position in the overall research design.

Figure 4

Phase One: Empathy Interview Data Collection and Analysis



The following section will outline the nature of the participants in each of the three end-user groups: students, academics, and high-school teachers. The empathy interview data analysis utilised as a part of the design thinking approaches will be explained and connected to thematic analysis techniques usually adopted in qualitative research. The

empathy interview findings will be presented, followed by a discussion of the outcomes connected to current literature.

Participants

The three end-user groups (students, academics, and high-school teachers) who encompass the groups involved in university teaching and learning were recruited in this phase to gain an empathetic understanding of assessment perceptions of practices and experiences.

Eight academics, including three women and five men, consented to participate. These participants had varied academic teaching experience ranging from one year to more than 20 years of experience. They all came from an educational background teaching in schools, mainly in the secondary sector. They held varied roles within the university's Education faculty across multiple levels of academia, and most were currently teaching and assessing students of teaching. As these participants were part of a small department within the university, to avoid compromising confidentiality, specific details about background of individuals have intentionally not been presented.

There were 11 students, eight women and three men, who consented to participate, of these seven were domestic students and four international students. The range of teaching specialisations held by the students was varied.

Five high-school teachers, four women and one man, consented to participate, representing a range of specialisations. All had experience teaching junior (years 7-10) and senior levels (years 11-12) of secondary schooling. These participants had a minimum of 10 years of teaching experience and had been working in the Master of Teaching (Secondary) program from 6 months to 2 years. Within the university, these teachers deliver workshops to share their professional expertise with students and contribute to delivering and assessing the second assessment in the program. The Methodology Chapter 3 presents a generic description of these cohorts (see Phase One – Empathy Interview Participant Selection and Recruitment).

Data Analysis of Empathy Interviews

Empathy interviews were conducted to gain insight and understanding into stakeholders' perspectives on assessment in teacher education. An empathetic approach was taken, which is an essential first step in design thinking, termed 'empathise' (Wolniak, 2017). This was done to gain a holistic understanding of end-

users as a first step towards developing and ideating solutions to socially driven problems (Köppen & Meinel, 2015; Vogel, 2010). To achieve this, individual face-to-face semi-structured interviews were conducted, digitally recorded with participants' permission, and transcribed verbatim by an external service provider who agreed to the confidentiality of findings.

It can be recalled from the methodology outline (see Phase One Research Activities in [Chapter 3](#)) that the transcripts were analysed using a hybrid approach that aligns with both the design thinking approach (Gray, 2009; IDEO.org, 2015) and traditional qualitative research outlined by Braun & Clarke (2006), and entered into empathy maps (see [Appendix C](#)). After these empathy maps were complete, relationships between the empathy map entries were identified for each end-user group, then re-assembled to form the themes used to create Insight Statements (see Table 8 in the findings below). Development of Insight Statements are typical of design thinking processes that aim to describe a core insight for the participant group that incorporates multiple dimensions of a theme (IDEO.org, 2015). These are phrased in such a way that help inform the development of a prototype, in the case of this research, the assessment design. These Insight Statements are not direct participant quotes, but a combination of the participants' representative views based on the coding. The Insight Statements were presented alongside the empathy maps during the ideation workshop to have the end-user at the forefront of their minds while brainstorming ideas for potential assessment solutions, which will be presented in the next chapter.

Empathy Interview Findings

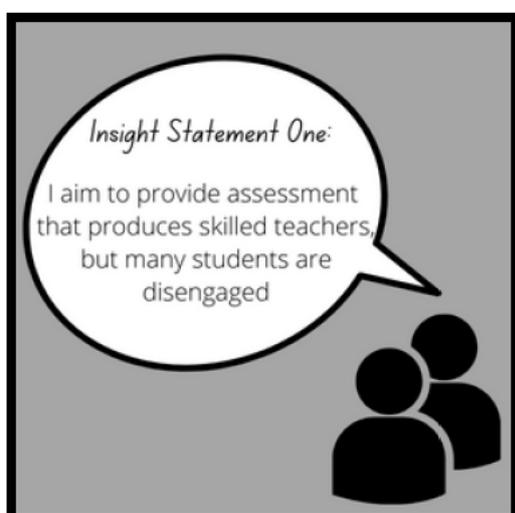
The following section details the Phase One empathy interview findings that the Table 8 summary Insight Statements draw from. Following this presentation of the pre-Covid participants' perspectives is a discussion of the implications and considerations surfaced through the participants' interview data. The findings are presented under each of the end-user group Insight Statements, as presented in Table 8, which are the accumulation of participant end-user perspectives and articulate the key emerging learnings from the empathy interviews. The Insight Statements are shown in bold, with exemplar direct participant quotes in italics that provide evidence for the coalescence of participants' perceptions into the thematic Insight Statements. Pseudonyms have been used to protect confidentiality of participants.

Table 8

Phase One: End-user Group Insight Statements

End-user group	Themes	Insight Statements
Academics	Assessment Teaching skills Engagement	I aim to provide assessment that produces skilled teachers, but many students are disengaged.
	Assessment Feedback Workload	I want to provide high-quality assessment and feedback to students, but I don't have enough time.
	Authentic assessment	I wish it were easier to provide authentic assessment in teaching and education.
Students	Clarity	I want to achieve a good assessment result, but the lack of clarity and transparency doesn't allow for this.
	Relevance Linking theory to practice	I wish the assessment was more relevant to me in terms of: Connecting to professional practice, linking theory to skill, and helping to improve my teaching practice.
	Workload	I want deep learning in assessments, but the workload needs to be manageable.
	Collaboration	I find collaboration worthwhile but only when my peers have the capacity for teamwork (and feedback).
High-school teachers	Linking assessment to practice	I need to be able to see the clear connection between the assessment and how teachers actually work.
	Engagement Driven by assessment	I enjoy delivering the workshops and building professional relationships with students, but some students are just there to satisfy a requirement and aren't motivated to learn.
	Teaching skills	I think there is a hierarchy of teaching skills, but they may be difficult to assess.

Findings From Internal Academics



Insight Statement One. Across many of the interviews, academics discussed relational aspects to teaching, learning and assessment. Many signified wanting to help and encourage students in their studies and subsequent pathway into the teaching profession. They clearly exhibited care towards their students and discussed various ways of supporting them in their studies with

the overall aim to produce high-quality teachers.

Bruce, Isabella and Thomas all shared this teaching philosophy as connected to the idea of student accomplishment and achievement:

“I suppose my philosophical premise is that we want to give students access to success.” (Bruce)

“[I] have a strong passion for the importance of preparing initial teaching educators both through university and through the connection with the partnerships in schools.” (Thomas)

“My pedagogy is to get them thinking around what are those biggest social construct issues, and their own teaching philosophy, and how does that align with what we do with the kid in the school, especially if I'm in a school that is a really challenging demographic.” (Isabella)

The academics shared the various ways they design and develop assessments in their programs, and through these discussions it was evident they had clear understandings of what good assessment and feedback looked like. Essays were not valued as good assessment and regurgitation of information was no longer seen as pedagogically sound:

“I have never been very appreciative of essay writing as an effective way of doing [assessment].” (Phillip)

“And that's to say we get away from the idea that there's a certain quantum of knowledge in the form of information that has to be communicated, absorbed and then and then you know regurgitated in some form of final assessment.” (Miles)

“But for lots of people... assessment has value. So, you want to make sure that you were very careful in what the diagnostic assessment tells the student. So, it has to be embracing in its feedback. It has to be gentle. It has to show respect for how we can support the person on that next step.” (Thomas)

Different ways of assessing students were discussed, including the use of portfolio structures. Phillip discussed his attraction to that form of assessment:

"I worked a lot on the tools, the ways, the thoughts, and ideas of doing that sort of assessment... I rather like the performative summative nature of a final portfolio presentation and I love the way that you could be very formative as elements of the portfolio are put together into, are added to... it's an iterative process." (Phillip)

The academics discussed various techniques they used to assess students. Formative assessment was a common theme, aiming to provide students a strong basis of feedback throughout their assessment program. Additionally, even in the discussions of summative assessment, they noted the importance of including formative aspects within the final assessment design. Aspects of diagnostic assessment embedded into formative assessment was also discussed as important analytical information:

"...we need assessment... as far as possible, built on a on a model where we have a strong basis of formative assessment. And I guess that... very first assessment, that should have a strong diagnostic element. And a capacity to get some very quick feedback. It's got to be actually useful for structuring... of what lies ahead and in forming an understanding amongst ourselves about what the task is ahead and where I'll have to really put a bit of work or not...All the assessments should be formative. But the very first one should also have an element of design that's diagnostic. And not diagnostic in general: 'What's the grammar like?' ...It's about the very particular kind of knowledge and competencies that are going to be, you know, fundamental to that particular unit... And it also should have a formative element in the sense that it's that that's communicated back to the students and then becomes sort of the beginning of a of a scaffolding towards those larger assessments." (Miles)

Assessment that is backwards designed from particular learning goals and outcomes together with an iterative design and feedback model was discussed as good practice and adopted by a few. Additionally, the added importance of connecting theory to practice was discussed:

"So, it was theoretical basis looking at the curriculum, looking at the resources, looking at different pedagogical approaches and so, they kind of opened their eyes to, 'Ah okay. So, when I'm in a classroom, they're doing this'..." (Lucy)

Many academics discussed the key elements of providing scaffolding and modelling with their assessment design:

“I do it to model what they can do in their own classes but I'm also modelling what they should be doing in terms of their own writing and thinking as well. They need to keep digging down further and further, so they get into that mode of greater complexity.” (Bruce)

“There's a scaffold and approach in the pedagogy of the classwork that directly leads into the assessment experience. And that's what I'd like to think of it as is an experience of assessment so that the students are not only doing what needs to be met at an AQF [Australian Qualifications Framework] level but that there's something they take away from it that connects to their own personal philosophy as a teacher... I'm trying to get them to think for themselves, of what it's going to look like, and how they're going to do it. So, it's sort of modelling this parallel structure of this is what I'm learning and so I'm trying to figure out and this is what it looks like in school.” (Isabella)

In Isabella's experience, she built student rapport and felt students understood and valued her process of creating, learning, and assessing experiences alongside them. She shared that she did this in a way that included the student as a partner in the learning and design processes, providing a classroom where there was a co-creation of learning:

“My students are used to the way that I work. And so, they're very willing to trial things with me and that's what it's about that co creation of learning so they trust me enough that we will do these things and that's what I've been able to do in the past, so that I could see where the things are going to work and then the challenges...” (Isabella)

Furthermore, discussions on the importance of assessment were linked and connected to learning outcomes. With the addition of feedback reflecting the learning of the outcome. Lucy and Thomas shared:

“...sometimes I wonder whether [the assessment] actually achieves the purpose. Because the whole purpose of assessment is that it's meant to somehow gauge whether the learning that you've planned has been learned... the content that you've planned... So, I'm always looking for assessments that demonstrate that students have moved to a place where they've gained something new... the most important thing is the learning.” (Lucy)

“In terms of assessment we've got to make sure that this is going to relate to Initial Teacher Education, but it relates to everything, all assessment... I have a rejuvenated passion right now, today, this moment, for learning outcomes... I don't think we pay enough attention to them. So, I've spent a lot of time in this last couple of months looking at learning outcomes and wanting to ensure the trajectory of a learning outcome through content through to assessment. So, assessments are only there to tell the story of a learning outcome. And for no other purpose.” (Thomas)

The assessment must also fit within what is achievable by the student given the time frame and what is achievable in the marking and feedback timeline for the academic:

“...it means that we've got to redesign things to fit within both. And so, then we have to ask, what are the skills we're actually looking at measuring? Are these really valid and reliable and credible? And is it achievable within the timeframe. And is it achievable for us to mark and give constructive feedback.” (Isabella)

Academics shared they often chose to create collaborative assessments to address the marking load, but also noted the pedagogical value adding to the richness and authenticity.

However, despite the energy and time taken to design assessment and feedback programs for their students, and that many of these assessment designs and practices were modelling aspects of appraised school approaches, some academics noted how far behind higher education is compared to assessment in secondary schools:

“Well, strangely Initial Teacher Education is a million miles from a high school education.” (Phillip)

Additionally, several academics mentioned that not all students were engaged with the assessment and associated learning process:

“So, what you'd have is the endless writing. And I'm thinking, if I'm bored reading this, you must have been bored writing this.” (Phillip)

“I think that there's that sense that they have been able to fluff through assessments and still get a pass...they just see it as something they just got to get through because they just want to be a teacher and, really, they're a bit kind of resentful that they have to do any work. They just want to be teachers.”
(Lucy)

Most academics mentioned that they felt many students only engaging in assessment when they perceived to have the best ability to achieve a good mark and not necessarily for an enriching experience or to have learned something. This is reflected in Thomas and Daniel's comments:

"Yeah, I think sometimes they don't see the point in the assessment."

(Thomas)

"To be cynical, I think most engage with the opportunity to get a good mark... what most students are looking for is a good grade and a good mark and so the assessments that they engage with most are the ones where they perceive to have the best ability to get a good mark. Not necessarily to have had an enriching experience or to have learned something or to have mastered something." (Daniel)

Daniel presented an important consideration that students did not necessarily know what they 'need' to learn. They may have a perception of what a good teacher is from their prior experiences, such as from their own schooling or somewhat limited experience on placement, but without the graduate experience of teaching, the perception is limited:

"I think when they... have their question about teaching and what it means to be a teacher, if the assessment matches that, then they usually find it helpful... But I think most of the time the students either don't know what it is that they want to be a good teacher and so they can't connect the assessment... They... just [do] the assessment because it's part of the course do the course to be a teacher." (Daniel)

This idea that students are still developing in this area was reaffirmed in Isabella's comment:

"I think the philosophical challenge that they need to look out for themselves, at the type of teacher that they want to be. And I think that's very difficult to communicate to students who sometimes just want to come here learn what they need to do. I just go out and do the job. But there's a lot more to it."

(Isabella)

Tensions between regulatory processes, including ITE accreditation, and learning experiences were evident. Some academics felt limited in what they could actualise

within these external requirements. They reflected that these countability measures impeded learning environments and student engagement, and discussed ways to engage or re-engage students more deeply into the learning. Daniel's comment reflected on the rigidities of these regulatory bodies impacting authentic assessment and, in turn, students' (dis)engagement with these learning opportunities:

“Well, it's a tricky one because as a teacher you don't have the ultimate power because these things are beyond you but you can't change things we can't change a society where these things are valued. I guess what I've done is try to meet you know both needs both theirs and mine. They want to get a good mark. So, I try and help them get a good mark. But from my point of view, I want them to learn something. So, you just try and do both. That's what teachers do. So, when you talk about the assessment, or when you help them with the assessment, you try to help them see both. You try to help them see the value in both things. Sure, it's good to get a good mark. I can help you get a good mark. But just getting a good mark is not very helpful to you. And so, you're trying to help them see the value in learning something from the assessment.” (Daniel)

There was a 'selling' of the assessment's purpose to the student, through explicit teaching and instruction to explain the pedagogical intent behind the assessment design in order to get students to engage in the assessment process:

“I know for myself they are the conversations that I have with the students because, I think, when you can be transparent in explaining your pedagogy behind why you design the assignments in the way that you did. How you came to designing them and what, what you intended the meaning to be for the students, then I think that that that addresses that notion in terms of getting the students to understand it.” (Isabella)

Additionally, the connection to what they were learning and why they were learning in that way may not come until later, either in connection to placement – where they may see the learnings from the assessment in practice – or as time progressed in their course as they make further connections to subsequent curriculum:

“...that relationship between time and space that they actually need to see it in practice see it applied.” (Isabella)

“... I thought it was a really good assessment because I've got a really clear idea who had learnt.” (Lucy)

“...I think the more they are learners themselves the more they understand the subject or learning etc. So, the deeper understanding they have, the easier it is for them to see.” (Daniel)

Some of discussions that were centred on improving student learning opportunities were also tied to academic performance. Some academics reflected that student engagement in the assessment and learning resulted in better academic performance. Academics wanted their students to have improved learning outcomes. When students performed poorly on their assessments, some academics felt as though it was a reflection of their teaching:

“I guess that's one of the big issues with assessment is that teachers feel that whatever the students get on the assessments reflects on their teaching. It does in some way, and it doesn't in another way. One of the issues with assessment if we can allow room for the possibility, I guess, of failure, if you want to say that strongly, without reflecting on the poor quality of the teaching, you teach you can be the best teacher in the world and the students not necessarily pass.” (Daniel)

“...I'm always concerned, if I'm reading a piece of assessment... and the student is not doing very well, my immediate thought is 'I didn't teach them very well... god did I leave that out?' And then after reflection... I didn't leave it out. This kid just didn't do it because maybe they were away that day or something like that...” (Phillip)

Perhaps a central basis to these challenges was the fact that it was difficult to assess teaching and education in the first place and within the constraints of the university systems and the external regulatory accreditation components.

Daniel and Phillip both discussed the wild conception of the potential of ITE having no assessment at all to tackle this issue. Daniel shared:

“We could have no assessment. I'd be fine with no assessment because to me [I'd be] doing the same job of teaching. I'm still teaching you and you're still trying to learn. We can do that without assessment. So, if we have to have an assessment and should be quite minimal, I think it should be as minimal as

possible. Just what's needed. For whatever the specific need is say if it's an accreditation then just what's needed to get accredited, certified. Yeah. If it's to get to some level meet some standard, then minimum that's needed to identify the fact that even met that standard.” (Daniel)

Despite being an interesting concept, for academics, the reality was they need to assess within the facilities of the university. Therefore, there was a tension that arose from challenges of aiming to provide this high-quality assessment and feedback model within the restrictive models of universities, perceived, and experienced.



Insight Statement Two. Many academics shared tensions between wanting to provide high-quality assessment and feedback and their increasing workload. Phillip shared some of the factors that contributed to this increasing assessment workload:

“Other factors... is the number of students we have then the amount of time we have to give the feedback and the complexity of the nature of the task that we do we do.”

(Phillip)

Miles referred to the sessional rate of marking where sessional academics are allocated a finite amount of time to mark each piece of assessment. He was evidently concerned with the lack of time to provide relational teaching and learning opportunities in higher education assessment:

“[the allocated marking time suggests] we should be able to make mark every assessment in under six minutes. Which is not only ridiculous. I think it's insulting. It's obscene... The idea that the rubric can do it all which is utter nonsense. And it doesn't matter how much you build into a rubric, than the genuine teacher to student communication that can happen in a few lines of commentary that take a fair bit of unpacking and a fair bit of thinking about... That takes a lot more than six minutes.” (Miles)

Partly nuanced to the university for which this research is based is the model of teaching delivery focused on the Block Model – a focused course delivery with one unit

of study at a time focused on through classes two to three times a week for four weeks. In developing the curriculum and assessment to fit this delivery model, the process had forced academics to look at improving assessment:

“So, part of that is to develop an assessment culture... We've never really developed an assessment culture because everybody's busy and everybody's doing what they need to do. And in education lots of people think, appropriately think, that they understand assessment cause [it's] part of their training. When you move off into a world of arts and education, it's not as straightforward. And, you know, we need to make sure that we work through those expectations of the uni. Part of it is policy and part of it is compliance.” (Thomas)

Subsequently, reasonably resulting from the shorter assessing timeframe of the units due to this Block Model, academics felt they did not have enough time to give the amount of feedback they would like to each student:

“I don't think, for some students, that they are necessarily getting all the feedback they would like.” (Isabella)

“I gave feedback to those who were not passing things, but the others I just gave them a mark. I didn't give them feedback. And that's not really good practice because you need to give feedback, but I won't have time to do that.” (Lucy)

“And it's not just about enough feedback, and this is the bugbear again... if the feedback basically just reinforces what I knew about myself is: that it doesn't matter what I do, I'm looking to get higher than credit. Well unfortunately, I think that's bad feedback but it's feedback that we're forced to give. And, you know, I think the early feedback as far as possible should be enabling.” (Miles)

“...feedback is the most looked for but the least given.” (Phillip)

Phillip reflected on the difficulties in providing clear, authentic feedback that holds value to the student when the student has not performed well. He explained that he wanted the feedback process to be organically natural, almost in a conversation type of way, in a partnership with the student, so that his message of explicitness was conveyed, and the student goes away not feeling defeated when they have not done well. However, he noted this was hard to achieve. Phillip shared that to be able to give more feedback, the feedback should be built within the assessment experience and situation.

To address some of the assessment workload constraints, some academics shared various well known coping methods:

“The feedback we do is automated. For a lot of it and so we’ve got in our rubric, you know, criteria aiming this at a high level and then we automate some feedback that has feedback and feed forward. And then depending on the overall outcomes in the moderation meeting that we have with our staff. If we’re finding there are similar patterns of incorrect things that students need feedback on, we then create another set of feedback data so they’re just like feedback statements that we have as prompts so that then every staff member has the same prompts where needed.” (Isabella)

Another method included getting to know students through listening to conversations to build a picture of the student. Utilising impromptu and fortuitous assessment scanning of class members to build feedback and streamline judgements provided the academic with a cognitive load which could be drawn upon during the evaluation process:

“When I sit with all their groups and listen to their conversations and this way, I eventually get to know every student and the way they talk and think about stuff so I’m hearing the same voice in their writing.” (Isabella)

“But as I’m going along, I can see where the strengths and weaknesses are on the various elements of this sort of thing. These activities do better. If you’ve done it a few times... So, in terms of kind of cognitive load for new academics coming into initial teacher education it might be a bit heavy, but you learn how to see, and you learn to break it down. There is a tendency to see the students work as what that is, and you make a judgment as quickly as you can.” (Phillip)

Some academics attempted to refine clarity in assessment instructions and explanations to reduce the number of student questions after class, which increased workloads. Additionally, for the student to understand what is being asked and subsequently be able to perform competently, the assessment task design should be considered:

“It mustn’t be too complex a task. They must understand what is required for them to be able to get good outcomes and they must be able to achieve good outcomes.” (Bruce)

Bruce shared that he adopted collaborative assessments to reduce the evaluation and feedback time:

“...we have to have at least one group activity and it has to be manageable to be marked quickly. The last task of unit in particular has to be managed and designed very carefully to allow both the students to complete it succinctly and for us as lecturers to mark it.” (Bruce)

Additionally, the challenge of providing the rich feedback experience in ITE came from limited open dialogues between the teacher and the student. As Daniel asserted:

“...for [feedback] to be meaningful or effective or enough then it's going to be relative to the student's perception. And so, you need to know how they understand the feedback that you're giving them. So, you can give them the feedback that you think is relevant... and they might see it as something completely different. So that's another tricky issue. For me, I just give them kind of minimal feedback as possible. And then whenever the need arises, I try and give them more because it's just an ongoing dialogue really... I think the biggest thing in teaching or initial teacher education, is that it has to be kind of built ongoing dialogue from start to finish... it has to be continual... more thoughtful and ongoing and continual” (Daniel)

Miles valued ongoing conversations with students, through questioning and interaction as an opportunity for students to gain insights along the way. He felt these organic conversations were the basis of learning moments, and that there had been a shift in academia away from these learning moments:

“We're questioning in terms of what they're taking it or not.... my general observation is that the readiness is there. And also, I think that's also evidenced by the amount of actual proactive taking it to the next step, you know... ‘Can you find a paper that does this for me?’ And then you get back, ‘Well, look I've come up with another one. What about this?’ ...you've been talking continuously...This what happens as part of an ongoing conversation.” (Miles)

Miles articulated the Neoliberal structures of higher education, which restricted and underpinned many of the academics' aforementioned reflections on possibilities and constraints within assessment in ITE:

“... I think, you know, the old guard of academia was so stuck in its ways... I don't think we can pretend that we've got a space where we can get around the table and with all the players that will be worried about the things like you and I are talking about now.” (Miles)

Despite these constraints, academics needed to find a space and place within to be able to teach and assess their students to equip them with the knowledge and skills necessary to excel in the teaching profession. Ideally, Miles believed a connection between units to be able to scaffold across units, would enrich the learning experience and assessment process for the student:

“I think you can do so much more if there were a possible collaboration across units with a view to, okay, we're designing to scaffold to build. We're thinking about transferability of competencies as well as knowledge and basic concepts. And building and concepts to more sophisticated concepts and so on. You can only do that if you're thinking across courses, you can't do that [in] one small unit.” (Miles)



Insight Statement Three. Authentic assessment was important to most. However, Phillip shared the tension between wanting to provide authentic learning opportunities for deep learning and the difficulties in providing authentic conditions:

“Often, I find the best assessments that we did was when I was actively engaged with students in situations

[that were] authentic teaching situations, which sadly is very hard to do.”

(Phillip)

Many academics valued the assessment product having some sort of a future authentic benefit to the student:

“I like tasks that actually bring value for those students outside of the grade in the class. So, for me an authentic task which has real life meaning is something which I would always aim for... the task itself is authentic in terms of

the activity you get students to do is something they would do in a school setting.” (Bruce)

“That’s where assessment works where the student actually is feeling that they’re not required to do something which is not just fulfilling the task for some abstract, you know, purposes that the teacher might have it on, but it’s... it’s bound up somehow with their identity and the sense of what they would be doing in their field of practice.” (Miles)

As previously discussed, collaboration was seen as an important aspect of the teaching profession and therefore academics considered it should be embedded into assessment and feedback designs to enhance authenticity. The academics believed the authentic aspects of teacher’s planning involved knowledge of content, timing of activities, education discourse, environmental constraints, classroom ecology, and building student relationships:

“... collaboration is one of the biggest parts that we need to be able to do with everyone not just people in our faculty, or people who we like, or people who are good workers, and not good workers. It’s also you learning how to work with those other people as well. And I think that those assessments that we design throughout all of it allow them to have lots of experiences that are going to be similar to what they’ll experience in a school.” (Isabella)

“...the student goes into a school [to be] able to articulate practice and [be] on the same page as the mentors.” (Lucy)

Reflexive and reflective activities were also commonly identified as authentic ITE tasks. Activities suggested included engaging in iterative feedback processes, both with the partnership of the teacher (either the academic or school mentor teacher) and their own personal self-reflective feedback. However, due to the complexity of this method, Phillip felt the process could lose value:

“But it’s hard to do well and sometimes, the technique or... whatever we’re doing as an assessment doesn’t serve our purpose and it becomes the be all and end all.” (Phillip)

Findings From Students



Insight Statement One. Not surprisingly, student participants saw assessment as important to learning. Students wanted to perform well and to be supported in ways to do this. Adele mentioned that assessment was the focal point of her learning:

"... sometimes you don't really learn anything in the class... But only through the assessments." (Adele, domestic student)

Mujahid held a similar view and shared that he held assessment in a hierarchy over attending class. He viewed assessment as the pathway to satisfactory completion of his degree, and not necessarily for the value of the learning experience. Additionally, Madhu perceived assessment and professional practice experiences as separate entities, and held professional practice in a higher hierarchy than assessment:

"...I really love, and I really learn a lot more when I'm in school on placement...I think when I do like tertiary assignments it's more about just finishing it." (Madhu, international student)

Similarly to Mujahid and Madhu's views of assessment, Amelia was aware of being focused on marks, rather than the learning process:

"I don't think we should be worried about the mark. Yeah, I think we should worry about the process of learning and how we grasp the, you know, what we are learning, and understand it." (Amelia, domestic student)

While Florentina valued the learning process, she did not value essay formats, which she was likely to forget. Florentina wanted assessment to be authentic to her situation as an emerging teacher, or alternatively, valuable to the university or teaching profession, in a reciprocating way.

Clarity and transparency were a commonly discussed assessment theme. Many students wanted improved clarity of assessment tasks and instructions. Being a mature aged student, Amelia was studying to improve her career pathway. After a long break

from study she was noticing differences in higher education systems from when she last studied, which were difficult for her to manage, including the increased use of technology. While she understood that doing a Masters degree came with a degree of higher order thinking, she was frustrated with the type of language used in assessment instructions:

“...the language in the assessments is very difficult... it's not in simple English. Things need to be more simplified because they've got to take into consideration people like me that have had such a gap.” (Amelia, domestic student)

Other students also wanted assessment clarity and transparency to reduce confusion and assessment anxieties:

“The assessments are too vague...We didn't know if we were doing it correctly.” (Karla, international student)

“I don't know how I'm passing to be honest and getting good marks because I'm guessing what I have to do.” (Julia, domestic student)

“...it just always takes me a long time to get my head around [the requirements]. Where do I have to go...what I have to do.” (Adele, domestic student)

Additionally, the value or purpose of the assessment needed to be visible:

“...if you if you can sell the purpose or the value [of] the assessment to someone, then that's a good assessment for me.” (Jeremy, domestic student)

“Sometimes you want to feel, like, why am I doing this? ...Why am I studying this and how is that relevant to my course?” (Zala, international student)

The purpose of the assessment was important to Adelle, a high achiever, to help contextualise the requirements, better understand what she is meant to get out of the assessment, and what the academic wants to see from her:

“...now in hindsight I understand where that assessment had to go. When you're starting. I didn't have a clue. And because the description is not clear... and I wasn't the only one.” (Adele, domestic student)

Overall, students wanted more feedback that was encouraging, constructive, easy to understand:

"I actually want my teacher to show me where I need to improve." (Amelia, domestic student)

"I feel like It's important to pinpoint what are the things that you need to improve on. And also... things that you are already good at." (Karla, international student)

"Tell me one thing I've done well in my assignment and then something I've done wrong or obviously what I can improve on... but just try and keep it as simple as possible." (Jeremy, domestic student)

Timely feedback was also sought to be able to reflect upon and improve for future assessments:

"Often there's a lot of time between when you get your feedback back you submit an assignment and just keep going. And then you go to your feedback and go 'oh yeah'. But I'm too far through the unit now to worry about it." (Eleanor, domestic student)

"We'd be starting another one with absolutely no idea how we went with the first one as well, which made life very hard." (Julia, domestic student)

Jeremy shared that he always reflected on previous feedback even when the assessment program was not clearly sequentially linked together:

"I never think it's not relevant to another assignment... Even if it's only for a little bit, there's always gonna be some sort of application." (Jeremy, domestic student)

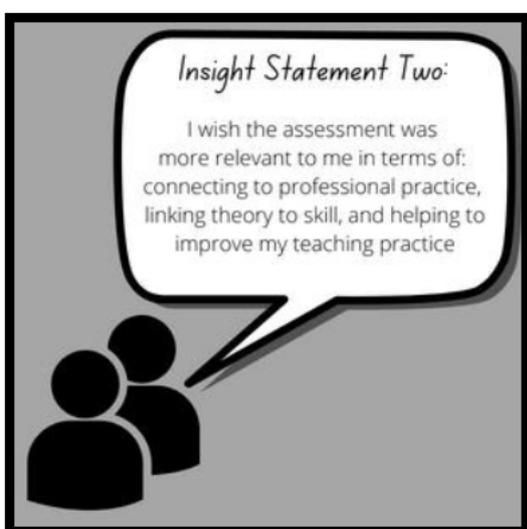
Importantly, Madhu wanted feedback that identified where her pitfalls were in her teaching practice. That is, how her weaknesses in the assessment impacted her teaching practice:

"...if I'm being scored low on an assignment...I think it should be told... how did [the error] affect your teaching practice because at the end of the day that's what the assignment is based on." (Madhu, international student)

Conversely to these views, Zala and Zhi were happy with the amount and quality of feedback provided by academics:

“They literally explain what you're supposed to do. How you're supposed to do [it]. Why you're supposed to do [it].” (Zala, international student)

“I get sufficient feedback from my lecturer or tutor. I think this [is] very good. Before, I remember 10 years ago when I was starting in [another university in Australia] my teacher doesn't give much more feedback. I think it is improve[d]. It is amazing, I feel.” (Zhi, domestic student)



Insight Statement Two. Students wanted assessment to be authentic. This authenticity could be connected to relevance of professional practicum or helping them to link theory to skill, but overall, they wanted assessment to improve their teaching practice:

“I wanted more assessment in terms of gauging my teaching capacity and development of my teaching skill”
(Karla, international student)

When an assessment was relevant and connected to practice, Zala reflected she engaged deeply:

“...when you don't have a link between an assessment of your personal practice it's difficult to put words. It's difficult to bring up ideas. But when is it relevant? ...It was so good, like, it was just the flow. I love that.” (Zala, international student)

Amelia questioned the assessment authenticity and relevance and whether she would be using the theories and knowledge in practice. She shared that her placement mentor teacher held similar views:

“I'm questioning if I'm going to use this actually, in my teaching. And also, all those theories that we're learning. Look, on my placement yesterday... there was an old teacher that had been teaching for ages and I go, ‘Are we actually

going to use all this in real life?’ ‘Not really’, she goes, ‘don’t worry about it’... she goes, ‘you’ll take it in’.” (Amelia, domestic student)

Eleanor also could not see links between what she was completing in assessments and actual practice in schools:

“...I’m not seeing the link in the schools. I don’t think the school placement really showcased or allowed us to use that skill.” (Eleanor, domestic student)

Although Adele and Zhi were considered domestic students, they had limited experience in the Australian school system. Both were highly educated and had worked and studied in many different countries. They both highly valued professional practice experiences:

“The amount of knowledge that I gather and things I learned by doing placements... it’s amazing.” (Adele, domestic student)

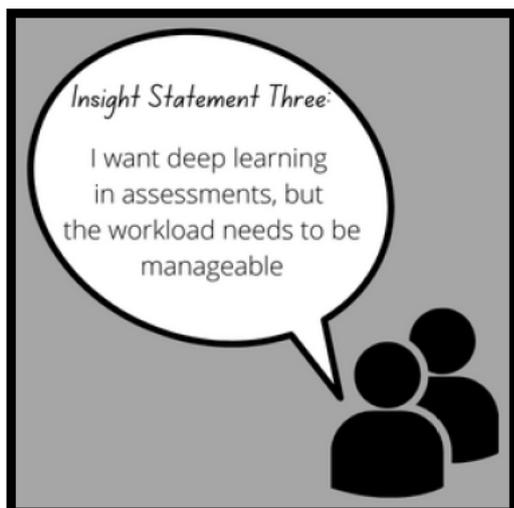
The international students noted their lack of experience and limited knowledge of Australian education systems:

“I don’t have any teaching experience in Australia. So, I don’t know what’s happening in the classroom. It’s very hard for me to think of a certain situation where I could apply what is being taught to us.” (Karla, international student)

Most of the international students, along with Zhi, compared vast differences between the Australian school system and schools from their home country:

“I’m an international student and all I’ve done on my education in India... It’s very different to how VCE [Victorian Certificate of Education] is looked at here.” (Madhu, international student)

“I think the culture [is] different because here the student [is] more creative, more practical. But you know, if you applied much more examination or paper writing examination to them, they feel struggling about it. Because they’re not like the Asian students. Asian students, the culture forced them to specialise on... final examination, but here, student would like to be more practical.”
(Zhi, domestic student)



Insight Statement Three. Many students were overwhelmed with the number of assessments, especially if multiple submission dates fell on the same day. However, a few students reflected that they did not want a lot of busy work that promotes surface learning approaches, but they wanted deep learning experiences. Opportunities for critical thinking and metacognition within assessment were desirable:

"I think it's too much. And in some ways, I think it's too easy... there should be a balance. It should be, again, not that easy, but also not that much."
(Florentina, international student)

"[the assessment] could have made us work harder" (Jeremy, domestic student)

Assessment workload was a concern for Amelia who shared that she struggled with the numerous government policies and intense academic literature, which took her time to read and longer to comprehend. As a single provider for her children, she shared that she was extremely time poor. Other students also reflected a similar feeling of not having enough time:

"And I just feel that sometimes I feel so crunched up on time and that I'm not able to give my 100 percent to it." (Madhu, international student)

As Masters students, they often had additional responsibilities including work and family commitments. Adele shared her tensions between allocating time to study which was taking time away from her family:

"I feel guilty for not being with the kids... I struggled with that a lot." (Adele, domestic student)



Insight Statement Four:

I find collaboration worthwhile but only when my peers have the capacity for teamwork (and feedback)

Insight Statement Four. A few student participants noted the importance of collaboration, especially within the context of ITE and their future teaching careers. Zala valued peer collaboration, especially those from different backgrounds; appreciating different ideas and perspectives. However, Zala felt that aspects of collaboration components of assessments did not authentically reflect school settings due to peers not having a

common focus of school vision and policies:

“...when I'm collaborating with my teachers... it's not going to be the same thing because... I'm going to teach in the same school. We will be under one same rule... We are aware the students in the class or the school... [currently] we are not aware of what the schools are going to be like because there were still students who didn't actually have the placement yet.” (Zala, international student)

Adele found collaborative aspects of assessment extremely troublesome. As a high achiever, she wanted to put in a significant amount of time and effort to gain the desired result, however felt this was not always reciprocated:

“[Collaboration] was so stressful. Yes, especially when... you work with people who don't have that work [ethic].” (Adele, domestic student)

Zala also had a similar experience of adopting the workload as she noticed her peers with limited practicum experience. She had professional practice experience, which she was able to draw upon:

“...it's really hard for them to do these assessments. And most of their work I had to do... I was the one who was actually going to the school and seeing it.” (Zala, international student)

Students often discussed assessment collaborative experiences that were approached in non-collaborative ways. Group tasks were often completed separately, fulfilling individual parts and then coming together for the final product. Jeremy also noted group members' collaboration capacity affecting group work. He appreciated a peer

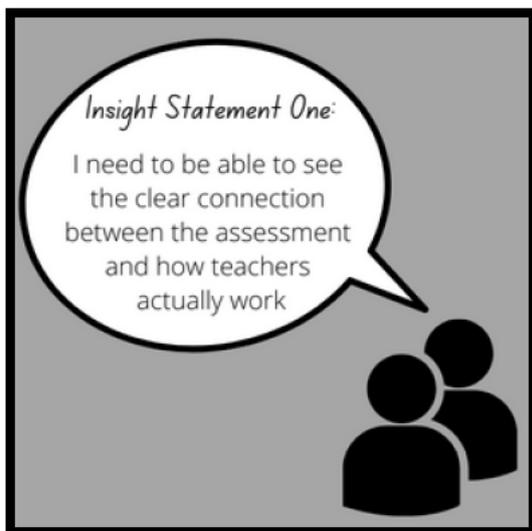
partnership that had formed at the beginning of his studies, which provided strength to his weaknesses and likewise, his contributions to his peer's shortcomings:

"...he sort of picks up where I'm weak on and I feel like I do the same for him... he knows all the... theory of body work of the government documents. I feel like I'm probably being more creative in my teaching, and I can offer ideas where he can work on that." (Jeremy, domestic student)

Additional frustrations in collaboration came from inexperienced peer feedback and peers perceived as not having a sufficient knowledge base to know what should be looked for to provide accurate feedback:

"... peer feedback, like, half the time they don't know what they're doing either." (Julia, domestic student)

Findings From High-School Teachers



Insight Statement One. The high-school teachers worked closely in the institution's ITE program focused on developing students' understandings and experiences in their secondary education specialisations (teaching methods). Within the program, these teachers prepared and delivered hands-on workshops and facilitated and mentored students while students completed an assessment focused on knowledge and skill required to plan a unit

of work. They marked assessments as part of their employment, so they needed to understand and see the clear connection between the assessment and how they worked in schools. In this research they noted, however, that this was not always clear. They felt the unit planning assessment was too general and should be designed around the unique requirements of the various specialisations and actual practice in schools.

The teachers believed that clinical and methodological approaches were necessary when designing unit plans. However, Janet believed the students' current practice designing a complete unit plan assessment attempted to contend with hefty mechanics of teaching and planning in secondary education:

“I found that the assessment tried to cover too much at once; as if it were trying to cover every aspect of curriculum framework, education department initiative, content knowledge and inner school workings in one hit.” (Janet)

Several teachers questioned whether the unit plan or part of the unit plan could be carried out on placement to enhance authenticity. Victor acknowledged:

“We need to see if what they are learning is what they are practicing. I refer to it as the whole theory/practice cycle.” (Victor)

Additionally, teachers noticed those students who had not had placement experience, including those who had limited knowledge of the Australian school system. They reflected that they could see these gaps in knowledge:

“From speaking to the students, many had not had a lot of experience in a school or on rounds. The assignment required the [students] to consider authentic learning; therefore, shouldn’t their learning deliver the same?” (Janet)

As the unit plan assessment is so intrinsically linked to professional practice, teachers felt the task itself and the feedback provided to students should be connected with placement performance. The teachers wanted to see if what they are learning in the unit plan and the workshop assessment aligned with what they are practicing. Janet reflected on the difficulties but noted the importance of interconnections:

“A logistical nightmare perhaps in terms of placing students and their assessment, but shouldn’t the unit they plan have to be carried out at least to some part on their rounds?” (Janet)

Additionally, when asked about strategies that they use in their high-school classes that they could see working in the higher education context, Janet discussed the notion of ongoing assessment. Using smaller formative pieces accumulating together to show a progression of learning, provide immediate feedback to students, making it easier for the teacher to mark was discussed:

“Make the assessment (and marking) more ongoing in nature. Smaller and more precise with more immediate feedback that may culminate in one larger assignment at the end.” (Janet)



Insight Statement Two. The additional challenge came from the workshop teachers having no prior knowledge of students. Therefore, it was difficult for teachers to form quick diagnostic assessment to help them as a point of reference when marking the students work. Janet suggested that this impacted her marking as she had no formative assessment information to build a picture about the student, making the marking more difficult and time consuming:

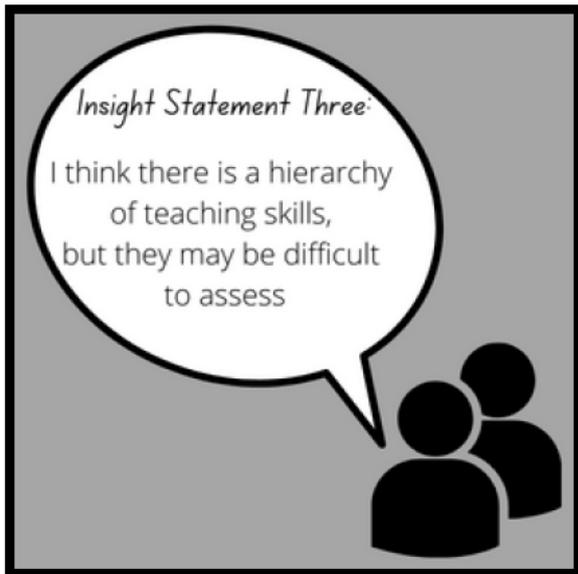
“What I found tricky was that I had no point of reference...Not knowing the students (which could be seen as a good thing as you are simply marking the work in front of you), but you don't know if this work is below the standard that student could produce.” (Janet)

Similarly to what was found in academics' perspectives, some teachers reflected on the notion that students are driven by the evaluative purpose of an assessment piece rather than the process of learning or what the student will gain from the experience:

“During the workshop I could also get a sense of who was really there to learn as much as possible, build relationships with their peers and myself, and who was there to satisfy a requirement.” (Janet)

Teachers valued student relationship building, which also assisted in providing informal formative feedback. Although, they noted getting to know each student could take longer than what was available to them in the program:

“In the classroom I prefer to talk to students... after an assessment even though it is more time consuming, I feel it is more productive and gets better results in the long run. This is easier as over the course of a year I get to know the students and who respond best to this feedback and who are unlikely to take the feedback on board no matter what the format/forum.” (Janet)



Insight Statement Three. The teachers reflected on the most important skills needed for the teaching profession. Relational approaches to teaching were often identified:

"...a passion to build and maintain relationships." (Janet)

"Having an ability to connect with different students and the class as a whole. This is detrimental to

classroom management and being able to have the ease of mind and freedom to deliver the content with the appropriate teaching strategy." (Victor)

Communication was also seen as an essential skill. Teachers asserted that students need to have clear and confident communication with the key stakeholders in education, including students, colleagues, and parents. Janet wanted students to understand the complexities of communication during collaboration:

"[I want students to understand] how difficult it can be even in the same work environment to find time to meet, how tricky it is to email back and forward, and still ensure a coherent plan." (Janet)

Collaboration skills were also considered essential. Collaboration was discussed in terms of teacher teams and the importance of building relationships with colleagues. Many teachers reflected on the importance of collaborating during curriculum planning:

"The unit plan required [students] to work in a small group, therefore teamwork and communication were essential components to complete the unit plan"
(Janet)

Janet also shared that she would have liked to be able to assess or evaluate a sense of commitment to the profession and the collaboration in the assessment:

"The other aspects are a lot harder to determine in an assessment piece; face-to-face you can get a sense of who is committed to putting in the hard work, but whether this ends up the case - all talk and no action – however, [this is] difficult to quantify." (Janet)

Additionally, having pedagogical and content knowledge was important:

“...for compliance purposes it is important that a student can map against curriculum documents.” (Kelly)

“Understanding which teaching strategy/strategies suit your style of teaching... [And] the ability of the student teacher to bring the content into the real world and have the students use personal experiences and apply real world situations.” (Victor)

“Students need to show ‘what’ they understand, explain it succinctly and demonstrate that they have delivered the required outcome of the assessment ... Vital for teacher and student to have a clear understanding of where the class is heading and why.” (Julie)

Furthermore, using data to inform teaching and planning had authentic connections:

“...strong data literacy and being able to then do all the practice around that differentiation. You know, what good practice is how you cater for all of those needs.” (Amanda)

Similarly, reflection skills were important to have as a teacher:

“Reflective capacity to reflect on work and adjust delivery or activities accordingly to improve performance” (Kelly)

“Continually appraising how to present information so that students can ‘unpack’ the important learnings.” (Julie)

Other vital skills suggested included a commitment to the profession and their students, with a willingness to help all stakeholders, including students, colleagues, and communities, as well as qualities of patience.

The teachers agreed with the academics in what they considered authentic features of the unit plan, including collaboration, content and pedagogical knowledge, nuanced teaching and planning associated with their subject area, and professional self-reflection. Amanda shared that students were more likely to engage with the assessment if it was authentic:

“...personally, I think things that are practical that students are going to be at use in their placement straight away or you know even part of yeah is most useful.” (Amanda)

Interestingly, some teachers included the additional understanding of ‘workload’ as a critical point. Potentially connected to this notion of workload, some teachers mentioned that an important skill was being organised. Janet wanted students to experience and understand how long things take to develop:

“...giving ITE [students’] a sense of just how much work is involved in preparing a unit” (Janet)

When asked about strategies that they use in their high-school classes that they could see the opportunity in using in the higher education classroom, Julie reflected that most apply *“as learning is the same across both contexts”*.

Some suggested methods of reducing the assessment and feedback workload for assessors connected to their usual high-school teaching, learning, and assessing practice. This included using in-class assessment, to promote attendance and marking occurring in real-time, group work, self and peer assessment, and assessment by verbal communication, through conversation, role plays, or class presentations.

Victor was particularly surprised by the richness and accuracy of peer evaluation and feedback from students:

“I have been amazed by how honest and accurate students are when asked to assess their peers via a feedback system in group work. It fosters a realisation within them that’s comes from an equal rather than a teacher. With the appropriate guidance and preparation from class teachers, self-assessment and peer assessment is real world and a system they are used to in their real life on social media. It means also getting the right group of students together with high achievers mixed in with struggling students.” (Victor)

Similarly to what the academics reflected, Julie noted that providing high-quality feedback additional to the provided rubric is difficult in the short assessing timeframe:

“Rubric is the most efficient, but if meaningful feedback is required then this is impossible in current time quotas” (Julie)

Summaries of the key findings for each end-user group are displayed under the Insight Statements presented in Table 9 below.

Table 9

Phase One: Summary of Empathy Interview Findings

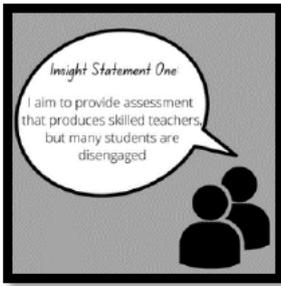
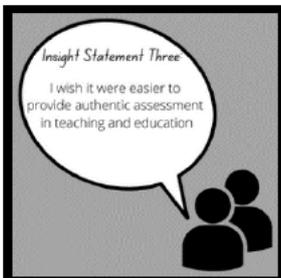
End-user group	Themes	Insight Statements with summary of findings
Academics	Assessment Teaching skills Engagement	 <ul style="list-style-type: none"> • Passion for student support and success • Clear pedagogical understandings of good assessment and feedback practices, including modelling best practices in ITE • Wanted to re-engage students with deep learning processes when completing assessments
	Assessment Feedback Workload	 <ul style="list-style-type: none"> • Tensions existed between providing high-quality assessment and feedback and workload • Demonstrated various assessment workload coping methods • Wanted different feedback models to address student feedback engagement and authenticity
	Authentic assessment	 <ul style="list-style-type: none"> • Authentic learning conditions for authentic opportunities for deep learning were considered difficult to provide. • Authenticity connected to future value to the student (assessment product) and acquiring teaching skills (learning process).

Table 9 (Continued)

End-user group	Themes	Insight Statements with summary of findings
Students	Clarity	 <ul style="list-style-type: none"> • Assessment was seen as the focal point of learning • Clarity, transparency, and coherent purpose reduced confusion and assessment anxieties • Wanted more feedback that was timely, encouraging, constructive, easy to understand, and connected to professional practice
	Relevance Linking theory to practice	 <ul style="list-style-type: none"> • Authenticity related to improving teaching practice • Indiscernible links between assessment and actual practice • International students' lack of experience and limited knowledge of Australian education systems impacted assessment
	Workload	 <ul style="list-style-type: none"> • Assessment workload impacted by multiple assessments completed simultaneously and external responsibilities • Assessment tasks that promoted critical thinking elicited deep learning approaches • Regurgitation of information elicited surface learning approaches
	Collaboration	 <ul style="list-style-type: none"> • Collaboration is understood as an important professional teaching skill • Collaboration is difficult in practice • Collaborative assessments are often approached in non-collaborative ways

Table 9 (Continued)

End-user group	Themes	Insight Statements with summary of findings
High-school teachers	Linking assessment to practice	 <ul style="list-style-type: none"> • Assessment tasks should reflect professional teaching practice • Links between assessment tasks and actual practice in schools can be unapparent • Gaps in knowledge observed in students without professional practice experiences
	Engagement Driven by assessment	 <ul style="list-style-type: none"> • Building student relationships were highly valued • Absence of prior formative assessment negatively impacted assessment marking workload • Observed some students unmotivated to approach deep learning in assessment
	Teaching skills	 <ul style="list-style-type: none"> • Building student relationships identified as an essential teaching skill • Effective interpersonal communication with key stakeholders is important and connected with successful collaboration • Pedagogical and content knowledge, reflective and reflexive skills, commitment to the profession and a willingness to help are also important

Discussion

Using a combination of design thinking and qualitative research approaches, an empathetic understanding of end-users' (students, academics, and high-school teachers) experiences have been presented. The semi-structured interviews have displayed interesting commonalities and connections between end-users' teaching, learning, and assessment perceptions. The following sections discuss the critical implications and considerations surfaced by end-users' combined perceptions and experiences of ITE assessment in a pre-Covid-19 environment. As a post-Covid-19 higher education emerges, these discussion points are essential to consider current effective practices and those that require restoration.

Assessment is Not Always as It Should Be

The assessment purposes discussed by participants in this research remain consistent with what is well known and documented in the literature. Assessment in higher education has multiple purposes (Boud, 2000), for instance, as the stepping stone pathway to complete courses and careers, indicators of achievement and progress, and motivators (Ramsden, 2003). Additionally, higher education assessment practices should also stretch students' lifelong learning capacities (Boud, 2000), which was confirmed by academic and high-school teacher perceptions in this research. Despite the importance of assessment facilitating student learning and growth, some student participants in this research were aware that they were still only engaging in assessment for the grade it provided and did not necessarily value the enriching learning experience. One student participant frankly shared that they only saw assessment as a mechanism to gain satisfactory completion to their course to the extent that they would not attend tutorials as they did not see the worth. Other authors have also suggested that grades can be seen as the priority over feedback (Winstone et al., 2020), and assessment has been well documented to have a “backwash effect” where the assessment itself directs learning and not necessarily the curriculum (Biggs, 1998; Biggs & Tang, 2011). Despite students in this research acknowledging that assessment provides the potential for enhancing learning opportunities beyond the grade, they did not all necessarily engage congruently, often reflecting the lack of transparent assessment authenticity as a barrier. Thus, when a lack of authenticity was perceived, students tended to discuss disengagement with surface approaches to learning.

While authenticity also appealed to academics, solid and transparent connections to learning outcomes embedded in the assessment program were also high on their list of important considerations. Other research has agreed with this appraisal in that assessment and feedback should be connected to learning outcomes with explicit, transparent standards related directly to the curriculum and the criteria from which it will be assessed (Bearman et al., 2014; Biggs & Tang, 2011; Ramsden, 2003), so that, as stipulated by Australia’s Higher Education Standards Framework (Tudge, 2021), “on completion of a course of study, students have demonstrated the learning outcomes specified for the course of study” (p.4). Interestingly, the high-school teachers provided limited attention to assessment guided by standards. Their attention was focused more on the practical learning outcomes connected to authenticity within the profession and what they experience in teaching and planning on the job. Similarly, students in this

research also did not discuss learning outcomes aligned to assessment, most likely due to their limited input into assessment design. Instead, students wanted clear, transparent assessment that included apparent proforma and instructions. Valid, transparent, and reliable assessment connected to explicit and transparent standards are well known to be effective assessment practices (Bearman et al., 2014; Biggs & Tang, 2011; Gerritsen-van Leeuwenkamp et al., 2017; Ramsden, 2003), and likewise valued by all end-users in this current research. Other research has also indicated that assessments should be scaffolded and include purposefully designed feedback loops where students can take in and promptly act on feedback provided (Carless, 2019). Despite student and academic participants in this research valuing these assessment practices, students still indicated this may not always be achieved in practice.

Mirroring past research findings, the academics also discussed other effective assessment techniques, including formative feedback embedded into summative assessment (Broadbent et al., 2018), often backward designed based on desired results and learning transfer (Graff, 2011; Wiggins & McTighe, 2005). Within the context of ITE, academics in this research included techniques modelling best practices to provide students with teaching opportunities to experience quality teaching and learning themselves (Darling-Hammond, 2006; Loughran & Hamilton, 2016; Moore & Bell, 2019). Teacher participants held paralleled views of modelling techniques, which is not surprising given the similarities of educational beliefs about learning and the learning process across the higher education and secondary sectors (Oolbekkink-Marchand et al., 2006). Additionally, all end-users in this research valued collaboration in assessment design due to the worthwhile and authentic connections to practices in the teaching profession. This finding reflects Hattie's (2015) emphasis for teachers to "shift to a professional ethic that emphasises collaboration" (p.23). In a review of the literature, Vangrieken et al. (2015) found that students, teachers, and schools benefited from teachers' collaborative efforts. Furthermore, in six Canadian elementary schools, Howard (2019) found collaborating can enhance teacher efficacy. There is little doubt that collaboration is a pedagogically important inclusion in ITE courses. However, students still find collaboration frustrating when peers are inexperienced without sufficient knowledge to contribute competently, especially in peer feedback situations. Among the three end-user groups there were different expectations from assessment, and assessment concerns were similar to other research studies. End-users confirmed that assessment practices are not always as they should be.

Feedback is Essential and Valued but Still a Challenge

All end-users recognised feedback is essential for student learning, which is not surprising given feedback is well known to guide student improvement (Dawson, Henderson, Mahoney, et al., 2018; Hattie & Timperley, 2007). Academics in this research understood high-quality feedback approaches as embracing, respectful, supportive, and constructive, and students collectively wanted feedback of this nature. However, some students reflected that feedback is often lacking in quality and quantity and not always clearly applicable to future development. Teachers and academics recognised this limitation, reflecting that time and workload constraints resulted in limited feedback, which provided tensions with their preferred feedback principles. Similar to Carless' (2006) academics in Hong Kong, academics in this research often wondered whether students were engaging with feedback, gesturing to a questioning about the value of putting effort into feedback. Other research has also reported students demonstrating limited feedback interactions (Price et al., 2010; Sinclair & Cleland, 2007; Winstone et al., 2020). Contrastingly, student voices echo research by Zimbardi et al. (2017) that suggested students actively engage in the feedback process. Accordingly, future higher education feedback designs need to address students' feedback needs, simultaneously enabling academics to navigate the institutional requirements of meeting standards and outcomings in a feasible way; the balancing act of academics to address both institutional and end-user needs in assessment designs. Perhaps this suggests future assessment and feedback designs need to continue to shift towards sustainable practices (Boud & Molloy, 2013a), which redefines a focus on what the student does rather than what the academic provides—shifting feedback culture towards the student as an active learner, who seeks to improve as independent learners, and have confidence in their evaluative judgement (Tai et al., 2018).

Peer feedback was also considered a vital inclusion in assessment design by all end-users in this research. The literature also supports peer feedback as enhancing students' active learning experience through the reciprocal partnership of exchanging ideas and knowledge (Boud et al., 2001; Nicol et al., 2014), and additionally assists the development of evaluative judgement (Tai et al., 2016; Tai & Sevenhuysen, 2018). However, student participants had concerns about the reliability of peer assessment and feedback. Students only valued peer assessment and feedback experiences when peers had the capacity for such, an attitude which is concurrent with other studies in the literature (Kaufman & Schunn, 2011; Struyven et al., 2003).

Corresponding with the varied student participants perceptions, there are conflicting views of the reliability of peer assessment in the literature. Magin (2001) and Liu and Carless (2006) argue that there is a considerable amount of research evidence to support reliability, including agreement between the marks of assessors. Conversely, peer evaluations have been shown to be biased when contributing to a final grade (Sridharan et al., 2019). Literature has suggested improvements to increase peer assessment reliability, including assessor anonymity, which increase the quality of feedback (Rotsaert et al., 2018), and reduces social loafing (Sridharan et al., 2018). However, despite different views of peer assessment in literature, the importance of peer feedback seems to be consistently considered as an important skill for development as feedback is a “fundamental graduate skill” (Nicol et al., 2014, p. 102). End-users in this research generally confirmed the value of peer feedback, appreciating its role in enhancing learning.

While this research project aimed to address the marking efficiency of the academic, it recognised that the justification for the inclusion of peer assessment should firstly come from a pedagogical consideration due to its importance in enriching the learning experience for students, not from a position of time efficiency. Adding to this pedagogical intent of enhancing learning, peer assessment with pre-training on how to assess to the criteria has been documented to reduce the feedback workload of academics (Brown et al., 1997). However, while the peer feedback process is widely understood to have great metacognition benefits, students can see the peer assessment process as a reallocation of staff workload (Wilson et al., 2015). Therefore, the application of peer assessment to reduce educator’s workload should be used with caution.

Notably, self-assessment feedback and assessment practices were not widespread discussion points from end-users, despite the importance in self-regulation of learning and evaluative judgement development (Panadero & Alonso-Tapia, 2013; Panadero & Broadbent, 2018; Tai et al., 2018). Academics in this research spoke more of self-assessment connected to providing reflexive professional practice opportunities, where students engaged in iterative feedback processes to improve their teaching knowledge and skills through their self-reflective feedback. End-users valued feedback as essential but still recognised it as a challenge in practice.

Professional Practice Connections Encourage Students to Become (Better) Teachers

Teacher and student participants similarly emphasised feedback was enhanced when connected to professional practice. In particular, these practice connections assisted students developing as teachers by helping to link theory to skill. This is echoed in Darling-Hammond's (2006) emphasis on professional placement providing essential opportunities for these cyclical discussions. The idea that some students (pre-service teachers) and high-school teachers in this current research could see a knowledge deficit in those students who did not have in-school placement experience resonates deeply with the need for ITE programs to have a strong focus and connection to practice teaching and learning (Darling-Hammond, 2006, 2012, 2017). In conjunction with this, academics in this research held solid pedagogical values to help their students achieve and become better teachers through strong feedback and assessment experiences; exemplifying the need for teaching, learning, and assessment design within ITE programs to allow for the development and transition of these students into teachers, aiming to ensure that these pre-service teachers are 'classroom ready' (Craven et al., 2014).

With their practitioner focus on 'classroom readiness', the attributes identified by the high-school teacher participants in this research connect to what research has identified as contributing to teacher effectiveness. Although Korthagen (2004) astutely articulated that, "trying to put the essential qualities of a good teacher into words is a difficult undertaking" (p. 78), literature has explored the various competencies or teacher qualities that promote teacher effectiveness. The Australian Professional Standards for Teachers provides an evidence-based framework of professional teaching standards for pre-service and in-service teachers to guide their teaching practice (AITSL, 2017). Other literature more broadly has investigated qualities associated with personal and professional attributes (Ilaltdinova et al., 2017), including qualities of resilience (Faulkner & Latham, 2016), beliefs of teaching and learning (Vosniadou, 2019), pedagogical and content knowledge and skills (Darling-Hammond & Bransford, 2012; Shulman, 1986), technological knowledge (Koehler & Mishra, 2009), and social justice knowledge (Dyches & Boyd, 2017). Academics and high-school teachers in this study identified relational aspects of teaching and learning as desirable for effective teaching in the school setting, including the importance of forming relationships with students and teacher collaborations. As confirmed in the literature, student-teacher relationships are fundamental in student success at school

(Jones & Kahn, 2017), important for fostering positive emotions (Goetz et al., 2021), and closely associated with enhancing student prosocial behaviours (Archambault et al., 2017; Longobardi et al., 2020).

Despite somewhat varied and composite views in the literature of teacher qualities and competencies, as stated by Wyatt-Smith and Adie (2018), “It is irrefutable that teaching is complex; measures of teaching effectiveness are therefore difficult to identify and disentangle from other contextual factors” (p. 4). As there is much debate and difficulty in defining teacher qualities, assessment of these teaching skills is a complex and potentially problematic undertaking, as the high-school teacher participants in this research alluded to when identifying that there is a hierarchy of teacher capabilities. That is, if a capability cannot be easily measured within the standard, then it cannot be easily included in defining classroom readiness. However, there is general agreement that strong teaching practice connections within ITE course-based teaching, learning, and assessment is essential in forming a ‘vision for learning’ (DET, 2020b). End-users recognised these professional practice connections encouraging students to become (better) teachers.

Assessment Workload Impacts Both Students and Academics

There are many contributing factors and moving parts to the growing academic workload. One of these identified by academics was the lack of time to provide high-quality and detailed feedback. This is not a new phenomenon, however important to spotlight as the negative outcome from unmanageable workloads, including those stemming from job demands and lack of resources available to the academic, can lead to burnout (Sabagh et al., 2018). Established coping strategies have been suggested through research (Biggs & Tang, 2011; Brown et al., 1997; Elton & Johnston, 2002; Hemer, 2014), and academics in this research employed many of these ‘tips and tricks’. Brown et al. (1997) recommended setting smaller assignments spread out across the unit, marking several assignments systematically until the criteria become naturally scored and quicker, and using a comment bank with few individualised comments included, which were also suggested by academics in this research. However, there did not appear to be an all-purpose approach to managing assessment workload.

Academics in this research managed the design and implementation aspects of assessment to align with institutional and learning requirements. They were strongly critical of the unrealistic time required for management of feedback coupled with

assessment evaluation within current workload models. This supports Winstone & Boud's (2020) calls for "the need to disentangle assessment and feedback" (p.1), where the purposes of each require careful consideration. Perhaps feedback types and models need to further shift in practice to highlight the learner at the centre of feedback design and assessment development (Boud & Molloy, 2013a), where the 'effort' of feedback is no longer driven by the academic. This may then shift the cognitive load of the feedback process to the student. However, this conceivably requires student acceptance and willingness to actively support this change, which may require a shift in student culture.

On the receiving side of assessment and feedback, underpinning some students' perceptions on assessment and feedback were facets of emotion. This is not surprising given that students can be emotionally connected to assessment (Lynam & Cachia, 2018; Pitt & Norton, 2017; Rust, 2002), which can impact how the student engages with the assessment, and in turn, impact the quality of learning. For example, students can adopt maladaptive behaviours following disappointing grades or negative feedback (Pitt & Norton, 2017), potentially influencing evaluation uptake and use. Additionally, anxiety connected to assessment can have a detrimental outcome on achievement (Ramsden, 2003) and is associated with surface approaches to learning (Gibbs, 1992). Students in this current research discussed tensions of not performing at optimal levels of achievement, culminating from issues such as time pressures and conflicts of interest from other assessments or external domestic pressures. Additionally, the complications of group work, including experiencing social loafing, generated frustrations in assessment and impacted workload.

The post-graduate ITE student cohort, such as in this study, can be quite diverse given the various past study and work industry experiences and potentially different positions in the lifespan. Addressing this diversity, Liakopoulou (2011) provided recommendations towards ITE programs considering pedagogical planning for the diverse needs of teachers with diverse personal characteristics. In the present research, the mature aged students openly shared their additional responsibilities constraining their studies, which contributed to their tension with trying to achieve a good result and juggling other responsibilities, including families. Therefore, assessment design should carefully consider potential anxiety points and diversity of cohorts that could potentially influence students' perceptions of assessment workload.

Some of the students in this research shared that they craved challenging, deep learning in assessment, to feel a sense of accomplishment and reward for learning.

According to Sambell et al. (1997), an assessment that “rewards breadth and depth in learning” (p. 366) is beneficial to student learning and considered ‘fair’ by students, and Gibbs (1992) associates “a heavy workload” with surface approaches to learning (p.9). Therefore, the perception of workload for the students in this current research is influenced by their valuation of the assessment and appraisal of learning outcomes; that is, if students could see the worth, they would dive deeply into the learning, regardless of workload and time pressures. End-users’ assessment perceptions were aligned to the literature to confirm that assessment workload impacts both students and educators.

Bridging the Context Gap is Needed for International Students

International students discussed similar values about assessment and feedback to domestic students in this research. Additionally, they valued peer assessment and feedback experiences to enhance their learning, which mirrors Chew et al.’s (2016) international student participants studying in the UK who also reported peer assessment and feedback enhanced their overall content knowledge. However, the cultural school experiences they were accustomed to varied from Australian education, which affected their ITE assessment experience, and increased learning and assessment complexities.

Research indicates international students are active learners who earnestly engage in the new culture (Kettle, 2020; Marginson, 2014), which was observed in the perspectives of international students in this research voicing their eagerness to learn and understand the differences in education systems. Aiming to reject the deficit image of international students (Heng, 2016), international students in this research with limited experience of the Australian school systems voiced concerns about their restricted exposure to context or concept. This limited Australian school classroom ecology experience was a pain point for international students who had no placement experience, as they wanted insight into classroom cultures firsthand. The course-based teaching, learning, and assessment that is the focus of this research, only fulfilled this desire for Australian classroom context experience via second-hand accounts. The international students wanted immersion into the classroom, to form new beliefs of education, to help shape their new teacher identity that would most likely be an amalgamation of cultural understandings. Echoed in research by Soong et al. (2020), this immersion into the new culture may be necessary for international students to shift their ‘transcultural identity’ to form a new identity of these merged cultures. Therefore, the findings of this study highlight the importance for international students to directly

experience the Australian classroom culture, which could occur through connected in-school professional placement. However, the international students without placement identified gaps in knowledge, which impacted their assessment work. Consequently, when in-school professional placement is absent or delayed in the learning program, additional resources to help immerse these students into early involvement of Australian classroom culture would assist in bridging the context gap and merging the cultural classroom understandings.

Chapter Summary

This chapter has presented data collected from the semi-structured empathy interviews and applicable analyses aligning with the first stage of design thinking, to understand participants' perceptions of assessment processes. The outcomes of the interviews for the three end-user groups (students, academics, and high-school teachers) have been offered as Insight Statements. Analyses revealed that despite acknowledging and understanding the importance of assessment and feedback processes, end-users are not completely satisfied with their assessment experiences. Students wanted assessment with more clarity and transparency that provides them with authentic opportunities for deep approaches to learning, while academics and high-school teachers wanted more engagement from students in their assessment to promote meaningful learning experiences. Academics also want to support their students in becoming better teachers, but some found it difficult within constricted work allotments. Therefore, recommendations based on the participants' perceptions are that ITE contains valid, reliable, and transparent assessment and feedback designs that reflect authenticity connected to classroom readiness, teacher competencies, and assessment and feedback literacies. Additionally, peer assessment and feedback are spotlighted as approaches to ensure sustainable practices to allow these potentially enriching recommendations to be implemented.

The Insight Statements and key findings from empathy interviews presented in this chapter were considered in the Ideation workshop and during prototype development. The next chapter will outline and analyse the research activities associated with the Stage 3 (ideate) and Stage 4 (prototype) of design thinking in Phase One of the study undertaken in a pre-Covid-19 environment.

Chapter 5: Pre-Covid (Phase One) Assessment Design: Ideation and Prototype Findings and Discussion

“The day before something is a breakthrough, it’s a crazy idea.”

– Burt Rutan (aircraft designer and innovator)

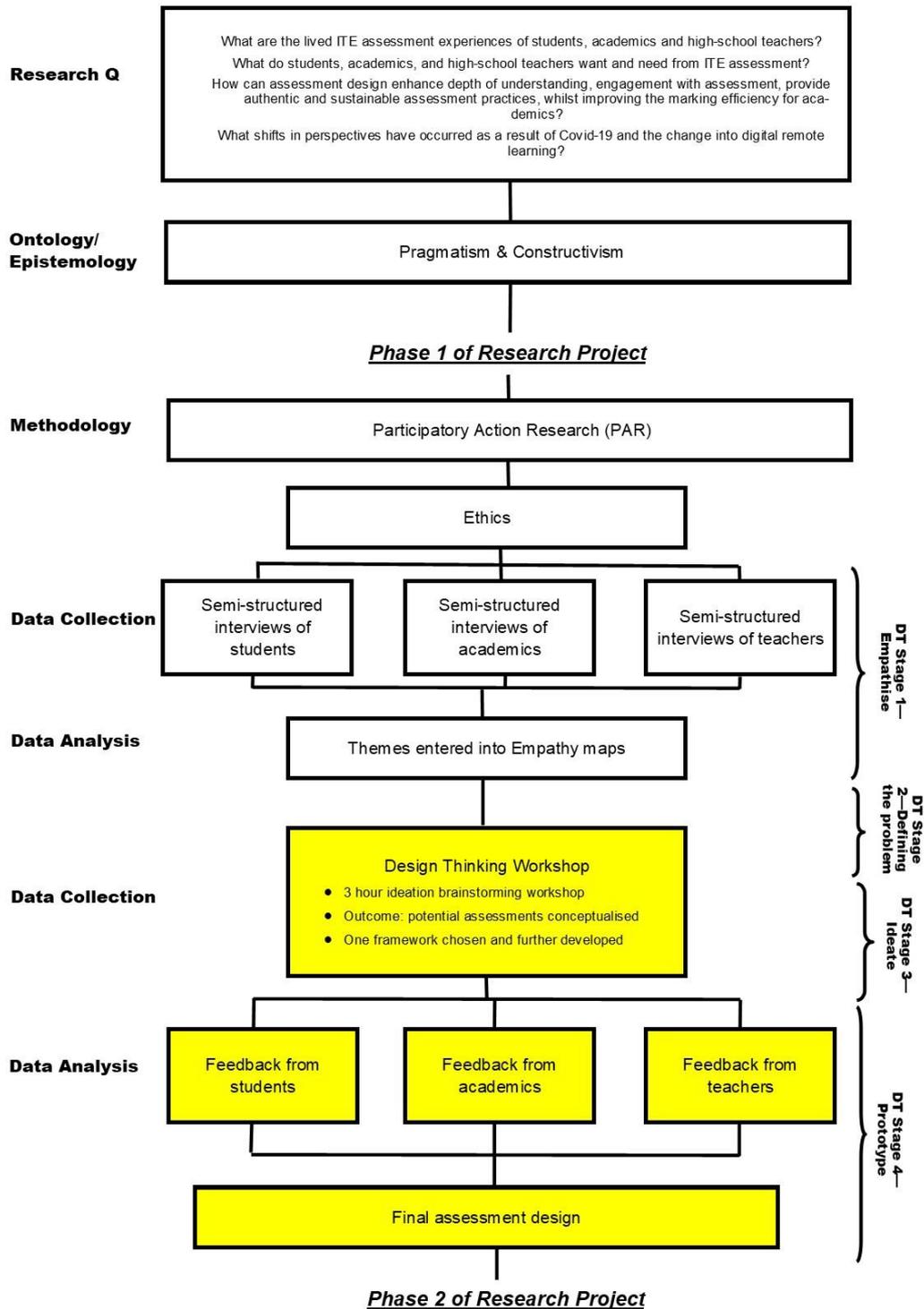
Introduction

The ideation phase is an exciting step in the design thinking process where the collective knowledge and experiences of stakeholders are shared and the ‘what if’ is explored. Ideation aims to generate as many wild solutions to a problem as possible, breaking through the usual to grasp those crazy, innovative ideas. Following the ideation phase is the equally as intriguing prototyping development phase, where these ideations are explored and evolve into useable and testable products (Plattner, 2010).

This chapter gives an overview of the Stage 3 (ideate) and Stage 4 (prototype) design thinking processes followed and then presents the outcomes connected to literature. These points are highlighted in Figure 5 to show their position in the overall research design.

Figure 5.

Phase One: Ideation and Prototype Data Collection and Analysis



The following sections will outline approaches used for the ideate and prototype parts of this project. Firstly, details of the Ideation workshop research method will be

explained. Next, Ideation workshop findings, including participants' brainstormed responses and workshop post-reflections will be presented, followed by a discussion of the outcomes. Then, the research design for the prototype development will be presented, including an explanation of the design thinking technique of seeking feedback from end-users and refining the prototype based on this feedback. Following this, the prototype development findings will be described and discussed with participants' feedback aligned to the literature. By following these design thinking processes, the research structure aligns to the methodology counterpart of PAR where participants' ideas and feedback contributed to the development of this fit-for-purpose assessment task prototype presented at the end of this chapter.

Ideation Workshop

In design thinking, the Ideation workshop provides a space for collaboration, both in terms of a physical space and scope for encouraging discourse around potential ideas to implement change. It was deemed more appropriate to ideate with academics rather than students and high-school teachers, as they are more often the assessment creators and more familiar with the higher education assessment protocols.

Ideation Workshop Method

Workshop participants were chosen utilising purposeful sampling. Three academic participants who had contributed to the initial empathy interviews (presented in Chapter 4) were invited to participate in the workshop. The choice of recruiting these three participants was based on their ideas that came to light in the empathy interviews, their previously stated desire for improved assessment approaches, and their understanding of the nuanced requirements of the unit's assessment. More importantly, they were also selected to represent a range of complementary skills and perspectives – they had a range of assessment development and teaching experience and a range of roles in unit development and delivery (specific details about academic participants have not been presented intentionally to protect confidentiality). These heterogeneous design teams are welcomed in design thinking to enhance innovative outcomes (Brenner et al., 2016). Participants were sent an email inviting them to participate in the workshop, which they could either decline or accept to participate. All invitations were accepted. The three participants combined with the research team created an Ideation workshop of six people (five women and one man), which has been suggested within the ideal range of focus group size (Kitzinger, 1995). The Methodology Chapter 3 presents a

generic description of this cohort (see [Phase One – Participant Selection and Recruitment](#)).

It was noted that there was a significant gender imbalance in this participant group compared to the academic end-user participant group for the semi-structured interviews. However, it was considered that despite this imbalance, genders were represented within the group, and a balance of experience and unit development roles was included. Additionally, the balance aligned with the gender ratio in the faculty cohort of more women than men teaching into the course.

Participants gathered at the university campus after completing Semester 2, 2019. The workshop structure (see [Appendix D](#) for workshop activities agenda) was based on the pre-existing framework of design thinking (Wolniak, 2017), which shifts between the design thinking Stage 2 (define) and Stage 3 (ideate), chosen to continue the intent of co-creation within design thinking (Plattner et al., 2012).

Problem Identification. At the beginning of the workshop, after introductions and a brief explanation of proceedings, the overall goal was presented to participants:

To produce an innovative assessment framework that is engaging and provides a deeper approach to learning but does not increase the amount of time it takes to mark.

It can be recalled from the User Journey Map outline in Chapter 3 that this map was presented to participants to help understand each end-user's entry points and experiences of the assessment (see [Appendix F](#) for User Journey Map). Then, each empathy map of each user group's needs and perspectives were explained alongside an overview of the literature surrounding some of the themes that emerge from these maps. This was intended to help all workshop participants empathise with end-users in the same way that the lead researcher had during interviewing and analysing data (Tschimmel, 2012). As this was happening, participants were asked to write each problem emerging from the empathy maps onto a post-it note with the 'How might we' (HMW) question structure. The HMW questions are small actionable questions that start with the phrase "How might we..." and contain problems that have come to light (Plattner, 2010) while listening to the empathy map explanations. Following Knapp et al.'s (2016) directions in their book "SPRINT" on how to take HMW notes, participants were instructed to put a small "HMW" heading at the top of the sticky note and whenever a problem or something interesting was heard, convert it to the HMW

question, and write it on the post-it note. In the end, participants had a pile of HMW post-it notes (see Table 10 and discussion in the following section) that were classified and then used to launch the next ideation brainstorm.

These HMW notes were categorised to combine ideas of those considered similar and connecting so that participants clearly understood end-users' problems. Then one of these categorised themes was decided as the problem to focus on in the next step of the workshop, where solutions would be ideated. A consensus of this foremost problem was reached by participants immediately. The group cohesion and rapid decision making meant alternative methods of research agreement, such as dot voting often suggested in design thinking sprints (Knapp et al., 2016), were not needed.

Ideation. Participants then moved on to ideation. First, the group rules were established in alignment with recommendations for conducting design sprints (Knapp et al., 2016). Participants were asked to suspend judgement to allow for quantity of ideas, and potential wild ideas to emerge (IDEO.org, 2015). Participants were given six minutes to individually write as many potential solutions on their own post-it notes to the HMW chosen in the problem identification. After this time, group ideation was conducted using a dynamic, organic ideation technique of "Yes, and ...". One academic volunteered to go through their ideas and present their solutions, one at a time. After each one, other participants were encouraged to connect or extend on this idea with their own note or new thought. They jumped in with "Yes, and..." to share their solution and how it connects to the last. Once all participants had presented and sorted their solutions, a further classification was made by collating the ideas together under headings (see Table 10). Together, participants unanimously chose one of these grouped solutions to individually sketch what it could look like in practice. Participants chose this based on favouring it as the prioritised solution that incorporated many of the end-users' concerns. Participants were given eight minutes to sketch their best idea of what the chosen solutions would look like in practice. The ideation workshop activities agenda outlining the procedure of the workshop is presented in [Appendix D](#).

At the conclusion of the Ideation workshop, participants were asked to fill out a short survey with qualitative questions that reflected on the overall workshop process ([Appendix E](#)).

Ideation Workshop Findings

The problem identification findings, which were completed individually by participants during the presentation of empathy interview findings, are presented in Table 10 below. As the individual offered each HMW statement, it was grouped to connect with other prior statements and titled into themes, which are presented together in Table 10.

Table 10

Phase One: Participants' Problem Identification Statements (HMW) Classified into Themes During the Ideation Workshop

Grouped themes	'How Might We...' participant responses
Task	<ul style="list-style-type: none"> • Ensure connections and links are really apparent (task – sessions; theory-practice; Uni – school)? • Better link assessment to placement? • Link to afgt in unit? • Connect this assessment to the afgt [The Assessment for Graduate Teaching – an approved Teaching Performance Assessment]? • Create a task that is achievable to a high level in the time available → quality vs quantity? • Model forward thinking in our ITE assessment? • Tie assessment to a unit? E.g., 5003? • Include more connection to skill (or show PST links) • Allow students time to process information and concepts • Do unit planning / sequence → application in a variety of school settings • Do assessing in class? • Build connection between theory and practice?
Skills	<ul style="list-style-type: none"> • Focus on the skill of planning? • Ensure collaboration in class/assessment? • Use other strategies to unpack the skills and knowledge of planning? • Improve students' own reflexivity? • Help students see the way judgements are made by the lecturers/tutors? • Reduce feedback workload? • Use assessment to prepare teachers in alignment with key skills needed for teaching?
Collaboration skills	<ul style="list-style-type: none"> • Produce high quality feedback to support student growth • Simulate team planning – expose students to what effective planning looks like? Link to the dufour 4 questions • Use pre-work/prep as thinking time for the assessment happening in the workshop? • Provide other ways of making it practical other than either using now or in future? Portfolio? • Include co-creation and/or negotiation of requirements? • Make collaboration more realistic and powerful and overcome issues? • Tension with need of clarity and scaffolding

Table 10 (Continued)

Grouped themes	'How might we...' participant responses
Education context	<ul style="list-style-type: none"> • Address students' lack of understanding of the Australian school system? • Provide students with understanding of the Australian school system? • Understanding the Australian system. Placement affects assessment. • Make students experts in education discourse ('jargon')? • Help students overcome their gaps in knowledge? • Help students be aware of expectations of teacher education? • Overcome students prior school experiences • The understanding that education is not synonymous with the word teaching
Conversion of new thinking for tutors/lecturers	<ul style="list-style-type: none"> • Support tutors and lecturers to support their students, produce higher quality teachers and help them succeed? • Use our struggle to design assessments to help psts understand assessment? • Bring everyone along in an innovative solution? • Produce assessment that is future facing and forward thinking? • Make use of the different and varied experiences of the lecturers/ tutors? • Update tutors/lecturers on current reality of schools?
Student values	<ul style="list-style-type: none"> • Change student culture of not reading, etc? • Produce better teachers that value skills required for vocational outcomes? • Help student to feel that their contribution is valued? • Get students to value turning up to class? • 'create the demand' work ethic – is this evidence of decreased motivation → why? • Adjust psts mindsets about professional scholastic qualities of teachers' work? • Lack of engagement in the workshop affects collaboration
Related to values	<ul style="list-style-type: none"> • Make assessment more relevant to students, when they don't use them? • Use assessment to expose students to broader diversity? • Tension with culture ⇔ tension with need of clarity and scaffolding • Get students to engage with assessment and do the reading? • Overcome the idea that it is 'just a ticket' and that you learn teaching 'on the job'? • Change marks-focused culture (students') for deep learning? Scholarship? • Inspire a sense of agency in the psts?

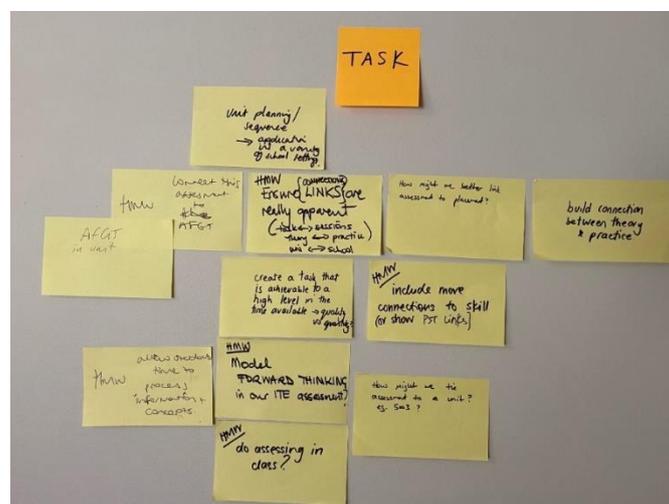
Table 10 (Continued)

Grouped themes	'How might we...' participant responses
Clarity to workshop teacher	<ul style="list-style-type: none"> • Make the assessment clear to the specialisation teachers? • Use specialisation teachers' issues to help psts understand the assessment? • Provide clarity and transparency and scaffolding for students? • Be more explicit about the practicality of these tasks? Links to placement? • Equip specialisation teachers to meet needs of psts? • Match specialisation teachers' values, etc, to lecturers/tutors and students? • Make assessment clearer? • Problem of workshop teachers wanting to cover things that would and should be covered in other units outside of the specialisation units.
Other non-categorised ideas	<ul style="list-style-type: none"> • Make planning more relevant and authentic? • Use psts problems and issues to help them understand assessment? • Draw on students' experience of not understanding assessment? • Do formative assessment in the 'block model'?

Figure 6 below illustrates how HMW notes were classified together, using the 'Task' theme classification as an example. As a participant shared their HMW notes one at a time, other participants could share their note if they believed it to be a similar or connecting concept. After all HMW notes were shared, the final categorisation of an overall theme was decided by the group, as shown in Figure 6 with the primary 'Task' heading.

Figure 6

Phase One: Participants' Problem Identification Responses (HMW) Grouped into the 'Task' Theme



The 'task' theme (see Table 10 and Figure 6) connected to the overall goal of the workshop: to produce an innovative assessment framework that engages learners in a deep approach to learning, while simultaneously not increase the academics' workload. In the research's ITE context, the innovative assessment framework was to replace the task of students producing a conventional unit plan with a culminating sequence of lessons. Workshop participants considered this 'task' theme connected to essential elements of unit planning and lesson sequencing, in addition to the overall goal of the workshop. Therefore, participants unanimously chose it as the focal point of the ideation solution brainstorm. The theme and its components were then developed into a HMW to spark the ideation solution brainstorm:

How might we create a unit plan sequencing assessment framework that is engaging and provides a deeper approach to learning, forward thinking and includes apparent practical skill connections, but does not increase the amount of time it takes to mark

Table 11 below shows participants' brainstormed solutions which were subsequently classified into themes by the workshop participants during the sharing of ideas.

Table 11

Phase One: Participants' Brainstormed Solutions Within Theme Classifications

Grouped themes	Ideation solution brainstorm responses
Own content knowledge and skills	<ul style="list-style-type: none"> • Assess the skills not the plan • Students develop own individual learning plan; identify gaps in knowledge and evidence of how filled • Design own learning and prove learning • Reflective journal • Student needs to demonstrate full understanding of what their spec does from government documents in contrast to dispelling their own myths or preconceptions of what they will teach. • Culmination of lessons for a week. Each student takes a week. • Learn something. E.g., piano in 1 week • Design learning to teach something you don't know • Need to show evidence or skill development, e.g., collaboration • Students develop a sequence of learning for their own learning • Create an extended metaphor/analogy piece, e.g., paint assessment • Make an assessment for assessments • Design assessment→share→evaluate→edit • Design assessment for other [junior secondary] class or units • Advice for teachers' style document

Table 11 (Continued)

Grouped Themes	Ideation solution brainstorm responses
Concept web	<ul style="list-style-type: none"> • Write a scope and sequence of one outcome that shows progression 7→8→9 • Create a concept web of a standard and what that progression looks like • Assessment is marked in class by workshop teacher – collaboration, - ideas, - applicable in a school • Create a unit plan through a brainstorm structure • Students have to be allocated curriculum level and pre summarise/ explain an articulation of what it is and means
Authenticity and relevance	<ul style="list-style-type: none"> • Design lesson plan to solve climate change • Design lessons to solve local issues • Writing curriculum focussed on the students from scenarios in week 3 VCE and Junior • Use scenarios – school, class or individual students • Students act as consultants producing new planning documents for partner schools – authenticity • Create 'Scootle' of planning – all (or just the good ones) get linked on public database for schools to use • From the leadership perspective – what would you set as the planning requirements and why? • Simulate a planning session – unpack this; - use research such as DuFour's 4 questions • Use design thinking in the workshop to ideate a unit plan – assess the process • 'Advice for teachers' style document • Contact a school (who doesn't use inquiry) to develop an inquiry lesson → reflection of process is the assessment • 'How to' framework for inquiry in spec; running script for teachers • Use cross-curricular priorities focus for plan in junior secondary
Fill in the gaps / annotations	<ul style="list-style-type: none"> • Retrospective / analysis of past unit planner • Give unit plan – how would you change to support a student or cohort – give examples of student and/or cohort • Give unit plan – PSTs evaluate on the basis of engagement, differentiation, curriculum and produce own lesson plans • Theory → design practice for this specialisation • Do a 'design brief' style task outline • Demonstrate clear understanding with annotations justifying why you are doing what you have planned • Fill in the gaps in an existing unit plan • Give PSTs unit plan that has gaps that they need to address • Jigsaw pieces of plan → so could connect • View and analyse a planning session at placement school and the planning document • Teachers bring in a unit from their school and workshop how to improve the unit for the next iteration, this is what the students do

Table 11 (Continued)

Grouped Themes	Ideation solution brainstorm responses
Other ideas that didn't fall in the above categories	<ul style="list-style-type: none"> • 'A day in the life' – spend a day with a teacher to understand context and practice • Learning everything (content and context) before you come • Bridging program • Drill down and remove jargon in [junior secondary unit]? Or teach Education Jargon 101. • Interview teachers • Video learning • Perspectives of effective planning (student, teacher, parents, system) • Students observe a sequence of lessons and then retrospectively create the planning documents that would have been used. • Organising excursion (considerations) – pre/ post, etc • Improve student expectations of what they will be taught and what they need to put in • Develop lesson plans only

Across many of the grouped themes were aspects of knowledge and skill application and knowledge transfer. There was a consensus that the skills required to complete a unit plan assessment task could be transformed into a different task that encouraged students to demonstrate these skills. For example, many of the ideated solutions centred around creation and construction, involved in designing curriculum and assessment learning programs. Participants ideated varied designing tasks. Some of these tasks were authentic to the teaching professions, such as lesson plans to solve relevant issues, and others were more novel, such as “*design learning to teach something you don't know*”. The commonality between these types of solutions was the aspect of teachers as designers. Teachers design to enhance learning outcomes and experiences for students by considering individual needs, organisation, pace and structure of tasks, and aesthetics of materials, to name only a few. Therefore, these ideated solutions focused on creating aimed to provide students of teaching these designing skills through experience and practice while completing the tasks.

Scenario-based learning also featured in a few participant responses. For example, one solution explicitly suggested to “*use scenarios*” in varied contexts, another outlined: “*students act as consultants producing new planning documents for partner schools...*”, and another more novel idea centred around “*‘a day in the life’ - spend[ing] a day with a teacher...*”. These original, exciting ideas were aiming to provide students with engaging experiences to learn by applying skills in different contexts. Again, these types of learning experiences targeted knowledge and skill transfer, seeking to elicit the organisational and planning skills in authentic contexts.

While there were many compelling solutions to choose as the focus for the next ideation part of the workshop, there were two themes, in particular, that sparked participants' interest. The 'Concept Web' and 'Fill in the Gaps/Annotations' themes were considered by the group to be novel ideas to explore. In participant discussions, there was an agreement that, in order to address the marking efficiency whilst enhancing learning for the student, the assessment should be of the skills required in unit planning, rather than the final created product. Therefore, participants established that the 'Concept Web' and 'Fill in the Gaps/Annotations' would feasibly elicit the necessary higher order thinking skills required in organisation and planning. The two themes were chosen as the focus for participants to sketch what assessment frameworks they thought these could look like in practice. As the ideated solutions were being designed for two distinct but connected units, two themes were chosen instead of the usual one. Participants' ideated sketches of Phase One are presented in [Appendix L](#).

Three of the participants (labelled Participant 3, 4, and 6 in [Appendix L](#)) tended to approach the 'Fill in the Gaps/Annotations' theme in similar ways. Their sketches suggest using an authentic unit plan supplied by the high school teacher mentor in the unit, and varying elements of annotating these documents. The combined suggestions include encouraging students to recognise the critical elements and knowledge they want to demonstrate to the assessor, through choosing what to annotate and improve. Thereby encouraging application of higher-order thinking principles to apply reasoning and substantiate practice, which was the motive for its inclusion in the final prototype development.

The 'Concept Web' approach was also tackled similarly by three participants (labelled Participant 3, 5, and 6 in [Appendix L](#)). In their sketches, these participants illustrated that students could demonstrate how concepts link together, including how teaching and learning components are connected. For example, Participants 5 and 6 sketched that students could show the relationships between concepts, with Participant 5 outlining that engagement, differentiation, and curriculum could be connected to a scenario to illustrate how students would be supported in the learning. Participant 3 proposed students show links between subject, curriculum, and differentiation knowledge. In all solution sketches, the tasks are focused on assisting students to demonstrate their understanding of connected knowledge and experiences. Once again, the intentional focus is on the higher-order thinking principles required,

represented in an efficient way. Therefore, these aspects were chosen to include in the final prototype development.

Three of the participants (labelled Participant 1, 2, and 3 in [Appendix L](#)) included aspects of considering learning progressions accumulating towards learning outcomes in curriculum planning. For example, Participant 3 included, more broadly, a representation of the learning across year levels. Participant 2 included a unique suggestion of using imagery and visuals to represent learning progressions in a learning outcome. Although there was somewhat limited detail in the participant's plan, the overarching idea of breaking down learning outcome into smaller sequential steps would be meaningful for students to visualise the components of learning, and for teachers to make judgements about student capabilities to understand learning progressions. While this idea of visual imagery would certainly be interesting to develop further into a prototype, the lead researcher undertaking the prototype development deemed it more complex than developing assessment around scenario-based experiences utilising annotations, therefore not included in the prototype development.

Participant 1 extended upon unpacking learning outcomes by conceptualising the solution sketch as a simulation of a Professional Learning Community (PLC). In the solution sketch, Participant 1 suggests students should unpack these points of learning by asking: "*What do we want students to know? How will we know they've learned it? What will we do if they already know it? What will we do if they're not getting it?*". Considering this rich authentic, scenario-based learning task would conceivably promote deep learning experiences for the student, it was chosen by the lead researcher as a focus in the final prototype development.

Participants' Feedback on Ideation Workshop. The workshop participants indicated positivity towards the experience in the post-reflection qualitative survey (see [Appendix E](#) for survey questions). They reflected that they could take away something for their own professional development and the workshop was worthwhile for them moving forward. One participant commented, "*[the workshop was] very helpful for my own thinking.*" Participants valued the time and space to collaborate through a positive and structured process. One participant shared that it was "*inspiring to have 1) time and 2) work collaboratively*" and that the "*positive and structured process helped.*"

Reflecting on the Ideation workshop process overall, one participant stated it was "*interesting to learn a new process*" and that the workshop was "*thorough, insightful [and] engaging*" and it "*helped identify problems to solve easily.*" The design thinking

approach was new to most, and many valued having the opportunity to design and plan assessments with a new approach. One participant valued this “*structured process allowing everyone to share and using all ideas,*” and another appreciated “*hearing other people’s ideas.*” Another participant reflected on the importance of exploring these “*new ideas*” and that “*the quieter people had the best ideas that may not have been heard*” in a differently structured setting without the ideation strategies.

One participant noted that it was “*hard to bring everyone along*” and “*hard to push through existing understanding and practical considerations*” to be able to reach the novel and crazy ideas that could potentially be generated. Despite this, the links between the ideated ideas made some participants feel optimistic about the potential end product. One participant shared that:

“*...to have actual design products (even rough) as [an] outcome – not just [a] talkfest was great. [It] felt as if something will happen from [the] workshop.*”

Ideation Workshop Discussion

Participants’ ideated solutions from the solution brainstorm seemed to revolve around the constructivist learning theory. Many of the responses were examples of how learning and knowledge acquisition occurs by associating what is already known together with the new information in the learning process. Through this memory construction process, building upon what is already known takes place through one’s experiences, furthering the transfer of learning and knowledge; therefore, connecting to Vygotsky’s social constructivist environment that describes learning through development of cognition (Vygotsky, 1987). The complex process of sharing knowledge and experience where the student guides and explores the learning with teachers as facilitators was common throughout the ideated solutions, and aligned in literature as promoting learning through these constructivist approaches (Bada & Olusegun, 2015).

As an example of this constructivist approach, one participant ideated a “*reflective journal*” solution. In this idea, students would be connecting personal experiences to knowledge and skills, which is also connected with Dewey’s reflective practice (Dewey, 1916, 1933), where the learning is associated with inquiry (Rodgers, 2002) and conscious reflection (Tomlinson, 1999a, 1999b), and would likely promote deep extensions of integration of knowledge and experience (Hutchinson & Allen, 1997).

Other ideated solutions, including “*learning something. E.g., piano in 1 week*” and “*design learning to teach something you don’t know,*” also included these opportunities for active learning through involvement.

Many ideated solutions addressed the development of critical and higher-order thinking skills and focussed on active learning. Mapping thought processes, arguments, and justifications flicker through the solution themes that provide students with opportunities to develop critical thinking skills (Munich, 2012), which is widely accepted in research as an imperative inclusion in ITE courses (Mpfu & Maphalala, 2017). As Williams (2015) states,

“The ability to think critically that comes with having the tools for higher-order thinking can help students far into their future not only grasp new information and material but also figure out how to change and adapt to new situations”
(p. 10).

While Williams’ assertions were focused on school students, it could be argued the same capacity to think critically is essential for teachers, especially as they are expected to teach components of critical and creative thinking in the profession (VCAA, 2017).

Aspects of creative thinking are also distributed across the ideated solutions. Acknowledging and pursuing Kaufman and Glaveanu’s (2019) caution towards defining creativity simply and easily due to its complexity, this research aligns towards ‘creative cognition’ to help understand creative thinking as mental processes applied and contextualised to particular domains and knowledge (Ward & Kolomyts, 2019), through problem solving methods to produce new products (Davidovitch & Milgram, 2006). Aligned to this, the creative thinking aspects ideated by participants in this research would potentially empower students to use knowledge in new ways and produce novel products or ideas. These higher-order thinking skills are also present in the Revised Bloom’s Taxonomy (Krathwohl, 2002), and scattered in participants’ solutions under the top ‘Create’ dimension of the Revised Taxonomy, as described by workshop participants using command terms including “*develop,*” “*create,*” “*design,*” “*make,*” and “*plan.*”

Additionally, many of the other solutions ideated by participants in the workshop also tended to focus on the learning process, rather than the assessment product. While noting the conflicting understandings and uses of the terms in the literature (Klenowski,

2009), this focus on enhancing learning aligns with formative assessment and 'assessment *for* learning' approaches. In the literature, formative assessment occurs during the learning process to provide feedback for improvement (Black & William, 2009; Sadler, 1998; Stiggins, 2005); and 'assessment *for* learning' focuses on the overall assessment environment to design assessment that focusses on promoting student learning, feedback, and future improvement (Sambell et al., 2012; Stiggins, 2005).

In the context of higher education, it is noteworthy that the certification role of assessment is driven by institutional regulatory policies, which could provide tension with coupling 'assessment *for* learning' and formative assessment practices and intentions with the summative requirements of higher education assessment. Furthermore, Black and William (1998) suggest combining formative and summative aspect of assessment together result in students engaging with the summative aspects offered by the assessment, to the detriment of the important formative learning opportunities. Despite the challenges, this integration is not impossible. Research by Broadbent et al. (2018) demonstrated a practical example of embedding formative elements into summative assessment in an Australian university that included rich formative feedback to enhance student learning.

During the decision-making process of choosing a solution to sketch in the workshop, there was a general consensus between participants that the 'Concept Web' and 'Fill the Gaps/Annotation' themes would elicit the top levels of higher-order thinking skill development through the creation of novel products afforded with critical and creative thinking opportunities. Participants also suggested that these themes could theoretically promote the learning process as a focal point rather than the product, promoting a formative and 'assessment *for* learning' flavour to the assessment.

Examining the ideated sketches of participants (see [Appendix L](#)), many of the plans gathered around how curriculum, specialisation, and pedagogical knowledge could connect in authentic experiences. Real-life, scenario-based experiences were common in participants' sketches. Aligned to situated learning theory (Stein, 1998), scenario-based learning is documented in the literature to promote problem-solving in authentic contexts (Yetik et al., 2012) and assist in skill development and active learning (Reesa, 2013). Additionally, scenario-based learning has been associated with student perceptions of efficiency and ease of learning (Hursen & Fasli, 2017). These scenario-based experiences could give students a deeper understanding of theory and practice

by demonstrating aspects of classroom environments. Therefore, it is not surprising that the participants were most attracted to these types of assessment designs.

One participant conceptualised this scenario-based learning experiences by suggesting a simulation of a PLC. Noting that there are different nuanced definitions of PLCs (Lomos et al., 2011), this research connects to DuFour et al.'s (2008) definition that emphasises the collaborative commitment and collective inquiry to improve professional learning. Including this scenario-based experience of how PLCs operate in sharing knowledge during planning may allow pre-service teachers to gain this practice of collaboration and professional conversations. Additionally, as teaching involves domain-specific knowledge, scenarios like a PLC allow students of teaching to experience and develop professional cognitive processes and expertise (Kim & Klassen, 2018). Thus, developing in these professional processes is potentially facilitating 'job readiness' for professional collaborations and conversations (Craven et al., 2014). Constructivism classroom experiences in academia, such as has been ideated here, where the students "create organizing principles that they can take with them to other learning settings" (Bada & Olusegun, 2015, p. 68), are potentially important for development of these professional transferable knowledge and skills. Therefore, this PLC scenario was chosen as the basis of developing the assessment framework prototype for each unit.

The 'Concept Web' approach was appealing to explore in participant sketches. Concept mapping represents information in an organised, visual way and can show the hierarchical relationships between linked components. As a teaching tool, it has been acknowledged in the literature as beneficial to student learning (Kinchin, 2014). It allows students to see relationships between concepts (Novak, 2009), and allows links to prior knowledge (Popova-Gonci & Lamb, 2012), which is known to assist in memory consolidation (Tse et al., 2007). Unpacking a learning outcome into learning progressions is suggested by a few participants as a way of students demonstrating connected points of learning. These learning progressions are sequential, cumulative, and sequenced learning components that illustrate the pathway of learning to achieve a learning outcome (Shepard, 2018), thus, could be incorporated into a 'Concept Web' approach to illustrate connected concepts.

The 'Fill in the Gaps/Annotations' was also a novel and exiting approach explored in participant sketches. There is limited literature surrounding student use of annotations in assessment, as most tend to focus on the use of social annotation tools (digital annotation tool allowing highlighting and comments in documents). Although, in an

early review of the literature, Novak et al. (2012) noted the lack of empirical evidence of annotations enhancing learning. In their later review of the literature, Krouska et al. (2018) suggested that annotations could assist in peer assessment. Social annotations have also been demonstrated to promote comprehension of written text (Razon et al., 2012). However, apart from its role in motivation (Novak et al., 2012), the literature tends to focus more on the efficacy of the digital annotation programs than the type of learning elicited in the approach.

Ideally, the 'Fill in the Gaps/Annotations' approach aims to promote metacognition by making students aware of their thinking. The participants suggested that student groups could reflect on best teaching and learning approaches, identify various teaching strategies, and they formulate responses to explain and justify these (as well as make adjustments and improvements to the learning program). Here, students are self-regulating their own individual learning, but also the learning of the group. This concept of combined self and co-regulated learning, of becoming aware of own strengths and weaknesses as well as what others do or do not understand whilst collaborating, is referred to as social metacognition in the literature (Chan, 2012). In their small study with university students, Khosa and Volet (2014) found a synchronous relationship between self and social regulation in student collaboration. Although beyond the scope of this current research, it would be interesting to ponder how the level of social metacognition effects effective collaboration, and if the 'Fill in the Gaps/Annotations' approaches develop social metacognition skills.

Given the potential learning benefits of these 'Concept Web' and 'Fill in the Gaps/Annotations' approaches, this signals that participants were enticed by these novel methods and suggested ways students could demonstrate connected points of learning with combinations of both in their solution sketches.

Prototype Development

Stage 4 of design thinking involves the development of a prototype. This requires the chosen ideations to be represented visually, to make ideas more tangible, and then seek feedback with potential end-users to check if assumptions have been made accurately, and action feedback provided to enhance the prototype further. This design phase allows for a fast, efficient prototype development to achieve a product to test with end-users. The aim in this context is to not expend vast amounts of time and effort in the early design stages in case the product fails with end-users – much like a business-like approach with return on investment. This early prototype is often termed

the Minimal Viable Product (MVP), which potentially enables users to give feedback on the product without high investment in time and resources (Ries, 2011).

Minimal Viable Product

The research team designed the MVP based on participants' ideated sketches and informed by literature. The created MVP intended to replace the conventional assessment of developing a unit plan. As a unit plan was usually adopted in two units for which this research is contextualised, two separate MVPs were developed - one for junior secondary (years 7-10) and another for senior secondary (years 11-12). Both MVPs were designed as scenario-based experiences of participating in a planning PLC to allow students to foster skills around teacher collaboration and shared practice and responsibility. PLCs are focused on continual improvement of teacher practice and student learning and often involve evaluating the efficacy of unit plans and sharing these findings (DET, 2020a). Under this PLC scenario-based experience, different tasks were designed for each unit.

The junior secondary unit MVP allowed students to experience a PLC shared practice through an in-service high-school teacher providing them with a unit plan which they re-design further into an inquiry-based unit. Here, students would need to evaluate and diagnose points of learning in the supplied unit plan and reconceptualise these points to develop and conceptualise into an inquiry-based unit, based on Murdoch's (2019) "Model for Designing a Journey of Inquiry" (used with permission). This prototype design was aligned to the inquiry planning course curriculum and ideated sketches of participants suggesting these units could potentially go back into the school reimagined as inquiry units, therefore, enhancing shared practice and partnership between student and teacher. Figure 7 below presents the junior secondary MVP which was presented as the first prototype version (see also [Appendix M](#)).

Figure 7

Junior Secondary MVP Presented as the First Prototype

Prototype Version 1

Junior Secondary Curriculum and Pedagogy

Pedagogical purpose:
Professional Learning Communities (PLCs) are at the heart of educational change. They provide teachers and schools a foundation for strategic and ongoing reflection and planning for improvement. PLCs are characterised by collaboration of teachers and leadership through shared vision and practice. PLCs are shared responsibility of all involved and ensure student learning and progression is at the centre of purpose. This assessment has been designed to reproduce aspects of the implementation of FISO, using *The PLC Guide: Implementing FISO with Precision, Collaboration and Inquiry* (DET, 2019). This will immerse PSTs in experiences that simulate collaborative planning practices that are currently undertaken at schools. These experiences will also expose them to common language and structures that schools are implementing for a focus on student improvement.

Overview:
PSTs will complete this assessment task in the specialisation workshop in collaborative groups to simulate a PLC planning session at a school. A video with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide a 7-10 unit in their respective specialisations. High-school teachers will facilitate the assessment and evaluate each group.

Length:
Academic equivalent 1500 words

Due Date:
At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:
Before Specialisation Assessment Workshop – goal setting:

In tutorials prior, PSTs learn about the features of inquiry-based learning and DET policy (including the pedagogical model) to be able to apply to this assessment.
PSTs prepare answers to the goal setting questions to bring into the workshops:

- Discuss aspects of teaching you admire.
- What positive memories of your of education do you have? (that you would like to bring into your professional career)
- What strengths (character, professional, skills, etc) do you currently hold?
- What areas do you think you need to work on (weaknesses/ opportunities for improvement)?

Part 1 – evaluate and diagnose:

In small groups (3 or 4), PSTs will briefly share their professional learning goals, strengths and weaknesses (2 mins each).

Teachers will provide PSTs with a unit that they have created or used in practice (that is not an example of an inquiry unit). Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups.

Using the teacher's unit plan, PSTs will brainstorm the answers to the following high-impact questions. PSTs may wish to highlight and annotate the unit plan to aide in the brainstorm.

- What is it we want our students to learn?
- How will we know if our students are learning?
- How will we respond when students don't learn?
- How will we enrich and extend the learning for students who are proficient?

Figure 7 (Continued)

Part 2 – develop and plan:

Considering the above, PSTs will conceptualise this teacher’s unit into an inquiry-based unit using the mapping framework provided:

A MODEL FOR DESIGNING A JOURNEY OF INQUIRY

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Murdoch (2019) (used with permission)

On the framework PSTs will demonstrate their understandings by highlighting and annotating on how they are addressing:

- Inclusion: ensuring that every student has access to meaningful learning experiences accessible through multiple entry points and differentiation;
- Curriculum: knowledge of learning progressions in respective areas of specialisation and essential capabilities;
- Engagement: designing student-driven authentic learning experiences that empower students to take control of and responsibility for their learning;
- Assessment: incorporate ongoing formative assessment processes that enable students to self-assess and collect evidence of progress

Part 3 – professional reflection:

PSTs will write a short professional reflection evaluating their conceptualised inquiry-unit.

Collaboratively:

- What curriculum content, learning experiences and teaching approaches have we included that will allow students to achieve their learning goals?
- What have we learnt and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards in this process?

Individually:

- What do I need to learn?
- What learning goals will I now set for myself?
- What strategies will I put in place to achieve these goals?

References

Department of Education and Training (2019), The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

Murdoch inquiry framework accessed from <https://static1.squarespace.com/static/55c7e7eae4b0f5d2463be2d1/t/5dcb82551bdcf03f365boa6f/1573618265386/A+MODEL+FOR+DESIGNING+A+JOURNEY+OF+INQUIRY.pdf> on 18/11/2019

Figure 7 (Continued)

Rubric				
Part 1: <ul style="list-style-type: none"> PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Thorough and accurate evaluation using the Victorian Curriculum to determine learning outcomes. Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning. Comprehensive consideration given to different student learning styles and abilities.				
Part 2: <ul style="list-style-type: none"> PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage 7-10 students to develop a conceptual inquiry unit. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement. Highly appropriate inquiry-based questions are included and detailed application and understanding of the inquiry process demonstrated.				
Part 3: <ul style="list-style-type: none"> PSTs can reflect deeply on the teaching and learning in their specialisation 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
In-depth knowledge of the learning progressions in the specialisation and appropriate authentic learning experiences to empower students to take control and responsibility for their learning. Deep and critical reflection on own practice, learning and achievement of AITSL standards.				
Overall: <ul style="list-style-type: none"> PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment. Share and discuss emerging research and evidence.				

As the senior secondary unit was undertaken after the junior secondary unit in the students' course/program learning sequence, the senior secondary MVP would further extend students to understand the nature of planning in PLCs. Using a flawed unit plan supplied by the in-service high-school teacher, students would evaluate and diagnose elements of good practice and make changes to improve the unit plan. Students would provide explanations and justifications of decisions made in their assessment responses. This design was aligned directly with participants' ideated sketches. Presented on the next page, Figure 8 illustrates the senior secondary MVP which was presented as the first prototype version (see also [Appendix M](#)).

Figure 8

Senior Secondary MVP Presented as the First Prototype

Prototype Version 1

Senior Secondary Curriculum and Pedagogy

Pedagogical purpose:
 This assessment task extends upon ETS5003 to further develop PSTs understanding of the nature of planning within the profession within the context of VCE. The FISO model has been used to conceptualise and structure this assessment workshop (<http://www.education.vic.gov.au/fiso>). The assessment is designed around teacher participation in Professional Learning Communities (PLCs) to allow PSTs to foster skills around teacher collaboration and shared practice and responsibility. PLCs are focused on continual improvement of teacher practice and student learning and often involve evaluating the efficacy of unit plans and sharing these findings. This has been included as a feature in this assessment task.

Overview:
 PSTs will complete this assessment task in the specialisation workshop in collaborative groups to simulate a PLC planning session at a school. A video with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide PSTs with a Unit 4 unit in their respective specialisations that is flawed, i.e. the teacher has omitted or removed some features throughout the unit. High-school teachers will facilitate the assessment and evaluate each group.

Length:
 Academic equivalent 1500 words

Due Date:
 At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:
Before Specialisation Assessment Workshop – goal setting:

In tutorials prior, PSTs learn about the features of curriculum documents in their respective specialisations to be able to apply knowledge to this assessment.
 PSTs complete a SWOT analysis of their own teaching to bring into the workshops:
 Reflecting on your own teaching experience and skills/knowledge gained so far in your MTeach course, report on your performance to complete a SWOT analysis (derived from AITSL):

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • What are you really good at as a teacher? • What attributes of teaching do other people recognise in you? • What do you do better than most people you work with? • What do you get recognised or rewarded for? • What about your teaching are you most proud of or satisfied with? • What experiences, resources or connections do you have access to that others don't? 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • What do you try to do that you just can't seem to master in your teaching? • What do you do only because you have to in order to satisfy job requirements? • Are there one or two aspects of your personality that hold you back as a teacher? • What do other people most often identify as a weakness for you? • Where are you vulnerable as a teacher? • Where do you lack experience, resources, or connections?
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • What opportunities are available to you in your current role? • What future roles interest you? • What new technology is available to you that may enable you to be more effective? • Are there any networks in existence that might support you to improve your teaching practice? • What current trends might impact your role as a teacher? • What external to education presents an interesting opportunity for you to improve your teaching? 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Do you have weaknesses as a teacher that need to be addressed before you can move forward? • What problems could your weaknesses cause if left unchecked? • What setbacks might you face? • What other obstacles have you seen other people overcome when they're trying to improve their teaching effectiveness?

Part 1 – evaluate and diagnose:

In small groups (3 or 4), PSTs will briefly share their professional learning goals reflecting on their SWOT analysis (2 mins each).
 Teachers will provide PSTs with the topic (Outcome) of the unit plan example (which will be given to PSTs in Part 3). PSTs brainstorm answers to the high impact questions:

- What is it we want our students to learn?
- How will we know if our students are learning?
- How will we respond when students don't learn?
- How will we enrich and extend the learning for students who are proficient?

Figure 8 (Continued)

Part 2 – develop and plan:

Teachers will provide PSTs with a Unit 3 or 4 unit that they have created or used in practice that has gaps where the teacher has removed aspects to create a flawed VCE unit. The teacher may wish to take out activities, assessment, goals, learning intentions or a combination of the above. Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups. PSTs will be in the same groups as Part 2.

Using the teacher's flawed unit plan in addition to considering the planning in Part 2, PSTs will annotate the unit plan to illustrate:

- Evidence of good practice with an explanation of why they consider that good practice
- Make changes to the unit and annotate why these decisions made
- How the unit plan has / has not considered engagement/ differentiation/ inclusion
- Where is the evidence of examiner's reports, advice for teachers, and exam preparation and what should be included in the unit (that is missing) to address these documents?
- Show how the specialisation content progresses

Part 3 – professional reflection:

PPSTs will write a short professional reflection evaluating their annotated and modified unit plan.

Completed collaboratively:

With consideration of one student (either one they have taught or from the VCE scenarios),

- What curriculum content, learning experiences and teaching approaches have we included that will allow this student to achieve their learning goals?
- How will we provide targeted support or extension for this student?
- What have we learnt through this planning experience and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards in this process?

Completed individually:

- What do I need to learn?
- What learning goals will I now set for myself?
- What strategies will I put in place to achieve these goals?

References

Department of Education and Training (2019). The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

Figure 8 (Continued)

Rubric				
Part 1: <ul style="list-style-type: none"> PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Thorough and accurate evaluation using the VCE Curriculum to determine learning outcomes. Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning. Comprehensive consideration given to different student learning styles and abilities.				
Part 2: <ul style="list-style-type: none"> PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage VCE students. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement. Thorough and detailed identification and consideration of relevant curriculum documents.				
Part 3: <ul style="list-style-type: none"> PSTs can reflect deeply on the teaching and learning in their specialisation 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
In-depth knowledge of the learning progressions in the specialisation and appropriate innovative learning experiences to empower students to take control and responsibility for their learning. Deep and critical reflection on own practice, learning and achievement of AITSL standards.				
Overall: <ul style="list-style-type: none"> PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindsets, knowledge and practices. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment. Share and discuss emerging research and evidence.				

Prototype Development Method

Aligned with PAR cyclical processes of reflection (Stringer, 2014), to gain feedback on each iteration of the assessment framework prototypes, participants from the initial empathy interviews were emailed individually to invite them to discuss the designed prototype via an informal open interview. The participants were emailed one at a time and through a feedback improvement sequence starting with the unit convenor (leading academic). The participant who held the role of the unit convenor (lead academic) was contacted first as it was deemed important to seek if the MVP prototype would be appropriate to be operationalised. After this initial feedback interview, other end-user groups (other academics, teachers, and students) were individually contacted via email to arrange a time to interview and managed according to time of invitation email response. When each participant accepted the invitation through a reply email, the latest prototype versions were sent to participants to allow them time to view the prototype before their interview. Three academics, five students and three high-school teachers provided feedback in these assessment framework feedback interviews.

In the interview, participants were asked generally what they liked about the prototypes, whether there were any foreseeable issues, and to suggest changes if applicable. Notes were taken by the researcher based on the participant's feedback. After the interview, and based on the participant's feedback, a new prototype was created and sent to the next participant following cyclical improvement iterations.

As Basecamp founder and CEO, Jason Fried discussed in his 'Get Real' column in Inc. business magazine (Fried, 2012), iterative improvements to the prototype could go on forever (just like the collection of qualitative data). There needs to be a point where feedback ends, and implementation of testing in the market begins. Fried (2012) discusses that the endpoint is never really known until it is in the market. Therefore, with no significant structural suggestions after the seventh iteration, and nothing further that could be included into the written assessment instructions, it was deemed appropriate to close the prototype phase and consider the prototype ready for testing during implementation. This process was much like reaching qualitative data saturation (Bowen, 2008; Fusch & Ness, 2015). Seven iterations of improvements were performed. The final prototype designs accepted as ready for implementation are presented in the next section (see Figure 9 and Figure 10 in Prototype Developing Findings).

Prototype Development Findings

Table 12 presents the sequential order of feedback from participants and the changes made to the assessment design prototype in each iteration.

Table 12

Phase One: Prototype Version with Associated Changes Based on Feedback Given by End-users

Prototype version	End-user group	Feedback given
1 (MVP - see Appendix M)	Academic - Isabella (Unit Convenor)	<p>Participant liked:</p> <ul style="list-style-type: none"> - The framework of the Junior Secondary unit assessment - The preparation work that students need to consider before starting the assessment - “Doable” in the time frame and that learning outcomes can be achieved. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Specificity needs to be more closely defined in a few statements, including the context of the specific levels of focus (Junior Secondary, Senior Secondary) - Participant changed some of the wording to make it clearer to students. <p>Improvements:</p> <ul style="list-style-type: none"> - The participant added a conceptual unit design board to Senior Secondary assessment framework prototype to similarly align to the task in Junior Secondary assessment framework prototype.
2	PST – Eleanor	<p>Participant liked:</p> <ul style="list-style-type: none"> - More engaging than current assessment design - Practical task <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - “Why are we doing this?”, “What do you want us to learn out of this?”; relevance has not been made clear - Junior secondary could be too easy and more suited to a classroom activity. “Is it suited to a Master [degree] level?”. However, the evaluation of a unit plan (in Part 2) was considered too difficult. “Would I be able to do this part back then? I can do it now that I’ve learned everything, but I’m not sure I would be able to do this then”. - For Senior secondary: the fact the group is marked together was a limitation of the design. The student would like a slightly different activity in the first workshop to scaffold into the second workshop. <p>Improvements:</p> <ul style="list-style-type: none"> - The student mentioned scope as an important change. Some parts were too broad for this student, “How much do I include?”
3	High-school Teacher – Melinda	<p>Participant liked:</p> <ul style="list-style-type: none"> - PLC design – relevant - Doable in timeframe <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Teacher consistency in marking - Do teachers know features of inquiry unit (not inquiry over a lesson) - “Are PSTs gaining an understanding of time in Senior secondary unit?” Do PSTs have an understanding of time - how long activities take. - Not all Outcomes are weighted evenly <p>Improvements:</p> <ul style="list-style-type: none"> - Align PLC protocols “facilitating teacher teams and PLCs” to icebreaker activity - Give critical understandings and an outline of inquiry to high-school teachers - Give teachers examples and elaborations of what they should be looking for - Give exemplar - To address learning about time, an instruction to teachers to remove activities so that PSTs can recognise and demonstrate this understanding.

Table 12 (Continued)

Prototype version	End-user group	Feedback given
4 Changes made: - Exemplars created - Irks and Quirks protocol added	PST – Zhi	Participant liked: - Mentor providing a support and direction Foreseeable issues: - Intense program; potentially stressful timeline - International students will struggle with the complexity of the assessment. - The last task would take the participant longer than 30 minutes Improvements: - Give the assessment framework to students prior to the workshop so they can unpack the requirements and get a sense of the assessment program. - Provide subtitles on video - Increase last task to 40 minutes
5 Changes made: - Increase the last task to 40 mins	Academic – Phillip	Participant liked: - The task is aspirational in what PSTs should be doing and seeing in schools. Foreseeable issues: - Workshop teachers that are asked in a day before: will they be able to facilitate this workshop? - Holding banks of unit plans – avoid this - There are a wide range of abilities in teachers, does this task support those who overthink and those who do bare minimum? - Rubric: concerned the teachers will not evaluate in the same way. Different interpretations of terms may be apparent, for example, “inconsistent” - Are there too many parts? - The exemplars may limit the output - The tasks are similar between the two units Improvements: - Be clear about the conceptual framework in the video. Set the scene by telling a story talking though what is expected of students and why the assessment has been set up in the way that it has. FISO model scares some so introduce the concept but be clear about only focusing on one or two aspects. Include the implications of this assessment linking it to schools. - Emphasise the differences between the two assessments. Be explicit in how they complement each other, but also clear how they are different and worthwhile.
5	PSTs – Adele, Florentina, and Julia (together)	Participants liked: - Doable - Addresses the requirements of the assessment - Authentic Foreseeable issues: - Worried that the workshop teachers are not capable of running quality within the assessment - Not all workshop teachers are as prepared as others - How will they understand what is expected of them? - The video provided must be explicit and not just read what is on the assessment sheet. It should be complementary to the text. - How will PSTs work on own in small specialisations? - How do you split up a group of 5? Improvements - Provide an example that is bare minimum so that I can extend upon that and go beyond - Provide a cross-curricular experience (e.g., a combination of specialisations to create a unit that is inter disciplinary)

Table 12 (Continued)

Prototype version	End-user group	Feedback given
5	Academic – Miles	<p>Participant liked:</p> <ul style="list-style-type: none"> - The concept design around a PLC draws on practice happening in schools - It provides aspiring values for PSTs to draw on in their future practice and begins the thinking process of the values of a PLC - It provides the PST with the high pressure that is experienced in school planning; the PST must experience thinking on their feet - It ties together the policy environment and involvement of PSTs within collaboration. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - You need to think about the things that will slow up the process on the assessment day and try to address. Minimise aspects that will be time consuming - Set up the metacognitive framework earlier to scaffold PSTs - How will you regulate the high-school teachers? <p>Improvements:</p> <ul style="list-style-type: none"> - Provide teachers with a session explaining the assessment, exemplars and how to help facilitate the workshop.
5	High school teacher – Kelly	<p>Participant liked:</p> <ul style="list-style-type: none"> - What is trying to be achieved - Believes they can facilitate the assessment as a workshop teacher <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Participant is still wondering if “we are really encouraging PLC behaviour, or it is critical analysis of written curriculum documents rather than actual practice” - The PLCs at the participant’s school are “about coaching and collaborating and sharing practice rather than ensuring documents are ticking the box.”. The participant cannot clearly see sharing of practice. <p>Improvements:</p> <ul style="list-style-type: none"> - “I would foresee students possibly discuss a component of the course and discuss how they would teach it for the HITs etc and possibly deliver it in class. I know this could be a mammoth task, but they could film themselves, say in Part 3 and call it ‘develop, plan and deliver’. They could upload the clip and then complete other tasks in the written format.” - In exemplar, take out mention of wanting to teach in low-SES as it sounds arrogant with limited understanding - Exemplar reads as any professional attributes. Bring a greater focus specific to education.
6	High school teacher – Julie	<p>Participant liked:</p> <ul style="list-style-type: none"> - “[The assessment document] is a clearly expressed overview of what the Specialisation teacher is expected to cover” - “It is impressive and very succinct compared to limited phone chats about this task (like last year!)” <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - “In asking teachers to provide a unit they have created, what if all of their units have already been created using an inquiry-based approach” - Initial irks and quirks sharing task is not clear what the professional learning goals originate from. <p>Improvements:</p> <ul style="list-style-type: none"> - In exemplar change curriculum to ‘Cells’ so that it matches the inquiry-based diagram included to provide a better flow and to help those who are not science specialisations.
7 (see Appendix N)	<p>Changes made:</p> <ul style="list-style-type: none"> - Exemplar edited to reflect education attribute focus - Grammatical issues - Low SES comment removed 	<p>Changes made:</p> <ul style="list-style-type: none"> - Grammatical errors - Clarified professional learning goals origin <p>Added comment to exemplar to address evaluative assessment on verbal discussion</p>

Participants identified that they liked the authentic aspects of the overall design, using adjectives such as “*doable*,” “*engaging*,” “*practical*,” and “*relevant*” to describe the practicable and pragmatic practices that are occurring as part of many school collaborations. Overall, participants from each end-user group connected to the authentic essence of the assessment framework prototypes and the PLC scenario. In particular, Miles was enthusiastic about the PLC structure. He indicated that it allowed students to experience planning in a collaborative environment with strong values of shared practice while simultaneously giving students experience in planning under tight timelines, given the assessment would be carried out in the finite time allocated to the workshop activity class. Eleanor (student) also thought the assessment framework prototype looked more engaging than what had been previously undertaken. She wanted to see the purpose of the assessment clearly; as the relevance of the task was not evident to her. As the pedagogical purpose was included in the prototype version, which Eleanor viewed, her concern was challenging to address and not immediately implemented into the prototype versions. In the final versions, to address Eleanor’s foreseeable issues, instructional videos were created and included an explanation of each part with discussions of the applications and purposes of the assessment.

Overall foreseeable issues suggested by other participants included structural issues that generally connect to many of the usual higher education assessment constraints: in early iterations, suggested issues related to the clarity of instructions to ensure transparency and relevance were apparent to students, which was a pain point finding from the empathy interviews with students (see [Chapter 4](#)). Consistency in assessor marking was another potential issue raised, in addition to teachers’ capacity for facilitating quality assessment and PLC protocols. Both factors were considered difficult to address within the design. The inclusion of additional instructions to teachers and explanation videos for consistency of instruction were included to address these concerns. However, the effectiveness of the inclusion of these may not be known until tested in practice.

Interestingly, prototype feedback from student participants was commonly related to emotional outcomes from assessment processes, such as feeling stressed with tight timelines and worried about expectations. Students also discussed disliking group mark allocation when social loafing occurs, and the inequities of the workload associated with groups of unequal sizes. Both individual and collaborative reflection components were included to address aspects of social loafing.

Naturally, suggested improvements proposed by participants centred around the identified issues above, including addressing the tight timeline by reducing the overall scope of the original task and increasing time allocations of parts. High-school teachers Kelly and Melinda suggested providing an exemplar to assist the assessor and students in understanding quality and expected scope, which was updated to include in Version 6. However, it is interesting that students in this research project, Adele, Florentina, and Julie, indicated that they would only like a satisfactory example rather than an exemplar, so they can extend upon the basic model to demonstrate their stretch in knowledge.

Comparing prototypes Version 1 (see Figure 7, Figure 8, and [Appendix M](#)) and the final Version 7 (see Figure 9, Figure 10, and [Appendix N](#)), the overall improved changes were not significant to the overall design structure. Further detail and clarifying instructions were provided in the final version with guidelines for teachers and scaffolded prompts for students. However, the overall PLC structure with the included task of improving a unit plan remained the core design features, as participants provided positive feedback on these design aspects. Based on high-school teacher Melinda's feedback, one noteworthy improvement incorporated an authentic PLC feature of getting to know group members. Including an icebreaker was suggested to allow students to find common goals and collective approaches to teaching to start building a culture of trust to improve group foundations. Therefore, this introductory PLC protocol was included in the final prototype version. Figures 9 and 10 below presents the final prototype designs for the junior and senior secondary units respectively.

Figure 9

Junior Secondary Final Prototype Ready for Implementation

Prototype Version 7
Junior Secondary Curriculum and Pedagogy

Pedagogical purpose:
Professional Learning Communities (PLCs) are at the heart of educational change. They provide teachers and schools with a foundation for strategic and ongoing reflection and planning for improvement. PLCs are characterised by collaboration of teachers and leadership through shared vision and practice. PLCs are shared responsibility of all involved and ensure student learning and progression is at the centre of purpose. This assessment has been designed to reproduce aspects of the implementation of FISO, using *The PLC Guide: Implementing FISO with Precision, Collaboration and Inquiry* (DET, 2019). This will immerse PSTs in the Victorian Curriculum as well as experiences that simulate collaborative planning practices that are currently undertaken at schools. These experiences will also expose them to common language and structures that schools are implementing for a focus on student improvement.

Overview:
PSTs will complete this task in both specialisation workshops in collaborative groups (3 or 4) to simulate a PLC planning session at a school. The mark from the second workshop will contribute to the PSTs mark for AT2 in this subject. The first workshop will provide formative feedback to the PST. A video with an explanation of Part 2, 3 and 4 will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide a 7-10 unit in their respective specialisations. High-school teachers will facilitate the assessment and evaluate each group.

Length:
Academic equivalent 1500 words

Due Date:
At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:
Before Specialisation Assessment Workshop – goal setting (200-300 words):

In tutorials prior, PSTs learn about the features of inquiry-based learning and DET policy (including the pedagogical model) to be able to apply to this assessment.
PSTs prepare answers to the goal setting questions to bring into both workshops:

- Discuss aspects of teaching you admire (e.g. qualities/ characteristics)
- What positive memories of your education do you have that you would like to bring into your professional career?
- What strengths (character, professional, skills, etc) do you currently hold for teaching?
- What areas do you think you need to work on (weaknesses/ opportunities for improvement) for teaching in each of your specialisations?

Part 1 – evaluate and diagnose (document our thinking) (40 minutes):

Irks and Quirks Protocol[1] warm up:
In small groups (3 or 4), PSTs will write

1. one pet peeve they have regarding working in groups or at teacher meetings. They begin their pet peeve with the phrase *It burns my butt when . . .* (e.g., “It burns my butt when people are interrupted during discussions,” or “It burns my butt when one person does all the talking.”) (2 mins)
2. one trait about themselves that everyone in the group should know to best work with them in a group setting. They begin their trait with the phrase *One thing you all should know about me is . . .* (e.g., “One thing you all should know about me is that my silence is not due to disinterest; I just need processing time,” or “One thing you all should know about me is I get excited during discussions, and sometimes people are put off by my enthusiasm”).

Then share in the small groups:

3. PSTs share both statements in volunteer order without discussion (or elaborating on the card) and share one of their professional learning goals from their goal setting homework (Q4). (2 mins each).

Figure 9 (Continued)

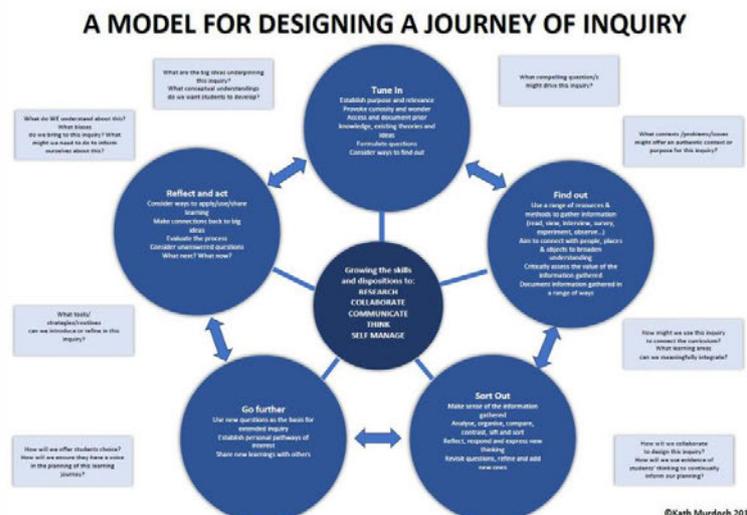
Teachers will provide PSTs with a unit that they have created or used in practice (that is not an example of an inquiry unit).

Using the teacher's unit plan, PSTs will write a response to the following high-impact questions in the table format below. PSTs may wish to highlight and annotate the unit plan to aide in their response (use of dot points is acceptable).

1. What is it we want our students to learn? (Curriculum)	2. How will we know if our students are learning? (Assessment)
3. How will we respond when students do not learn? (Differentiation)	4. How will we enrich and extend the learning for students who are proficient? (Differentiation)

Part 2 – develop and plan:

Considering the above, PSTs will conceptualise this teacher's unit into an inquiry-based unit using the mapping framework provided:



Murdoch (2019) (used with permission)

On the framework PSTs will demonstrate their understandings by highlighting and annotating on how they are addressing:

- Inclusion: ensuring that every student has access to meaningful learning experiences accessible through multiple entry points and differentiation;
- Curriculum: knowledge of learning progressions in respective areas of specialisation and essential capabilities;
- Engagement: designing student-driven authentic learning experiences that empower students to take control of and responsibility for their learning;
- Assessment: incorporate ongoing formative assessment processes that enable students to self-assess and collect evidence of progress

Figure 9 (Continued)

Part 3 – professional reflection:

PSTs will write a short professional reflection evaluating their conceptualised inquiry-unit.

Collaboratively (300 words):

- What curriculum content, learning experiences and teaching approaches have we included that will allow students to demonstrate their achievement of learning goals?
- What have we learnt and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards (Choose from 2.2, 1.5, 2.1, 2.2, 3.3, 3.4, 4.1) in this process?

Individually (300 words):

- What do I need to learn? (refer back to your pre session learning goals – what has been achieved; what do you still need to work on?)
- What learning goals will I now set for myself? Connect these goals to AITSL standards.
- What strategies will I put in place to achieve these goals?

References

Department of Education and Training (2019), The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

Murdoch inquiry framework accessed from

<https://static1.squarespace.com/static/55c7efeae4bof5d2463be2d1/t/5dcb82551bdcf03f365boa6f/1573618265386/A+MODEL+FOR+DESIGNING+A+JOURNEY+OF+INQUIRY.pdf> on 18/11/2019

[1] Irks and Quirks is a pre-activity for setting up norms in teacher groups developed by Daniel R. Venables. From D. Venables, *The Practice of Authentic PLCs: A Guide to Effective Teacher Teams*, Corwin, 2011.

Figure 9 (Continued)

Rubric				
Part 1: <ul style="list-style-type: none"> • PSTs can collaboratively and effectively contribute and communicate the intended learning outcomes from the Victorian Curriculum for students by articulating an understanding of key content and concepts in their respective specialisation. <ul style="list-style-type: none"> ○ Thorough and accurate determination of learning outcomes, justified and explained with reference to the Victorian Curriculum (question 1) ○ Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning (question 2) ○ Comprehensive consideration given to different student learning styles and abilities (questions 3 and 4) 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Part 2: <ul style="list-style-type: none"> • PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage 7-10 students to develop a conceptual inquiry unit. <ul style="list-style-type: none"> ○ Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement. ○ Detailed application and understanding of the inquiry process demonstrated as particular to respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Part 3: <ul style="list-style-type: none"> • PSTs can reflect deeply on the teaching and learning in their specialisation <ul style="list-style-type: none"> ○ In-depth knowledge of the learning progressions in the specialisation and appropriate authentic learning experiences to empower students to take control and responsibility for their learning in a Junior Secondary Setting. ○ Deep and critical reflection on own practice, learning and achievement of AITSL standards. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Overall: <ul style="list-style-type: none"> • PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. <ul style="list-style-type: none"> ○ Constructively challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment giving clear justification to support and explain ideas. ○ Share and discuss emerging research and evidence to substantiate claims. ○ Pre goal setting contains specific and challenging goals. They are engaged in targeted development focused on priority areas for improvement. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Figure 10

Senior Secondary Final Prototype Ready for Implementation

Prototype Version 7

Senior Secondary Curriculum and Pedagogy

Pedagogical purpose:
 This assessment task extends upon Junior Secondary Specialisation Curriculum and Pedagogy to further develop PSTs understanding of the nature of planning within the profession within the context of VCE. The FISO model has been used to conceptualise and structure this assessment workshop (<http://www.education.vic.gov.au/fiso>). The assessment is designed around teacher participation in Professional Learning Communities (PLCs) to allow PSTs to foster skills around teacher collaboration and shared practice and responsibility. PLCs are focused on continual improvement of teacher practice and student learning and often involve evaluating the efficacy of unit plans and sharing these findings. This has been included as a feature in this assessment task.

Overview:
 PSTs will complete this assessment task in the specialisation workshop in collaborative groups (3 or 4) to simulate a PLC planning session at a school. Videos with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide PSTs with a Unit 3 or 4 unit in their respective specialisations that is flawed, i.e. the teacher has omitted or removed some features throughout the unit. High-school teachers will facilitate the assessment and evaluate each group.

Length:
 Academic equivalent 1500 words

Due Date:
 At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:
Before Specialisation Assessment Workshop – goal setting (250-350 words:

In tutorials prior, PSTs learn about the features of curriculum documents in their respective specialisations to be able to apply knowledge to this assessment.
 PSTs complete a SWOT analysis of their own teaching to bring into the workshops:
 Reflecting on your own teaching experience and skills/knowledge gained so far in your teaching course, report on your performance to complete a SWOT analysis (derived from AITSL):

<p>Strengths</p> <ul style="list-style-type: none"> • What are you really good at as a teacher? • What attributes of teaching do other people recognise in you? • What do you do better than most people you work with? • What do you get recognised or rewarded for? • What about your teaching are you most proud of or satisfied with? • What experiences, resources or connections do you have access to that others don't? 	<p>Weaknesses</p> <ul style="list-style-type: none"> • What do you try to do that you just can't seem to master in your teaching? • What do you do only because you have to in order to satisfy job requirements? • Are there one or two aspects of your personality that hold you back as a teacher? • What do other people most often identify as a weakness for you? • Where are you vulnerable as a teacher? • Where do you lack experience, resources, or connections?
<p>Opportunities</p> <ul style="list-style-type: none"> • What opportunities are available to you in your current role? • What future roles interest you? • What new technology is available to you that may enable you to be more effective? • Are there any networks in existence that might support you to improve your teaching practice? • What current trends might impact your role as a teacher? • What external to education presents an interesting opportunity for you to improve your teaching? 	<p>Threats</p> <ul style="list-style-type: none"> • Do you have weaknesses as a teacher that need to be addressed before you can move forward? • What problems could your weaknesses cause if left unchecked? • What setbacks might you face? • What other obstacles have you seen other people overcome when they're trying to improve their teaching effectiveness?

Figure 10 (Continued)

Part 1 – evaluate and diagnose:

Irks and Quirks Protocol[1] warm up:

In small groups (3 or 4), PSTs will write

- one pet peeve they have regarding working in groups or at teacher meetings. They begin their pet peeve with the phrase It burns my butt when . . . (e.g., "It burns my butt when people are interrupted during discussions," or "It burns my butt when one person does all the talking.") (2 mins)
- one trait about themselves that everyone in the group should know to best work with them in a group setting. They begin their trait with the phrase One thing you all should know about me is . . . (e.g., "One thing you all should know about me is that my silence is not due to disinterest; I just need processing time," or "One thing you all should know about me is I get excited during discussions, and sometimes people are put off by my enthusiasm".

Then share in the small groups:

- PSTs share both statements in volunteer order without discussion (or elaborating on the card) and share one of their professional learning goals from their SWOT analysis. (2 mins each).

Teachers will provide PSTs with the topic (Outcome) of the unit plan example (which will be given to PSTs in Part 3). PSTs brainstorm answers to these high impact questions:

- 1.What is it we want our students to learn? (curriculum)
 - i. Looking also at VCE study guides, VCAL curriculum, advice for teachers, examiner's report
2. How will we know if our students are learning? (assessment)
 - i. Looking also at VCAA Assessment Principles
- 3.How will we respond when students do not learn? (differentiation)
- 4.How will we enrich and extend the learning for students who are proficient? (differentiation)

Part 2 – develop and plan:

Teachers will provide PSTs with a Unit 3 or 4 unit that they have created or used in practice that has gaps where the teacher has removed aspects to create a flawed VCE unit. The teacher may wish to take out activities, assessment, goals, learning intentions or a combination of the above. It is recommended to remove a number of 'activities' (either within a lesson or a series of lessons) to allow the PSTs to understand the timing of lessons and activities (i.e. how long an activity takes within the lesson).

Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups. PSTs will be in the same groups as Part 2.

Using the teacher's flawed unit plan in addition to considering the planning in Part 2, PSTs will annotate the unit plan to illustrate:

- Evidence of good practice with an explanation and justification of why they consider that good practice (substantiate from pedagogical literature, HITS, es, etc)
- Make changes to the unit and annotate why these decisions have been made
- How the unit plan has / has not considered engagement/ differentiation/ inclusion
- Identify the evidence of examiner's reports, advice for teachers, and exam preparation and what should be included in the unit (that is missing) to address these documents?
- Show how the specialisation content progresses by mapping the progression of student cumulative learning by mapping a unit summary:
 - How is the content progressing and developing? (Highlighting content and complexity of activities)
 - How is the assessment is linked?
 - You could use a design board to show the progression (example below) or a concept map.

Sequence of learning 1 (Content / overall learning outcomes)		Sequence of learning 2		Sequence of learning 3, etc	
Main activity 1		Main activity 2			
Diagnostic assessment	Formative assessment 1		Formative assessment 3		Assessment 4

Figure 10 (Continued)

Part 3 – professional reflection:

PSTs will write a short professional reflection evaluating their annotated and modified unit plan.

Completed individually (500 words):

With consideration of one student each (either one they have taught or from the VCE scenarios),

- what curriculum content, learning experiences and teaching approaches have we included that will allow this student to achieve their learning goals?
- how will we provide targeted support or extension for this student?
- what have I learnt through this planning experience and how will this inform our instruction and/or planning in the future?
- what is the progress made with achieving AITSL standards in this process?

References

Department of Education and Training (2019), The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

[1] Irks and Quirks is a pre-activity for setting up norms in teacher groups developed by Daniel R. Venables. From D. Venables, The Practice of Authentic PLCs: A Guide to Effective Teacher Teams, Corwin, 2011. Copyright 2011 by Corwin

Figure 10 (Continued)

Rubric

<p>Part 1:</p> <ul style="list-style-type: none"> PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation. <ul style="list-style-type: none"> Thorough and accurate evaluation and justification using the VCE/VCAL Curriculum to determine learning outcomes. (Question 1) Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning. (Question 2) Comprehensive consideration given to different student learning styles and abilities. (Question 3 & 4) 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Part 2:</p> <ul style="list-style-type: none"> PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage VCE students. <ul style="list-style-type: none"> Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement. Thorough and detailed identification and consideration of relevant curriculum documents. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Part 3:</p> <ul style="list-style-type: none"> PSTs can reflect deeply on the teaching and learning in their specialisation <ul style="list-style-type: none"> In-depth knowledge of the learning progressions in the specialisation and appropriate innovative learning experiences to empower students to take control and responsibility for their learning in a Senior Secondary setting. Deep and critical reflection on own practice, learning and achievement of AITSL standards. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Overall:</p> <ul style="list-style-type: none"> PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. <ul style="list-style-type: none"> Constructively challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment by giving clear justification to support and explain ideas. Share and discuss emerging research and evidence to substantiate claims. Pre goal setting contains specific and challenging goals. They are engaged in targeted development focused on priority areas for improvement. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Prototype Development Discussion

Overwhelmingly, participants valued the authentic aspect of the assessment framework prototype in allowing students to experience planning in a PLC scenario. The literature suggests that PLC culture is important in education (DuFour & Eaker, 1998). As expected, participants in this research valued the attempt to provide this practicable experience of working “together to achieve their collective purpose of learning for all” (DuFour, 2004, p. 3) through a simulation of collaborative planning. Research has demonstrated the value of PLCs in teachers’ professional development (Vangrieken et al., 2017), improving teaching and learning practices, and in turn, school student outcomes (Vescio et al., 2008). Therefore, many participants regarded these real-world planning contexts as valuable. In particular, Miles noted the PLC design concept was affording students the experience to be able to draw upon and subsequently improve in their future practice.

Many high-school teachers and academic end-users valued the key components of PLCs for reasons already identified in other research studies, namely promoting and sustaining collective professional learning, developing a supportive collaborative culture and individual accountability (DuFour, 2004; Hord & Sommers, 2008; Vangrieken et al., 2017) that are attempted in the prototypes developed in this research. The participants appreciated the prototype offering opportunities to access these valued PLC characteristics, particularly pursuing the culture of support through shared beliefs and values. For example, Miles suggested this aspect presented potential pathways to being job-ready by discussing and planning through collaborative learning, collective conversations, and supportive shared practice experiences. In their TEMAG ‘classroom ready’ report, Craven et al. (2014) recommend that teacher education providers deliver rigorous assessment for students of teaching that provides rich opportunities to connect theory to skill and support them towards being ready for the demands of the profession. The prototype developed in this research may provide this link to assist students in confidently contributing as graduates to professional PLC conversations, or alternatively, begin the conversation of making the change towards good practice of collaboration, which participants in this research valued as an essential contribution to the student experience and learning.

It is important to note that the assessment framework prototypes only replicate components of a PLC. High-school teacher Kelly questioned whether the design sufficiently encouraged PLC behaviour of shared practice or was too much focused on analysis of students’ written work, which appeals to the institution’s regulatory systems.

Research by Boud and Falchikov (2006) outlined similar concerns of higher education's focus on certification and external drivers of accountability rather than on student experience and learning. Additionally, the prototype developed in this research only allows for one PLC planning opportunity in each unit. In contrast, the literature suggests that an important feature of a PLC is the nurturing of reflexive collaboration that occurs over time (Stoll et al., 2006) and in regular cycles (DET, 2020a). Nonetheless, the critical elements of collective contribution within the overall aims of individual student's learning are included to promote aspects of PLC culture and, optimistically, address Kelly's concerns with the assessment constraints. As Stoll et al. (2006) astutely reflect, the PLC "community focus emphasises mutually supportive relationships and developing shared norms and values" (p. 225), which is included in the design in way of trust-building exercises between students in their assessment groups, and student-teacher partnerships through sharing of resources.

Interestingly, students Adele, Florentina, and Julie suggested including only an example that demonstrated satisfactory achievement for them to extend upon rather than an exemplar. The question of whether students use exemplars to copy rather than learn has been raised in the literature previously (Handley & Williams, 2011). Therefore, it is encouraging that this may not be the case. High-school teachers Melinda and Kelly suggested providing an exemplar to assist assessors and students' understanding of quality and expected product scope. These suggestions are aligned with literature that suggests exemplars provide students with levels of quality (Sadler, 2005), which can improve student self-efficacy and evaluative and productive proficiencies (Dixon et al., 2020). Perhaps the reflection from Adele, Florentina, and Julie suggested that exemplars do not fit the same mould for all students – that there are multiple ways students work with exemplars, just as academics adopt multiple purposes and methods for sharing exemplars (Smyth & Carless, 2021).

The fundamental foreseeable problems from participants in this research to develop an assessment framework prototype defaulted to areas of concern well known in the higher education assessment literature. In early prototype versions, clarity and transparency of instruction and purpose were questioned, which are recognised in literature to improve quality of assessment (Biggs & Tang, 2011; Ramsden, 2003), and also confirmed by student participants' pain points in the empathy interviews (see [Chapter 4](#)). Therefore, it was worthwhile seeking feedback from end-users on clarity of instruction early in the prototype to amend accordingly before implementation.

Chapter Summary

This chapter has presented the ideation workshop processes and outcomes with subsequently developed assessment framework prototypes that are fit for purpose in face-to-face teaching environments. Reflections from the ideate stage of design thinking have revealed positive outcomes from participants' individual and collective strengths in the collaboration process. Participants valued the opportunity to ideate, the structured processes the ideation yielded, and the actionable solutions conceived in the process. The MVP was created from these ideated sketches to take the form of a PLC scenario-based experience. Seeking end-user feedback during prototype development was a rich experience in gaining confirmation and constructive criticisms for refinement before implementation. The process has resulted in assessment framework prototypes ready for testing in a face-to-face learning environment in two units focused on junior and senior secondary curriculum and pedagogy.

Unfortunately, the Covid-19 pandemic resulted in education moving to a digitally supported remote delivery at the end of this research stage, which meant the ideated assessment framework prototype could not be implemented to test effectiveness. Instead, true to the flexible nature of design thinking and PAR processes, the research undertook a cyclical iterative pivot back to Stage 1 (empathise) to explore Covid-19 teaching, learning, and assessment conditions. This next phase of the research conducted under the post-Covid-19 conditions is presented in the next part of this thesis. The next chapter introduces Phase Two and provides a literature review that presents the post-Covid-19 research context.

Chapter 6: Phase Two: Post-Covid-19 Introduction and Literature Review

“We are not all in the same boat. We are all in the same storm. Some are on Super-Yachts. Some have just one oar.”

– Damien Barr (award-winning writer, columnist, and broadcaster)

Introduction to Phase Two

The previous chapters have determined effective assessment approaches in a pre-Covid face-to-face teaching environment from the perspectives of the end-users; students, academics, and high-school teachers. Based on participants' assessment wants and needs, assessment frameworks had been formulated for a face-to-face environment. The next stage in design thinking would have been to test the framework's effectiveness in practice by implementing it into the curriculum and assessment program. However, 2020 saw profound, rapid change, at a global scale, for higher education. In response to the highly contagious effects of the Covid-19 virus, social isolation practices were implemented. This meant that education systems, including higher education, were required to rapidly redesign programs to fit virtual environments to remain operating worldwide and simultaneously comply with existing regulatory obligations of their programs (Clapsaddle et al., 2021; Crawford et al., 2020). These changes meant that the prototypes designed for face-to-face teaching could not be implemented, and a research pivot was required to continue towards submission of this PhD project. Following the non-linear nature of design thinking, this research returned to Stage 1 of design thinking to explore and empathise with end-users who were experiencing sudden shifts into digitally supported remote delivery.

Phase Two of the research was conducted during months of September, October and December of 2020 during the Covid-19 Pandemic. Displayed in the same format as in Phase One, Phase Two is presented over these next three chapters. This chapter presents the literature surrounding Covid-19 impacts on higher education and digitally supported remote delivery. Chapter 7 offers the empathy interview findings, followed by outcomes and discussions of the ideation and prototyping stages in Chapter 8 undertaken post-Covid-19.

At the beginning of this project, there were never any intentions to utilise digital or online learning models, and thus, the literature related to those fields was not reviewed and considered in Phase One. Suddenly it became necessary to understand good assessment practice for digitally supported remote learning, so the literature around

this topic will now be introduced. The following section will present considerations of the digital remote learning environment due to Covid-19 and literature surrounding old and new learnings. Rapid program and pedagogical decisions relied upon pre-covid understandings of online teaching; therefore, two online theoretical frameworks will also be outlined.

Covid-19 Impacts on Higher Education

The rapid worldwide shift into digitally supported remote delivery as a result of the Covid-19 pandemic impacted the work, study, and personal lives of those in the higher education sector, in which the shift was possibly the “largest online education practice in the human history” (Yan, 2020, p. 110). Programs were ultimately forced online, and those students who had chosen face-to-face learning experiences were now forced to experience a form of distance education. Education continued through periods of uncertainty through synchronous or asynchronous delivery of teaching and learning, and combinations of both. Tertiary academics attempted to transition their usual practices into fully online environments in an “emergency remote teaching” program (Hodges et al., 2020). Consequently, there was significant disruption to teaching, learning, and assessment practices, causing adaptations to usual practice towards digitally supported remote delivery. With this implementation of a novel program, there were opportunities and challenges experienced by stakeholders. The size and breadth of the shift, including the re-development of whole programs, including assessment and feedback, meant that academics experienced significantly higher workloads (Adedoyin & Soykan, 2020; Marek et al., 2021). While unsurprising, this is concerning given the already overburdened workloads coupled with mental health challenges at the time (Fisher et al., 2020). Farrell and Brunton (2020) found that student online learning engagement was impacted by organisational and time management factors, and psychosocial factors such as peer and teacher support and feeling part of a community. Therefore, classrooms that usually promoted active learning were required to consider how teaching strategies could re-engage online participation for the initially disengaged students, whilst simultaneously supporting equitability (Reinholz et al., 2020). Primary and secondary schooling sectors in Australia (the setting of this research) and around the world were simultaneously experiencing these teaching and learning changes, with reports of teacher stress and school student disengagement, highlighting the importance of support (Ziebell et al., 2020)

Despite this setback, Covid-19 provided an opportunity for this research to explore what was happening to the teaching, learning, and assessment shift into digitally

supported remote learning. Given the constraints of remote teaching, there were potential new problems in delivering and completing assessments in addition to those already explored in Phase One of the study. Therefore, the design thinking procedures were repeated in Phase Two to investigate these new problems and shifts in perspectives during Covid-19 times.

Digitally Supported Remote Delivery

Higher education online learning programs are not new or unique to the pandemic (Carrillo & Flores, 2020). Combinations of distance, hybrid, and online education approaches have been offered in higher education, including teacher education courses, for some time, and the transition into digital technologies has been well documented in the past (Kaleta et al., 2007; Northcote, 2008; Redmond, 2011). Ideally, the fundamentals of careful planning of content and pedagogical knowledge in a face-to-face environment (Shulman, 1986), remain necessary for effective online teaching practice (Koehler & Mishra, 2005). Additionally, knowledge of technology focused on the “certain ways of thinking about, and working with, technology” (Koehler & Mishra, 2009, p. 15) is needed in both environments.

Online Learning Pedagogical Frameworks

In the Covid-19 climate of higher education rapidly shifting to completely online practices, pedagogical teaching, learning, and assessment decisions have leaned towards pre-covid understandings of online frameworks. Two main pedagogical frameworks feature in the literature: TPACK, which is focused on how effective teaching incorporates content, pedagogical and technological knowledge; and the Community of Inquiry Framework (CoI), encouraging a sense of community, trust and support in a blended learning environment.

TPACK. Initially created as TPCK (Technological Pedagogical Content Knowledge), which extended upon Shulman’s (1986) content and pedagogical forms of teacher knowledge, the framework focussed on how teachers can learn about and integrate technology into teaching and learning within school classrooms (Koehler & Mishra, 2005). The model has since expanded to include other combinations of the criteria (content knowledge, pedagogical knowledge, technological knowledge, pedagogical content knowledge, technological content knowledge, technological pedagogical knowledge, and technological pedagogical content knowledge) to provide

emphasis on the three kinds of knowledge “not taken in isolation but as an integrated whole” (Thompson & Mishra, 2007, p. 38).

Although developed in primary and secondary schooling contexts, the TPACK model more broadly applies to higher education where technology integration is part of the learning experience and design (Bibi & Khan, 2017; Maor, 2016; Mourlam, 2017). The TPACK model proposes three main integrated elements that assist with effective planning, implementation and assessment programs; content, pedagogical, and technology knowledge.

Content knowledge is related to the curriculum and content knowledge of the teacher (Koehler & Mishra, 2009). Pedagogical knowledge is associated with the teacher’s knowledge about the practices and methods related to effective teaching, learning and assessing (Koehler & Mishra, 2009). Technology knowledge, noted as much more challenging to define, is focused on the “certain ways of thinking about, and working with technology can apply to all technological tools and resources” (Koehler & Mishra, 2009, p. 15). The other combinations of these core elements go beyond each component to demonstrate their links and interactions. Although the model is originally focused on the implementation of these core knowledge components in teaching, they are arguably integrated with assessment design decisions. Assessment design requires choices of knowledge and content, pedagogy of appropriate assessment tasks, and technology formats.

There is extensive literature surrounding the TPACK topic (Kessler & Phillips, 2019), some with varied definitions, frameworks, and perceptions of the model (Brantley-Dias & Ertmer, 2013). Saubern et al. (2020) considered much of the research is focused on critiquing the TPACK model diagram, and its included elements rather than the knowledge teachers require for effective teaching and learning with technology. Additionally, although also noting the difficulties of measuring the aspects of the model, Abbitt (2011) suggested that the framework can “serve both as a model for the requisite knowledge of teachers for technology integration as well as a model of how innovative technology integration emerges” (p.295). Therefore, academics could utilise the framework to develop their digital pedagogies in a time of forced technology integration during Covid-19 times to enhance their pedagogical teaching, learning and assessment programs interconnected through technology.

Community of Inquiry Framework (CoI). The CoI framework is another online pedagogical framework developed to build a community through establishing trust and support within the teaching and learning of a blended environment (Garrison et al., 2000; Garrison & Vaughan, 2008). Blended learning is generally defined as integrating combinations of both face-to-face and online teaching in programs (Garrison & Vaughan, 2008), although also noting that the definitions in literature are defined in different ways which are not always clear (Smith & Hill, 2019). The CoI framework is consistent with the constructivist approach to teaching and learning in that the students are active members of the learning process (Garrison, 2007). The framework presents three core elements, social, cognitive, and teacher presence, which are relational, interdependent, and connected to support the blended educational experience. The most effective teachers are ones who can combine all three presences together in their teaching and learning programs (Perry & Edwards, 2005).

Technology, especially in asynchronous text-based communication, can remove some of the socially cued aspects of communication, challenging the establishment of social presence (Duncan & Barnett, 2009). Taken from Garrison's (2011) definition, social presence can be defined as "the ability of participants to identify with the group or course of study, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities" (p. 34). Therefore, additional consideration to the social dynamics of communication is important in the online environment, with intentional consideration to planning to establish the collaborative learning process. Zhao et al. (2014) found social presence promoted student participation and collaboration by establishing "a warm and collegial environment where participants feel a sense of affiliation and solidarity within the group" (p. 818). The students must feel comfortable enough for open communication to occur through a risk-free and meaningful interaction where trust has been built within the group (Garrison & Vaughan, 2008). Additionally, they must feel safe within the learning environment to contribute to the critical dialogue (Garrison & Vaughan, 2008). Cohesion within the group encourages collaboration when group members have a relationship and feel acknowledged for their contributions, but once the student relationships are formed within the collaborative group, the teacher no longer needs to provide significant affective support (Satar & Akcan, 2018).

The cognitive presence is focused on the intellectual component of the learning experience and is somewhat easier to plan for in the online environment. Thought into how the students will experience the critical thinking and discourse to assist in the deep

learning is required here. The cognitive presence is interconnected and more easily sustained with a strong social presence where the students first “must feel comfortable in relating to each other” (Garrison et al., 2000, p. 94). There is a non-linear reflexive interface between identifying and exploring problems, exploring and integrating new knowledge and considering solutions (Garrison & Vaughan, 2008).

The design and considered organisation of the overall learning experience and how the teacher facilitates direct instruction and critical dialogue are regarded under the teacher's presence (Garrison et al., 2000). A strong teacher presence is often needed to establish effective collaboration between students and individual class participation (Carrillo & Flores, 2020), and is valued by the online student (Duncan, 2005).

While these three aspects of Col play a role in synchronous and asynchronous online teaching and learning, they perhaps become even more exigent in collaborative assessment. Communication and group dynamics can be complicated, especially with the presence of ‘free-riders’ (Maiden & Perry, 2011). Hannaford (2016) suggested that collaboration can be more cohesive when group values are shared. Therefore, in an online environment, consideration to how unity and group bonds can be formed and built, supporting collaborative discourse to set a cooperative climate through the application of the Col framework.

The additional online implications for design of teaching, learning, and assessment in the pivot under social distancing with the Covid-19 pandemic are important considerations in the switch from face-to-face teaching to online environments. In this study, the pandemic conditions are described as ‘digitally supported remote delivery’ in which teaching is done in real-time over a video conferencing platform, such as Zoom. Under these teaching and learning conditions, the scheduled video conferenced classrooms occur at the same time as timetabled classes with the aim to continue to be able to support learner-centred experiences as would occur in usual face-to-face classroom environments, and minimise disruptions to learning.

Chapter Summary

Technology mediated tertiary education came sharply into focus during this PhD project when the global Covid-19 pandemic shook education practices worldwide. Consequently, higher education was forced online due to social restrictions. This chapter has presented literature to contextualise the pandemic impacts on higher education. As the rapid shift resulted in online practices, pedagogical teaching, learning

and assessment decisions rested on pre-Covid-19 understandings, so two well-established online learning pedagogical frameworks have been discussed.

The next chapter (Chapter 7) explores end-users' experiences and perceptions of teaching, learning, and assessment in Covid-19 times, studied through empathy interviews in Phase Two of this research.

Chapter 7: Post-Covid (Phase Two) Stakeholder Perspectives: Empathy Interview Findings and Discussion

“It’s helpful if you always remind yourself never to judge what you observe, but to question everything – even if you think you know the answer – and to really listen to what others are saying.”

– Ditte Hvas Mortensen (Interaction Design Foundation Course Editor)

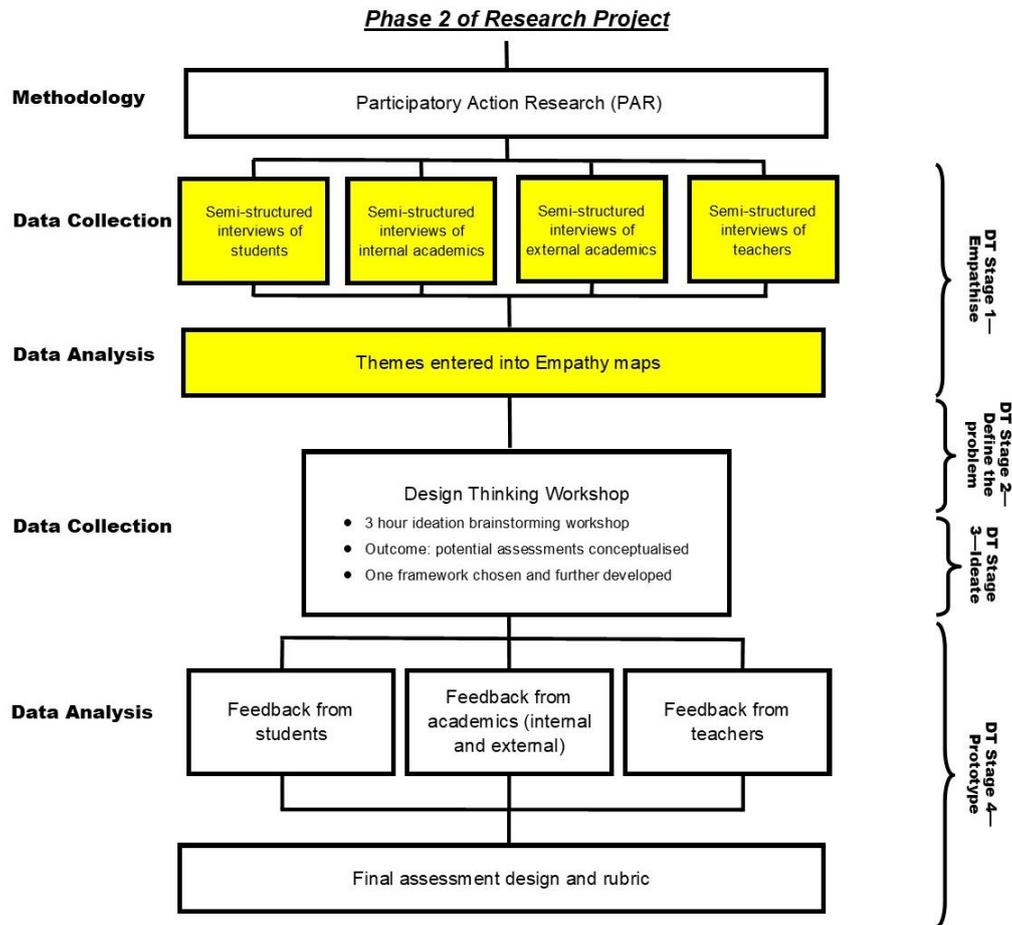
Introduction

Covid-19 significantly disrupted the teaching, learning, and assessment practices in all education sectors and caused universities to adapt and shift into a digitally supported remote delivery. This chapter will present the end-users' perspectives exploring the teaching, learning, and assessment experiences during the second lockdown as the second wave of Covid-19 cases started to ease in Melbourne, where social restrictions began to relax, and higher education remained remote.

The design of Phase Two is visually illustrated in Figure 11 below. This chapter will present the findings and discuss the first research activity in this phase which aligns with the ‘empathising’ stage of design thinking. The data was collected through semi-structured interviews, analysed, and entered into empathy maps using design thinking approaches, following the same processes as in Phase One (pre-Covid-19) of this study. These points in the overall research design are highlighted in Figure 11.

Figure 11

Phase Two: Empathy Interview Data Collection and Analysis



The following section will outline the sample for the end-user groups; students, academics, and high-school teachers. A rationale for including academics who were external to the university where the research was undertaken will be presented. The data analysis of the empathy interviews aligned with design thinking procedures will be explained and connected to usual qualitative analysis techniques. Then, the findings of the empathy interviews will be presented and discussed in light of current literature.

Participants

Three end-user groups were impacted by the assessment design under construction in this research: students, academics, and high-school teachers. In this phase, under Covid-19 related lockdown conditions, an additional set of external academics from other universities were added to enrich and confirm the study site academics' perspectives.

Ten internal academics, four women and six men, agreed to participate in this phase of the research. Four of these participants also participated in Phase One interviews. These participants held varied roles within the institution and varied level positions. They had between 3 years to more than 20 years of experience. Participants came from an education background of teaching in schools, either secondary, primary, or a combination of both. Specific details about individual participants have intentionally not been presented in this user group to protect confidentiality. These participants are part of a small department within the institution where demographic information would compromise confidentiality.

Fifteen students consented to participate, including 12 women and three men. There were eight international and seven domestic students with a range of teaching specialisations.

Seven high school teachers consented to participate in this phase, including six women and one man, representing a range of teaching specialisations. One of these participants had participated in Phase One.

Additionally, to extend the diversity of the sample and reach beyond the lockdown conditions of one university, five external academics from four other institutions in Victoria consented to participate in this phase, including three women and two men. These external academics had extensive established experience in ITE teaching with a minimum of 11 years teaching in higher education. It was decided this additional participant group would assist in triangulating several different perspectives (Creswell, 2012) by identifying common and varied perceptions from other institutions (Suri, 2011), therefore, outlining a broader understanding of academics' perceptions of the shift into remote delivery allows for a comparison between the internal academics. The participants had experience teaching face-to-face, and three had experience teaching online before the shift into remote delivery in response to Covid-19 restrictions.

The Methodology chapter presents a generic description of these cohorts (see Phase Two empathy interview participant selection in [Chapter 3](#)).

Data Analysis of Empathy Interviews

Gaining an informed and holistic understanding of the end-user group is the first stage of the design thinking process, termed 'empathise' (Wolniak, 2017). To achieve this empathetic understanding during social restrictions due to Covid-19, individual semi-structured interviews were conducted with all participants via the Zoom video

conferencing platform. The interviews were digitally recorded with the participants' permission and transcribed verbatim by an external service provider who agreed to the findings' confidentiality.

It can be recalled in the methodology chapter (see Phase Two research activities in [Chapter 3](#)) and pre-Covid-19 empathy interview analysis (see Phase One data analysis of empathy interviews in [Chapter 4](#)), that the transcripts were analysed using the empathy mapping procedure incorporated in design thinking, similar to qualitative procedures outlined by Braun and Clarke (2006). The analysed data was entered into empathy maps. Pseudonyms were used for confidentiality. The empathy maps are presented in [Appendix I](#).

After the empathy maps were created, relationships between the open codes were identified for each end-user group, including similarities and differences of perspectives and key issues. Similar to the processes of axial coding in qualitative analyses (Braun & Clarke, 2006), the coding process was further refined through systematic sorting and re-grouping of code categories. These categories were re-assembled to form the themes used to create each end-user group's Insight Statement (see Table 13). These Insight Statements are not direct participant quotes, but a combination of the end-user group's representative views based on the coding. The decision of not creating a separate empathy map or Insight Statements for the external academics group was based on two factors. Firstly, the assessment framework being designed was nuanced to the internal academics' institution. That is, the fit-for-purpose design would meet the university's context and reflect the learning program of the institution. Secondly and arguably more importantly, the similarity of the external and internal academics' findings signalled that separate empathy maps or Insight Statements were not needed.

It should be mentioned that the data analysis was conducted after all interviews and transcripts had taken place. The data analysis occurred in January 2021, nearly one year after the university had been in digitally supported remote delivery, which could cause potential sources of bias resulting from this retrospective view.

Empathy Interview Findings

The following section provides the findings of the empathy interviews of Phase Two organised under each of the end-user groups and Insight Statements. In design thinking, Insight Statements convey the most valuable learning that emerges from the empathy interviews and transform a theme into what feels like a core insight into the

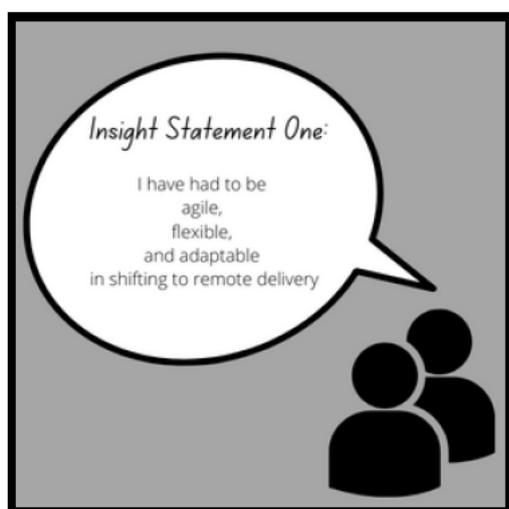
research for a particular end-user group (IDEO.org, 2015). Insight Statements for each end-user group are presented in Table 13 below. These Insight Statements were presented with the empathy maps in the Ideation workshop to have the end-user at the forefront of their minds while brainstorming ideas. The direct participant quotes are shown in italics. Pseudonyms have been used to protect the confidentiality of participants.

Table 13

Phase Two: End-user Group Insight Statements and Themes

End-user group	Themes	Insight Statements
Academics	Teaching skills	I have had to be agile, flexible, and adaptable in shifting to remote delivery.
	Clarity of communication	Clarity of communication is essential in remote delivery, but students don't ask clarifying questions in class.
	Absence of asking questions	Developing relationships in a remote environment is much more difficult, and I cannot easily evaluate students' engagement through social cues.
	Relationships Engagement	
	Assessment Absence of professional placement	I didn't need to change my assessments for remote delivery, but the students cannot draw on placement experience.
Workload	My workload has increased significantly to support my students.	
Students	Absence of asking questions	I want to ask questions in class, but there are too many barriers for me in the Zoom classroom.
	Feedback	Evaluative feedback hasn't changed in this setting, but I still want more (immediate, constructive, supportive, personalised).
	Absence of professional placement	I want to finish the course feeling like I'm prepared to enter the classroom, but the lack of professional placement is causing me anxiety.
	Remote learning affordances Relationships	I prefer learning remotely, but it is difficult to build rapport and form a personal bond with peers.
High-school teachers	Collaboration Teaching skills	Collaboration is still important in the remote setting, but students don't know how to collaborate.
	Remote learning challenges	The remote teaching challenges I face in my Higher Ed class, I am also experiencing in my high school classes.
	Workload	My Higher Ed workload has not changed, however, my workload at school has increased significantly.

Findings From Internal Academics



Insight Statement One. There was a varied previous experience in teaching online, from the novice to the experienced. Subsequently, participants discussed their experience with the planning and implementation, design, and teaching of the remote programs, and how students responded to remote delivery. Despite many academics discussing their inexperience in teaching online, Emilia and Lucy were quick to reflect that they adjusted very quickly:

"It took a little bit of adjustment, but actually. I was surprised to see how quickly I adjusted." (Emilia)

"Well, to tell you the truth, it's been remarkably painless." (Lucy)

For other academics, including Bruce, the first few weeks were challenging:

"That first [month] was... particularly hard... where I had to learn all of the Zoom techniques." (Bruce)

The academics seemed to be in a new place of teaching and had to learn online platform techniques in a short space of time, which provided a challenge for some. However, many participants noted the opportunity to upskill and refine skills by attending remote teaching and learning skills workshops, both internally and external to the university, propelling them to focus on their skillset. The rapid change magnified the need towards being agile, flexible, and adaptable:

"...you need to be flexible normally and here [during COVID], even more flexible" (Bruce)

"... It's about being agile and flexible and adaptable and having those skill sets to be able to deal with ambiguity and deal with those elements of uncertainty is important." (Isabella)

The online environment stimulated academics to try different teaching tools that they would not ordinarily use. This professional learning enriching the learning experience moving forward:

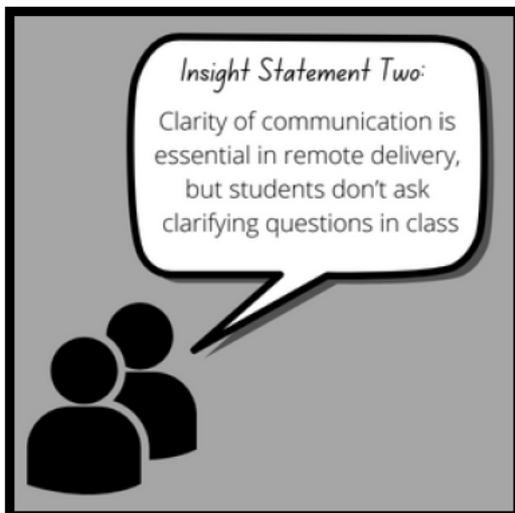
"...in some ways, it advanced my teaching, and it opened new opportunities that I didn't have to deal with before... What I've found is that it has an advantage by increasing the rigour of the learning" (Emilia)

"[remote delivery] also allowed us to experiment with some different approaches that perhaps we wouldn't have used when we were face-to-face." (Isabella)

Throughout the discussions, there was a significant focus on whether their usual face-to-face teaching and assessment strategies translated to the remote delivery environment:

"Getting my head around how I was going to operate it, working out what I was going to do each session make it as close to what I would do in a face-to-face class as possible." (Bruce)

Academics reflected that many aspects of their usual face-to-face teaching translated easily to online remote teaching. They incorporated their usual preferred pedagogical strategies and structure to lesson planning in the online real-time remote setting by carefully considering if each activity would be helpful in the video conference platform.



Insight Statement Two. Clarity of communication of both the spoken and written word was critical in the remote delivery and online platforms. Daniel suggested that clarity of communication changes depending on the medium used:

"...the clarity of communication is very dependent on, you know, the medium that you're using. So, if your using Zoom, or if you're using [the Learning Management System], or if you're in a classroom, those are all different settings. And the clarity, the communication, changes. And so, you have to be quite aware of that, I think" (Daniel)

Regrettably, some academics noted a change in students asking questions in the remote environment. Several indicated that students are not asking questions in class. Daniel shared:

"...I think students ask far more questions in a [face-to-face] classroom environment. They seem to not tend to ask as many questions in the Zoom environment. But I know that some of them need to... because I would have a session and we'd have minutes for questions. And then some people would ask questions and then everybody would be silent. And I'm good at waiting, so I can wait like five minutes with silence. Nobody asks any questions. Everybody's good. People even do thumbs up. And then after the Zoom session, I get like two or three emails, four emails saying, 'oh, I just wanted to ask this question' (laughs)." (Daniel)

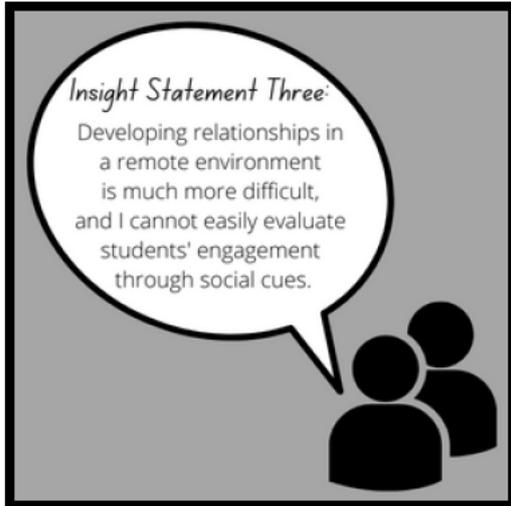
George noticed the lack of opportunity for students to converse with their peers to extend the learning from the assessment past the written requirements:

"[the online environment] just doesn't allow them to, you know, engage in a conversation where they broaden the opportunities to do more than just what the rubric requires." (George)

The students were missing the informal peer conversations that occur in the classroom, which are often overheard. And the absence of these conversations was negatively impacting student learning:

"Listening in you..., that's where you pick up things when, you know, there's conversations going on in a classroom environment. I think that's critical, that's part of deep learning, which is what we've got to encourage." (George)

These intentional and overheard conversations, which are an inherent part of face-to-face teaching and learning, were unable to inform and shape students' understanding of assessment and, subsequently, students' assessment responses. The more considered conversations, and fewer opportunities for interaction afforded through videoconferencing and discussion boards, did not necessarily allow for flexible and adaptable organic conversations to build students' understandings.



Insight Statement Three. The usual ways academics form relationships and connections with their students did not seem to translate to the online environment:

"Developing relationships in a remote environment is much more difficult. You really don't get to know them very well at all other than, you know, what I can see behind you. For example, I can decipher what your

room looks like, and what sort of person you are in that regard, and then you can talk about something there but it's really a thin way of building a relationship. And sometimes the relationships are better when it's obviously personalised through those social cues." (George)

"... the first couple of units that I had... I was like, oh, this is slow, like, how do I make that connection with the students? And I think that's the challenging part. You know, it's one of the things that I keep telling them: 'the relationship is key'. And in face-to-face I've got it nailed, because I've got 20 odd years' experience in doing it. But this space took me a little bit longer to be able to deliver in that way." (Isabella)

Perhaps the difficulty academics found in forming these relationships came from the unnatural feel of the conversation. On the video conferencing platform, everyone present can see themselves on the screen and those in the class simultaneously. Academics felt odd seeing themselves speaking and gesturing while teaching. Daniel reflected that this could affect the teaching persona and teaching style in the remote environment:

"...I think that is quite a big aspect of teaching, is your persona, your, you know, presentation style... I think that actually has a big impact on how you present, what you present, because you can always see yourself and you can see everybody other, others faces and everybody's always looking at you." (Daniel)

Participants often discussed their inability to replace their 'in the moment' visual observational assessment strategies that they used to assess whole classroom

dynamics in face-to-face learning in the online space. When teaching online there was a lack of social cues through body language, due to only being able to see the students' faces online, if they had their cameras turned on. Compounding this, participants reported that in most cases students chose not to turn their cameras on, making it challenging to assess engagement and motivation with no visual observational cues taken from a black screen:

"...most of the time I've got, you've got three quarters or at least half blank screens. So, it's tricky to sort of get a feel for the motivation. And you always kind of lean towards the group that is motivated..." (Daniel)

One academic reflected that because they were not familiar with teaching online, they craved the usual social cues they usually relied upon:

"I'm... someone who promotes constructivism and particularly social constructivism as a learning theory where we want to engage, it's very limiting and frustrating for me because I, you know, need the social cues, the social interaction, the collaboration, all those things you have in a face-to-face environment, whereas, you know, remoteness takes all that away." (George)

While some academics did not consider students having cameras off a big issue, Isabella noted that students must feel disconnected in some way:

"I think when you're disconnected in some way, it makes you feel like you're an observer rather than being in the experience." (Isabella)

The level of student engagement was also challenging to assess when using the video conferencing platform's breakout room feature. While the breakout room feature had addressed the need for small group work, these rooms had completely removed the academic presence from the room:

"...you have to jump into like one breakout at a time. You're not present in the room. So, you don't get that feeling of where the students are up to, what they're doing, what the level of engagement is... You have to go into a breakout room, but then they just turn it on for the Breakout room and as soon as you leave, who knows what they do..." (Daniel)

Additionally, it was more awkward and time-consuming to enter and exit the rooms than be able to move freely in class and between groups. Academics could not use

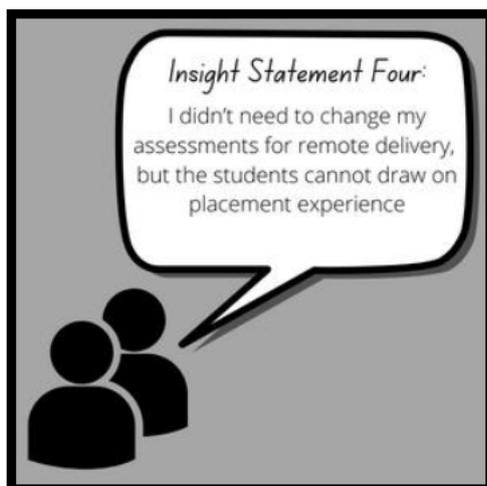
peripheral scanning of the whole class working in groups engagement cues. Furthermore, common misconceptions could not be addressed as they arose without bringing every group back to the main conference room, which was time consuming and logistically difficult.

These presented difficulties of social interactions between academics and students provide evidence that the social constructivist approach, that many academics utilised in their usual face-to-face teaching, did not easily translate in the digitally supported remote delivery space. Within the video conferencing space, these academics felt the students were not necessarily sharing the learning experience. They felt the instructional design model within the remote delivery environment was weighted more heavily towards the teacher. One academic felt the focus within the digitally supported remote delivery was more on producing, delivering, and making content.

Perhaps this feeling of uncertainty and shift of classroom ecology will adjust as the academics and the students become even more familiar with teaching, learning, and conversing in the environment:

"Maybe it's just because all of our teaching has always happened in classrooms and preservice teachers teach in classrooms. And then now that we've gone to this Zoom remote setting, it's just different and so they feel like, oh, it can't be right" (Daniel)

"It's probably us old farts delivering in this environment that creates the problem." (George)



Insight Statement Four. How students engaged in assessment was thought to remain the same:

"I think students are still driven by assessments. Assessments is what counts. If you want them to really be engaged with something, if it's an important learning outcome, put it in the assessment. That hasn't changed, really." (Emilia)

Therefore, many academics did not feel they needed to adjust their assessments for the online platform. The assessment description was presented to students on the online Learning Management Software,

and students usually complete assessment outside of the tutorial classes, in their own time. However, challenges were presented when aspects of teaching or presenting were incorporated into the assessment:

“...if [the assessment presentation] had been in the classroom, they could have brought things in for us to do. But you just have to get a bit creative. That would be the only element that would change it; where you’ve got an in-class component that has to be worked out.” (Lucy)

Emilia and George made changes to assessments when they noticed students initially struggle with conducting group work online. The removal of peer and group work in assessment left a gap in the student experience of collaborating:

“... any assessment that requires group work or collaboration is being put on the back burner. And so, we basically go on to individual assessment requirements, and in so doing, then they lack the opportunity to collaborate, cooperate, communicate in a face-to-face environment, which I think is detrimental to the quality of sometimes what they produce because they don’t have the opportunity to engage in critical, critical dialogue, and unpacking of the assessment requirements. Nor do they have the everyday opportunity to discuss with me, the lecturer, or other lecturers, some of the ideas, concepts, thinking associated with the assessment requirements.”
(George)

Interestingly, despite academics not changing their assessment tasks significantly, apart from the removal of group work, many noticed that student results improved in the remote delivery. They suggested that this came about due to the perception that students had more time. Students were saving time by not having to commute to and from campus and, during the lockdown stages in Victoria, they could not go out socialising, and most could not work:

“...I’m inclined to think the quality of the assessments is slightly up on what I’ve seen in the past. And that would be because they have time to do it... because they’re, particularly Melbourne, those in Melbourne in lockdown, they’ve had extended time to actually do some wider of reading, do some drafting, self-regulate their learning. I think to enable them to produce actually higher quality written work. So, I do think that’s an

opportunity that's been presented to many of the conscientious students.”
(George)

Several academics shared improved attendance:

“The attendance has been better, I would say, than a classroom. I've always had more, I think, students in the Zoom session than I'd normally get in the classroom.” (Daniel)

“The attendance was like up and down [in] our usual classes... since we've come into remote, I don't know whether they're, you know, because they were stuck at home, but the attendance has been great.” (Lucy)

In most cases, the students were not placed in schools for their practicum due to face-to-face teaching restrictions due to Covid-19 restrictions and the reluctance of schools and teachers to take on the additional responsibility of a student-teacher. Some academics suggested that learning depth, particularly around theory connected to placement, was not as deep-seated. This affected the quality of some assessment submissions, noting a lack of placement left a large gap in student's knowledge. Students could not apply the learnings from the units to the professional applications, nor were they able to critique the school context.

Furthermore, many students came with limited school experience prior knowledge, including the international cohort who had little to no context of the Australian school system upon which to reflect. The gap in the practicum experience impacted aspects of student assessment submissions. As a result of this, academics felt they needed to fill this gap to provide the link between theory and practice by providing additional resources, including videos and experiences to replace the school experience.



Insight Statement Five. During the planning and associated administration period, some academics were overwhelmed with the increase in workload, including Isabella, who shared:

“My workload has increased as a result of all of this stuff. It's been horrible. My workload has increased... because of my personal accountability that I believe that I have as a duty of care. And my workload has increased

because of the redesign of units, and technology issues, and all sorts of things. So, yes, it was an overhaul of an entire program. Not just a couple of units at a time. And that's what was so big about it. And it was ongoing. It just rolled from one to the next. And we didn't get a breath." (Isabella)

In the second semester of online classes, all academics felt their teaching and assessment practices were more established, and they were more comfortable teaching online. However, many were still reflecting that their workload had increased compared to pre-Covid-19. An ongoing issue they reported was that there were more emails from students due to the reduced opportunities for them to ask clarifying questions in class - of each other, and the academics:

"The email world has gone up a bit where, you know, I'm providing regular and irregular email feedback and that is a huge workload issue, but that's the only way some of the students are getting responses and clarification." (George)

Granting extensions, special considerations, and the need for additional support from struggling students were also added to the workload. Academics shared heartfelt stories about individual students who were facing challenges due to the pandemic, including mental health, isolation, and financial challenges.

Additionally, academics noticed that access to resources was difficult for some students. They witnessed students experiencing inadequate bandwidth, deficient sound quality, sharing the computer with multiple family members, sharing home space with other people, and other technology constraints that interrupted lessons and assessments that required class attendance.

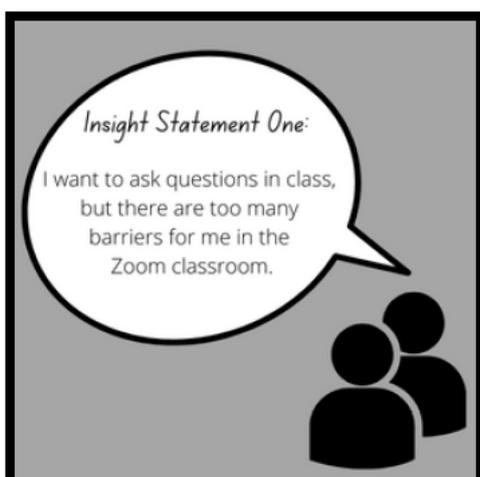
Table 14 below presents a summary of the internal academics' findings alongside the Insight Statements and themes extracted from the empathy interviews.

Table 14

Phase Two: Summary of Internal Academics' Empathy Interview Findings

End-user group	Themes	Insight statements with summary of findings
Academics	Teaching skills	 <ul style="list-style-type: none"> • Rapid change to digitally supported remote delivery of teaching magnified the need towards being agile, flexible, and adaptable. • Learning experience was enriched with the trial of different teaching tools • Many aspects of usual face-to-face teaching translated to the online learning environment
	Clarity of communication Absence of asking questions	 <ul style="list-style-type: none"> • Clarity of communication critical in the digitally supported remote delivery • How students asked questions changed • Reduced opportunities for flexible and adaptable organic peer conversations
	Relationships Engagement	 <ul style="list-style-type: none"> • New teaching environment challenged student-teacher social interactions and impacted relationship-building • Lack of social cues impacted observational engagement assessment strategies and social constructivist teaching approaches • No visual observational cues from students choosing cameras off
	Assessment Absence of professional placement	 <ul style="list-style-type: none"> • Student engagement in assessment remained consistent, but results anecdotally improved • Observed students struggling with collaboration in the online environment • Gap in practicum experience impacted depth of learning of professional applications (linking theory to skill)
	Workload	 <ul style="list-style-type: none"> • Significant initial increase in workload due to planning and associated administration • Workload continued to be impacted by student emails asking clarifying questions, granting extensions, special considerations, and additional support to struggling students • Noticed resources access was difficult for some students

Findings From Students



Insight Statement One. Overwhelmingly, student participants raised the lack of natural opportunities to learn by questioning as a barrier to their learning. The lack of social cues, and unnatural and awkward feel of the conversation in online environments contributed to participation anxieties for some participants, that eventually led to the avoidance of asking questions:

"...on Zoom, you can't tell when someone's about to speak like in real life. So suddenly, like five people speak. And then I've literally given up trying to speak in class because of that, because I'm just like it's not worth the stress of like, "oh" all the time. Whereas in in real life you can like sense, you know, the conversation flows more." (Pru, domestic student)

"Sometimes, like, because there's that delay. And then you'll have someone talk over someone else. And the people are just apologising to each other. 'Sorry.' 'Sorry.' 'There, you go.' 'You go'..." (Seann, domestic student)

Students also mentioned the social anxiety associated with having their face on the screen:

"Usually, I cross my fingers and hope someone asks because I don't really... I don't want the attention... I think it's the idea of, like, having everyone looking at my face." (Seann, domestic student)

The unnatural feel of the online conversation contributing to the reluctance to ask questions was often attributed to the absence of observable body language:

"Because there's just so much to read for body language when you're in a real-life space, you know." (Tanah, domestic student)

Given that several students felt this way, there was also the subsequent loss of learning through the answers to questions asked by others. Participants noticed the lack of questioning in the class environment, and reflected that it impacted their learning:

“People need people. And if you're in class, people ask questions that sometimes clarify things for you, or somebody will say something that you think, oh, okay, but you hadn't considered. You don't get that [in a remote classroom].” (Daphne, domestic student)

Students noted the absence of overhearing questions being asked by peers in class and answers being given by the academic. The time for these informal conversations was especially important for some international students who indicated that they used this as a strategy to approach other students for informal learning support. Padmini shared she would usually gauge which students understand the assessment task and directly approach them after class:

“We can figure out that this student understands the assessment task very well... she or he can help me... so, we directly approach to them, ‘Hey, hi, how are you?’” (Padmini, international student)

The remote environment made it difficult for students to scan the class to determine who understood the assessment, and even more challenging to approach individuals directly. Despite being classified as a domestic student, Tanah, was from Southeast Asia and had no prior experience of the Australian secondary or tertiary education systems. She shared a strategy that she would employ in a face-to-face setting to approach an Australian student to ask questions about the Australian school system's context. She was frustrated that she could not do this in a remote classroom:

“I usually could just hang about and ask the lecturer or ask somebody in class. ‘Hey, you are an Australian student here. Can I ask you a question?’” (Tanah, domestic student)

In some cases, students were using the virtual class time to ask each other questions about assessments when they were placed into breakout rooms for the purpose of completing another task. There were mixed feelings about the value of utilising the task time to clarify assessments with peers. Some students felt it was a waste of their class time, while others, including Pru, appreciated this time for validation:

“...the only time we talk [together about assessment] is in these like five-minute chunks, and everyone kind of like, wants to be like, ‘wait are we all on the same page?’” (Pru, domestic student)

Emailing the academic was a popular method for seeking clarification. However, the delay in response from the academic was frustrating, which was not a reflection on the academic, but the remote delivery space increasing email assistance requests and subsequent delay in email responses:

...[The] frustrating thing is, that sometimes you don't get the answer... straight away...And they don't answer you right away. So, you have to keep emailing and [it] just gets really awkward because you don't know if they received it or not and you don't want to bombard someone with like five, six emails” (Tam, international student)

Students shared changes in their usual participation approaches as a result of the classroom medium. Tanah shared she did not feel she could be heard on the video conference platform unless she was aggressive and loud, which was uncharacteristic of her personality:

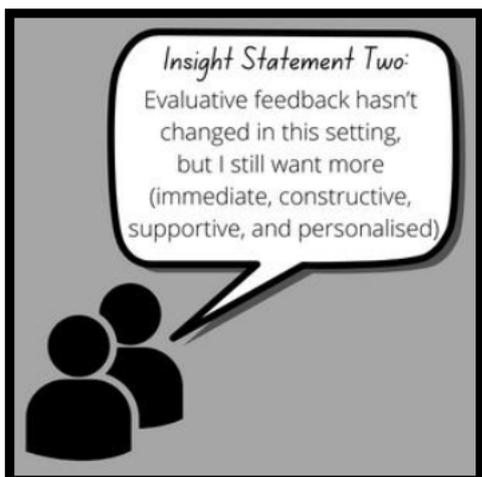
“...I really want [to] ask a question but have to, like, be very aggressive, very loud and...do those traits that, you know, that's very masculine and very dominating.” (Tanah, domestic student)

Instead of relying on usual in-class questioning, online support networks formed on platforms such as WhatsApp and Facebook groups were utilised. Study groups that may have occurred in the library or café were replaced by these social media platforms and meetings via video conferencing. Despite these other collaborative opportunities, the online networks came with some constraints:

“We have a WhatsApp group for every subject. And it's just flooded every day, like, I've turned off notifications. And then I look at it, like, one hundred and seventy-three new messages! ... It's just like this huge, overwhelming mess. That's all we have.” (Pru, domestic student)

Utilised in many tutorials, the breakout room feature of the video conference platform also provided opportunities for students to collaborate in small groups. However, the breakout rooms had removed the academic presence from the room. Gulsheen was observably infuriated with the academic's absence in these rooms:

“Every week we've been left alone [in breakout rooms]... Three people or four people in a group. Absolutely useless.” (Gulsheen, domestic student)



Insight Statement Two. Contrastingly to what students felt in Phase One of this research, many student participants in this phase were generally pleased with their assessment experience. However, several had concerns about the feedback they received. The volume of feedback differed from unit to unit and students wanted more feedback:

“There are some teachers who don't mind giving us extra information... But some people just give us a grade of C and have no feedback or no comments at all unless we email them and say, you know what, I just I don't like this grade. Can you tell me what went wrong with the assessment task?” (Eesha, international student)

“There's only been I think one [unit] where I was actually given like a really detailed, like explanation of why I actually got a mark, you know. Usually, it's just like a tick or something, like just a one or two word response.... That's not really helpful.” (Mike, domestic student)

Not surprisingly, with students feeling disconnected and unable to ask questions through the video conference medium, they wanted timely, constructive, personalised, and supportive feedback.

Many students asserted they would like more constructive feedback that provides them with valuable and practical comments that can be utilised to improve on future assessments or teaching practice. They would like feedback that is specific to their personal assessment piece and not generalised to the cohort. Feedback that felt supportive was a significant focus to student participants in this online environment. Some students reflected feedback was received differently in different mediums. Tanah reflected that the tone of the academic's written feedback was brutal when written in a very direct way, because *“there's no context and there's no human behind it just feels cruel”*.

Several students commented on the value of the verbal audio recording, as bringing a personal and supporting touch to the feedback. Tanah saw the academic using the audio recording feature as breaking the digital barrier of the remote setting:

“Wow, you've actually broken the digital barrier like, because this feels like you're talking to me and it just humanises the experience a lot more... that was a very positive experience” (Tanah, international student)



Insight Statement Three. Interestingly, the students commented that the assessments felt similar to what they have experienced in a face-to-face setting. They felt the academics did not change the assessment for the remote delivery. As the academics asserted above, most did not need to change their assessments. However, several students felt that the assessments should have been changed in some cases, especially when the

assessment was connected to professional practice.

Over half (9/15) of the student participants were not yet placed in a school for the practicum component of their course, due to the Covid-19 restrictions on face-to-face teaching and system and individual teacher barriers to taking on the additional work of supervising tertiary students. Of these students not placed in schools, only one student had any experienced of teaching in a school. The absence of professional practice left a gap in the practical element of teaching. It also caused some anxiety of not experiencing teaching in front of a class:

“I don't know what teaching actually feels like. We've just been reading about different things like behaviour management and stuff, but we don't know how to actually apply it.” (Yara, international student)

“I feel... I don't have any knowledge related to the placement... How classes are going? What kind of... obstacles they are having? So, I don't have any knowledge about that. So, what I'm learning, I'm just searching on the internet and on the basis of that. The ones who attended the placement, they are one step beyond me.” (Gira, international student)

The applications of theory within practice for deeper learning of the course content were not possible. Padmini explains that the impact of this was compounded for international students, especially when the country of origin's education system was contrasting to the Australian's school system:

“...we don't know about the Australian education system... We don't know how the students are going to be, like, how they react... the tradition, the culture from where we come from, we are having that bar with teachers and students [Padmini gestured teachers above students]. So, we are not on the same place. But here, teachers and students are really open. We are building our relationships. So, we are having a very different scenario in our minds. We experience a very different scenario, and without any placement experience, it is very difficult to assume some kind of a student and then prepare assessments according to that.” (Padmini, international student)

Instead of connecting their in-school placement experiences with their coursework, students needed to draw on various past experiences in the absence of placement to help them understand and contextualise their teacher education coursework, including from their own schooling, internet resources, family, and friends working in the industry.

In many cases, the placement process felt messy to the students, as some had placement to draw upon, and others did not. Student participants who did not have placement were often comparing themselves to those who did, feeling they were disadvantaged in contributing to class discussions and in their assessments.

Anthony's experience was indeed messy, as he began his placement and was told after two days that he was no longer able to attend due to the first wave of Covid-19 restrictions. The school subsequently revoked its willingness to have him as a student-teacher. He appeared defeated when speaking about it:

“This year's total write-off. Yeah... I'm glad that I have still been able to do my like Uni work and get through that. So that's like, you know, I'm still moving towards something. Yeah. But yeah... I'll have a lot of backed up days I think next year.” (Anthony, domestic student)



Insight Statement Four. Student participants often spoke about the challenges of building relationships and a rapport with their peers in the remote delivery environment. Although being in Australia for six years and having already studied another Masters course in Victoria, Yara wanted good friends in the university with whom she could freely talk. She felt that remote delivery did not allow for the formation of friendships:

"...if we were in person at least for the trimester... I would at least have good friends in the university whom I could just freely talk to about it, because I think that makes a lot of difference sometimes... it always helps to have a friendly someone, like, just to talk as a friend to." (Yara, international student)

Yara continued to reflect that it was even more difficult for other international students for whom this was their first course in Australia:

"... I can't complain because like, this is my second course in Australia, so I know a bit. But for other international students for whom this was like the first trimester, first year, they've definitely gone through a lot." (Yara, international student)

The global pandemic magnified this lack of access. One international student shared she was feeling lonely and significantly missing her parents. For international students, in particular, the peer friendships were crucial due to the limited family and friend support:

"In the first semester... I felt very lonely because I didn't have my friends with me to discuss and, you know, to interact about studies as such." (Eesha, international student)

There were three main themes linked to the barriers of peer relationship building in the online environment: the absence of contribution of peers in collaborating situations, the unnatural feel of the remote conversation, and technology constraints.

Many students noticed the ITE course focused on collaboration between peers that intentionally aligned with practices within Australian schools. However, some students felt it was challenging to collaborate effectively in the online environment. The breakout room featured in the video conferencing platform filled a need for students to be grouped for tasks. However, the rooms felt unnatural to students. The students were often with different peers each week when working in the smaller breakout rooms, which limited initial rapport building:

“...Sometimes it's like I've never talked to this person before, but we've been in class for seven weeks together. And you're supposed [to be] doing the task, but then you kind of want to talk about other stuff.” (Pru, domestic student)

The medium of communication made it difficult to form a personal bond through a screen, especially when working on collaborative assessments:

“I don't have any problem with individual assignment. But in a group [it] is a problem because...I haven't even interact[ed] in person yet. Now... [to] work with them is hard because like you don't have a bond, like, personal bond.” (Tam, international student)

Anthony asserted that he changed the way he approached his engagement in class activities, likening an online tutorial to listening to a podcast:

“I'll do lots of things whilst listening to podcasts. And that's essentially what... class has become for me now. Like, I just sort of go about my day and I just have it on in the background... It's just background noise for me” (Anthony, domestic student)

These changes in feelings and behaviours would undeniably affect how students interact with their peers and, in turn, affect the relationship and rapport building. In his reflection above, Anthony would turn off his camera while simultaneously completing other tasks while listening to the class. The feeling of peer disconnect could potentially come from the blank screens themselves. Dafne was visibly annoyed when her peers did not turn on their cameras:

“When they've got their videos off, you don't know who they are.” (Dafne, domestic student)

Achara questioned if there was a person behind the blank screens:

“...99 percent of our mates prefer keeping the camera off. So, like, sometimes I really feel awkward because we never know... behind that turned off camera whether there is really person standing or not...” (Achara, international student)

Some participants used the camera as a motivating feature and kept them accountable:

“...I have been... the camera person. I loved keep[ing] my camera on because I think when I keep my camera on then I remain focussed in the class.” (Achara, international student)

“... I want me to be away from those distractions. I want to turn it on... I know the feeling there is someone may be watching me. (Tam, international student)

Although Faye indicated that she kept her camera on, she felt uncomfortable inviting people into her “*private space*” of her home. She asserted, “*you’re a different person when you’re at home.*”

As discussed in the students’ first Insight Statement, there are barriers for students to contribute to the online platform. Seann shared that he was not the type of person to offer contributions in class discussions:

“...getting involved is a bit different [in a remote classroom] because sometimes you can just sit back and do nothing and let other people talk.” (Seann, domestic student)

The example above is not a reflection of Seann being a disengaged student; he was committed to his studies and often very high achieving. Seann was, however, anxious about the unnatural conversation and so would rather listen than contribute. Faye shared that she is comfortable contributing to the discussion; however, she considered her peers’ hesitation to contribute to the discussion may come about from the unusual construction of the online classroom:

“[In the remote classroom] somehow you’re kind of exposed. When you’re in a lecture theatre, you’re not facing all of your fellow students. Whereas Zoom, everyone’s looking into each other’s face directly.” (Faye, domestic student)

Additionally, Faye felt that the video conferencing platform's conversation was not as natural as face-to-face, where subtle messages can be lost because "*the tone of voice may not come through.*" Furthermore, it was difficult for additional people to jump into the conversation skewing the communication between the two people.

Some students were frustrated with the technical malfunctions that resulted from poor internet connection or limited technical skills of their peers. Anthony was an example of a usually engaged student who changed his behaviour in the online environment due to the stagnated discussions and poor internet connection:

"I would consider myself like a pretty like engaged student in a classroom. Like, I'd like to be a part of the discussion, I like to talk and things like that. But in online learning... you just can't be sure that, like you're gonna be heard properly... And like I've found I've wanted to get my point across, but then, like, someone's like 'Oh no, sorry we can't hear you.'" So, then you lose like a lot of confidence about ... if you're going to be heard properly. So, I think that's yeah. That's really affected... my engagement with classroom."

(Anthony, domestic student)

Tanah shared a fascinating perspective of the change in university ecology. She was in the first semester of her course, and like many, had not attended a face-to-face class on campus. Despite technically classified as a domestic student, Tanah had only ever studied overseas and therefore had no Australian education system experience, for both secondary and tertiary. She shared that navigating technology itself had added an extra fear to the learning experience on top of what would be experienced face-to-face:

"I don't feel like a lot of the teachers are understanding there's a lot of assumptions made in the instructions. We are virtual people who have not been on campus and navigated the ways of the university, which can be quite culturally different....it took me about two, three weeks to just get a sense of what, OK, this is how [the university] works, this is how uni works in Australia, right!" (Tanah, domestic student)

Ineffective use of technology was seen as a nuisance. At the start of the semester, Tanah observed her teachers "*were spending more time managing tech issues than needs to be.*" Additionally, peers that were "*not tech-savvy*" was "*a point of frustration in class*" for Pru as she felt that a basic understanding of how to use was essential for teaching in the 21st century:

“...it can waste a lot of time just trying to get everyone, you know, when someone sends a link, and they want us to open it. If there’s a few people who would just be like, ‘Where’s the link? ...I don’t know where it’s supposed to be’. It’s like, I know that the older generation are not as tech savvy, but then it makes me think, like for teaching [pauses].” (Pru, domestic student)

Despite the challenges students faced in the online environment, many students commented on how the academics and the university itself were successful in providing appropriate support in their studies in such a difficult time:

“[the academics] had been very kind and generous enough to providing all kind of support so that we get a grasp of all what is expected from our unit.” (Achara, international student)

“Teachers are trying their best, their very best to be just as accommodative as ever when compared to being in a physical classroom” (Eesha, international student)

Additionally, many students reflected that opportunities afforded from remote learning improved their digital competencies. Achara noted that remote delivery *“has made us technologically advanced.”* Gira reflected that learning remotely allowed her to understand how to approach the teaching, learning, and ethical considerations surrounding the online environment in her future teaching career.

Furthermore, many students valued the positive aspects of the digitally supported remote delivery, including the convenience of saving time and money not needing to travel:

“I’ve like realised how much time I’ve saved rather than getting to uni... getting up, showering, getting dressed, packing your lunch, getting on the train. Like it takes so much time. And now that I’ve just saved all that time...So I really, really appreciate it that...” (Pru, domestic student)

However, some students stated they needed the face-to-face setting to motivate themselves, ask questions, and collaborate between classes:

“I definitely don’t feel like I’ve learned as much as I have when I was in the classroom.” (Anthony, domestic student)

“I prefer going in [to campus] because it kind of gets me. It's a nice routine... I can be prone to slacking off, especially if I'm stuck in like my room where I am all day. I like going into class, having that interaction, that human interaction, and being around people.” (Seann, domestic student)

Interestingly, workload was not a large concern for most participants. Those who were concerned with workload had family responsibilities at home (home schooling kids and lack of childcare due to lockdown) and increased essential worker commitments due to Covid-19 restrictions.

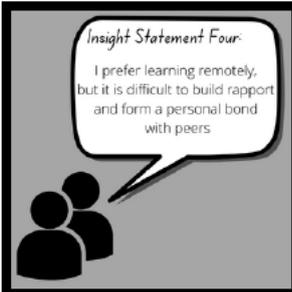
Although not surprising, it is interesting that, during these interviews, during this time of a pandemic where students were physically isolated from others, their conversations focused on the connections with others and the support they felt or experienced. When reflecting on what Achara had learned in the remote delivery experience, she admired the support people in the institution had provided to her and her peers:

“One thing that I have learnt about Remote delivery is like we need to support each other for learning. So, the remote delivery would not be possible. So, if there is no support from our university, from our tutors, from our lectures and even from our friends, because in-between we are missing something. And we need each other support to fill up that missing gap.” (Achara, international student)

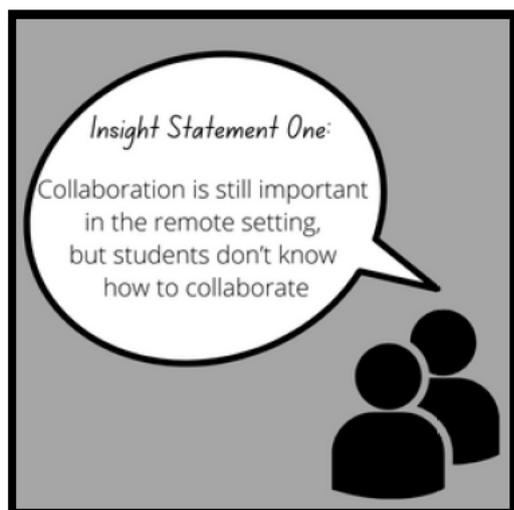
Table 15 below presents a summary of the students' empathy interview findings alongside themes and Insight Statements in Phase Two of this research.

Table 15

Phase Two: Summary of Students' Empathy Interview Findings

End-user group	Themes	Insight statements with summary of findings	
Students	Absence of asking questions		<ul style="list-style-type: none"> • Lack of natural opportunities to learn by questions was a learning barrier • Lack of social cues and unnatural and awkward feel of the online environment conversation contributed to participation anxieties • Online support networks replaced usual in-class questioning but came with constraints • Breakout room feature of video conferencing platform removed academic presence
	Feedback		<ul style="list-style-type: none"> • Many pleased with their assessment experience • More timely, constructive, personalised, and supportive feedback wanted • Verbal audio recording feedback deemed to be breaking the digital barrier of the remote setting
	Absence of professional placement		<ul style="list-style-type: none"> • Absence of professional practice left a gap in the practical element of teaching and caused anxieties • Impact of limited practicum experience compounded for international students • Building peer relationships and rapport was a challenge in the remote delivery environment
	Remote learning affordances Relationships		<ul style="list-style-type: none"> • Absence of contribution of peers in collaborating situations, the unnatural feel of the remote conversation, and technology constraints were peer relationship-building barriers • Appreciated academic and university support to continue studies through uncertain times • Remote learning afforded improved skill sets (including digital competencies), saved travel time and money and allowed learning to continue through a pandemic

Findings From High School Teachers



Insight Statement One. Aligned with the teachers' perspectives in Phase One, several teacher participants in this phase stressed that collaboration in the profession was vital. They shared that, even in remote delivery, schools were using video conferencing platforms including Zoom, Webex, and Microsoft Teams to collaborate in this way.

However, one teacher shared that he could see that some students did not know how to

collaborate, believing they did not necessarily know how to collaborate in a remote setting:

"My observation would be that that we probably need to do a better job on teaching collaborative skills... And I'm not singling [the university] per say, and I'd say this would be across the board. But across the board, that we make the assumption that people know how to collaborate." (Jason)

Furthermore, Jason noted that collaboration needs to be connected to assessment for authenticity:

"We want authentic assessment experiences. We want assessment to be valid. And the best way of doing that and the best way of achieving that I know of is having groups of teachers working collaboratively together to design tasks and to assess tasks." (Jason)

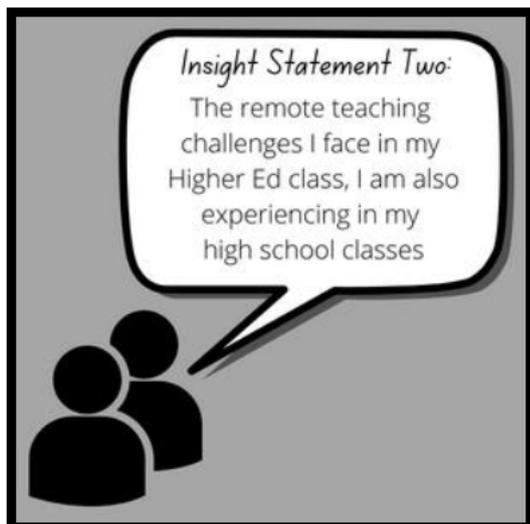
Reasonably, the conversations and discussions between the students were vital within the collaboration process. Mary believed that the conversations in education are an essential part of the students' depth of understanding. The act of listening to others, and potentially the change of views brings richness and authenticity to the conversation.

"It's the most effective way of learning through verbalising it and through listening to someone else's point of view and discussion... this talking is pivotal to creating a sense of understanding and a depth of your perception

because your perceptions change as soon as you've had that conversation."
(Mary)

Stephen felt that the quality of the assessment submissions in the remote environment was comparable to what he had evaluated in past face-to-face iterations. He felt the breakout rooms were useful for collaboration, and the technology available today to teachers and students, supports teaching, learning, and collaborating online:

"So, I guess the benefit of 2020 is that the technology is far superior than if this occurred fifteen years ago, it would have been even a greater challenge in terms of I mean, people don't even have landlines these days. They just rely heavily on their mobile phone. So that's 15 years ago. It would have been on a landline and saying, 'oh, I've written this about this particular part of the assessment, what have you completed?' ... I think they've got to be grateful that the tech world has increased significantly." (Stephen)



Insight Statement Two. Many teachers reflected different dynamics in play for the remote delivery environment compared to face-to-face teaching, learning, and assessment. They were noticing similar challenges in their higher education and high-school classes. Such challenges included the difficulty of working directly with students. Stephen found it very difficult to use his usual informal formative assessment evaluation tools in the remote setting:

"Those sessions where you could work directly with the students face-to-face, see where they are up to, encourage them in different areas to pursue, different avenues to expand on, that was really good face-to-face. That's been a big challenge." (Stephen)

Many of the teachers insisted that their students have their cameras on. The teachers who insisted 'cameras on' suggested this maintained the level of engagement, accountability, and motivation of their students, with fewer distractions.

Melinda found students were more comfortable putting their cameras on in the breakout rooms with smaller groups:

“When I went into breakout rooms, I thought ‘Oh, that’s, that’s what you look like!’” (Melinda)

Laurina shared the difficulty of managing her own teaching space and privacy given they are teaching in their own home, in a space not conducive to teaching, with other family members:

“...it’s obviously a new environment for a lot of people, and so, therefore, I have to be mindful... with privacy and someone’s home, like, I also feel very awkward when, you know, I’m in my own home, and I’m opening a camera into my own home.” (Laurina)

In the video conferencing platform, teachers found it difficult to formatively assess students using their usual social cues. Like the academics noted above, several high-school teachers noticed the lack of observable cues accessible to them:

“...you take for granted the way you can’t just pick up the temperature of the room. Just you know the nods and the question. It just allows you to maintain that kind of, you know, finger on the pulse as to how they’re travelling along with you. And I really struggle with that.” (Erin)

Melinda continued to reflect how the difference in active participation and gaining feedback connected to assessment:

“And in terms of assessment, I mean, that links into it as well, because when you’re face-to-face and you’re watching those interactions and listening to those conversations, you know, you’re constantly getting that that input and immediate feedback about students’ understanding of the concepts and the prior knowledge that they’re bringing into it, you know, or picking up on things that you think, oh, ok. Maybe you know, I could pose a question there, to challenge their thinking or help them think about things in different ways. And that was definitely missing in the online space.” (Melinda)

Laurina suggested that perhaps her usual measure of engagement needs to change in the remote delivery environment from the visual social cues to something else:

“...it'd be nice to see a face in the camera. But at the same time, that face is not necessarily looking at me. And therefore, is that real engagement? Or what does engagement then really mean? Is it like simply contributing to a question? Is it attending? Is it putting a message to the chat box in response to a question? Is it doing the interactive work? Like, what do I have to constitute now as engagement? Like, I think that has now shifted in this new kind of paradigm as well.” (Laurina)

Mary noted that their high-school students, probably much like their higher education students, “*miss the physical environment of the classroom*”, so they then try to replicate this artificially in the remote classroom using various digital tools. Additionally, Mary aims to position her teaching persona into the online content they are creating “*to create a sense of energy in a digital environment.*” She gives thought to the position of the camera in the video conference to present her teaching persona clearly:

“I've discovered that I need to be a presence within that digital classroom just as much as I am in a physical way.” (Mary, high-school teacher)

Erin reflected that the quieter students, in both the tertiary and secondary setting, can get lost in her classes as she cannot rely upon her usual tools for determining who requires re-engaging into the discussion:

“... if I look at that face-to-face environment, it's easier, I think, to keep tabs on those couple of students who are quieter and sort of, you know, who would normally go underneath the radar a little bit. And I'm a little bit worried that in the zoom in that online space, it's easier for me to lose sight of them... maybe it's just my practice because I'm used to being in the classroom, but in a classroom, I'm used to kind of listening to one student who's, you know, having the conversation or engaging... You've sort of got one eye on those other students in the room and then you're directing the next question at them while you're getting them to... re-engage somehow actively.” (Erin, High-school teacher)

Several teachers asserted they had to be creative in their online classes, often adopting various approaches to engage their high-school students and make them accountable in their online classes. These included sporadic, strategic written and verbal questioning to individuals and the whole class and simplifying instruction. Many

shared that they modified their class and assessment instructions for their high-school students to supply simple directives that are concise, clear, and targeted.

Additionally, many teachers mentioned they were exploring new platforms and applications in their teaching, often using different digital documents that they had not previously used. Mary appeared excited in the exploration of finding new ways to teach in the digital environment, despite the additional workload it created:

“I spent a fair bit of the weekend looking at the latest kind of stuff to use in the remote classroom, like different ways of doing it.” (Mary)

Although she noticed that her high-school colleagues “*look tired*”, she reflected that this was an opportunity to “*put the oxygen mask on ourselves and push ourselves*” to take a look at pedagogical practices to improve in the digital environment personally. By asking the questions, “*How can I be better at my pedagogy in the remote world? What can I do?*” Mary felt that staff as a collective could improve teaching practices for their high-school students and “*amp it up a bit.*”

Several teachers shared that they were defaulting to the ‘chalk-and-talk’ method of lecturing to their students, which provides tension with their pedagogies. Stephen joked that he was “*sick of hearing my own voice.*” Class discussions felt more difficult than the face-to-face setting for them, as the conversation feels unnatural. Laurina felt she was “*talking at them, and I’m not having a conversation with them*”.

Comparable to what the academics reflected about the difficulties of providing formative feedback to students, several high-school teachers also found it difficult to provide targeted and specific continuous feedback. Erin was one of these teachers who found she could not rely upon her usual informal formative assessment and feedback teaching tools:

“...I feel that feedback is more difficult for me in general, that ongoing constant feedback that you would normally give... Whereas... when you’ve got students in a bigger room and you group them, and you roam between them, you can listen to two or three sentences...and pick out ‘okay, yep they’re on track’. And you might interject a question or, you know, be able to give some level of... ‘oh yep... sounds like you guys on the right track. Have you thought about this? Beautiful.’ And you can move on, whereas I find doing that in Zoom workshops... I find it much harder. I think you’re not picking up those little pieces of conversations [as] you’re going past.” (Erin)

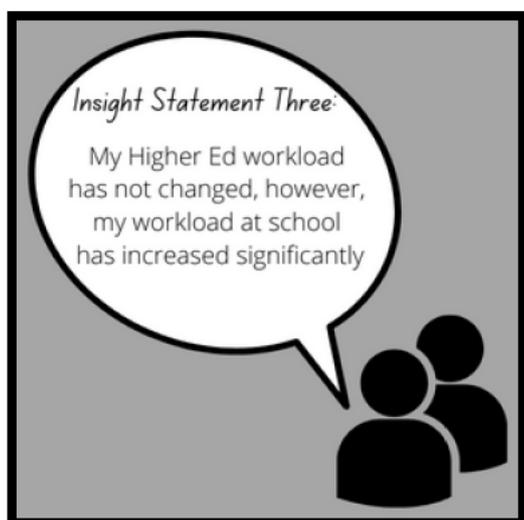
The breakout room spaces allowed for smaller student discussions and allowed for individual questioning from the teacher to assess understanding. However, the act of doing this took much longer than physically moving around a room in the face-to-face setting. Erin continued:

"I'll set them, you know, something to do for 5-8 minutes, and I'll literally get into, like, one room, maybe two. Whereas ordinarily, I would expect to hit at least half my groups, you know. So, I find that sort of ongoing feedback is hard, is much harder for me in this environment." (Erin)

Contrasting to what teachers were experiencing in their school settings, several found it difficult to connect with their tertiary students as easily as they would have in the face-to-face setting. Melinda was one of these teachers who found it challenging to build a connectedness to those students who were not actively engaging:

"...I think that there's a lot of thinking to be done about how you build that connectedness to what students are going to learn so that they are fully able to engage in remote learning." (Melinda)

As was found with the academics, this difficulty of building connectedness with students may have indirectly resulted from the unnatural feel of the conversation. Mary reflected that teaching was more difficult in the remote setting due to the conversation's unnatural feel. Further to what the student participants reflected above, Mary felt that the conversation was *"a little bit slower in the remote environment"*, and the delay in speech between people did not allow for people to *"talk over each other"*, which is what can happen in a conversation and class discussion.



Insight Statement Three. Teachers reflected that their workload in higher education did not change as they still provide assessment feedback in the same way. However, their high-school workload increased significantly. This additional workload was mainly due to pastoral concerns (of both students, parents, and other teachers), contacting parents, additional feedback, and administration:

“...the majority of my spare waking hours have been intervening with teachers who perhaps don't have enough strategies and parents who are in pain. Whereas prior to that, if in face-to-face might have been able to solve that far more quickly or identified earlier or hose it down more ably.” (Jason)

Jason and Laurina acknowledged that high-school students who were highly engaged in the face-to-face setting were similarly engaged in the remote delivery and still motivated to do well in remote delivery. However, those students who required a more significant teacher presence and assistance were not coping:

“...And there's enough evidence now to say that the autonomous learners have managed to thrive in the environment and the ones that need handholding have really struggled.” (Jason)

“I noticed that it's the repeat offenders that are still not putting in the effort or still not putting in the work, whereas the students that want to do the work and that always do the work, still achieve the high marks or the medium marks.” (Laurina)

Stephen also shared a discussion on the decline of high-school student engagement and motivation connected to wellbeing. And this was more apparent in the second phase of the lockdown that students experienced:

“I'm no psychologist, and I'm no doctor. No mental health expert... I'm really starting to see that this second lockdown is having a greater impact than what the first one did.” (Stephen)

Jocelyn, who worked with disadvantaged high-school students, reflected that students were more disengaged during remote delivery, some to the point of not attending classes and not doing work:

“...And my students were already disengaged... In the first lockdown, whenever that was, Term Two, I guess, Term Two. We all noticed across the board that at about week five, there was a dip and a lot of students stopped coming... they had a dip in attendance and motivation. And then this time. This time now, we're week seven or something. There are students I haven't seen for the whole seven weeks.” (Jocelyn)

The mode and delivery of summative feedback remained the same for their higher education classes. However, several reflected they provided alternative feedback to

their high-school students to compensate for lack of face-to-face moments. They provided additional individual and group Zoom sessions to provide targeted feedback. However, Laurina offered that high achieving students only embraced this optional video conferencing meeting:

“I think I've been a bit more detailed with my feedback because I'm like, all right, I'm not in there face-to-face. I can't give them verbal feedback. But they're more than welcome to set up one on one Zoom with me. But majority don't do that unless they are high achieving students.” (Laurina)

Conversely to what was observed in Phase Two, a few teachers noticed the difference in understanding, which was attributed to many students not obtaining a professional placement. Erin and James noticed a gap in their knowledge, specifically connected to the context of schools and how they operate, and what they are like:

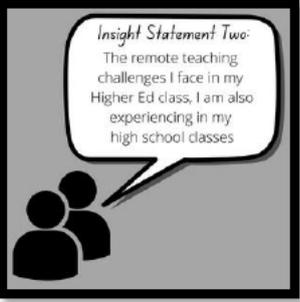
“...it's so difficult for them to make even a determination about do they want to be secondary teachers. [They've] really not had an opportunity to get out and see what it's all about.” (Erin)

“...I think it's tricky for [pre-service teachers] to imagine [how a classroom operates]. So, you know, if you haven't had a placement... I'm finding that they're struggling to imagine...” (James)

Table 16 below presents the summary of high-school teachers' empathy interview findings alongside Insight Statements and themes for Phase Two.

Table 16

Phase Two: Summary of High-School Teachers' Empathy Interview Findings

End-user group	Themes	Insight statements with summary of findings
High-school teachers	Collaboration Teaching skills	 <ul style="list-style-type: none"> • Collaboration in the teaching profession is vital and an authentic skill to include in assessment • Schools are collaborating using video conferencing platforms during the pandemic • Some students do not know how to collaborate
	Remote learning challenges	 <ul style="list-style-type: none"> • Working directly with students was difficult in both high-school and tertiary settings • 'Cameras on' suggested to maintain student engagement, accountability, and motivation • Lack of observable social cues impacted formative assessment of students • Explored new digital platforms and teaching approaches to re-engage students and colleagues
	Workload	 <ul style="list-style-type: none"> • Higher education assessment and feedback delivered in the same way • High-school workload increased significantly due to pastoral concerns, contacting parents, additional feedback and administration • Autonomous high-school students thrived but there was a decline of engagement and motivation connecting to wellbeing for others

Findings From External Academics

The perspectives of external academics from other institutions are explored here to establish a comparison of similarities and differences across the internal academics Empathy findings adding richness to the data. The aim was to ensure the different perspectives are represented in the findings by triangulating several different

perspectives (Creswell, 2012) and encouraging ‘trustworthiness’ of the internal academics’ empathy findings (Taylor et al., 2015).

The external academics discussed two main themes that mirrored the internal academics. These were around the shift into the remote delivery space in terms of teaching, learning and assessment, and what was effective assessment within the context of ITE.

Patricia, Tara, and Spencer, from two different institutions, had prior experience teaching online, so for them, the adjustment to teaching online was not a stretch. Transition into remote teaching was seamless due to their institution’s access to learning designers and experience in teaching online:

“I think we found it really easy because we design online materials for [External University] online...the shift was easy... we have a flipped model of learning where we use the online materials in the flipped and then we have workshops. So, we don't have lectures. So, it was actually, I found it quite easy.” (Tara)

The adjustment, however, they felt came from the student perspective, in particular those students who chose to study in a face-to-face setting, but were shifted into the remote environment:

“I definitely think some of those on campus students who were forced to become [remote learners], they just disappeared and just handed in the assignments and that was it.” (Spencer)

Tara suggested that this could be because they didn’t find the class tutorials beneficial or potentially due to the array of resources available to the students:

“I'd have to say the fact that a lot of students didn't come probably means that they didn't find it beneficial, or they felt that they could work through that unit without needing to come because, you know, they had their online materials, they had the workshop that was recorded and then they had slides as well. So, they actually had quite a lot of content. It was also very practical; it wasn't all reading based that they could work through.” (Tara)

During her remote teaching, Tara thought through her engagement strategies and how they could work in the online setting. Much like the internal academics, Tara incorporated conversational elements into her workshops to spark engagement, and

consistent with previous discussions with internal academics and students, the discussion of engagement connected to the discussion of cameras on versus cameras off:

“...we know the cameras are an issue. There's much more of an issue about speaking out in an online space than in an actual classroom, so, yeah, that's the real challenge.” (Tara)

Aligned with what the internal academics perceived, several other external academics noted a reduction in some students' engagement and motivation. Tara felt the change in students' engagement, and motivation potentially came from the significant change in societal restrictions, change in living conditions, and potentially, mental health issues resulting from the pandemic. Both Spencer and Mathew reflected the student motivation was varied. Mathew was particularly heartened to see many students remaining to submit work through the difficulties of the pandemic:

“It's comforting to see students still submitting work and getting work in and grades still being strong.” (Mathew)

Tara reflected that the lack of attendance did not affect the students' performance on their assessment tasks. She thought that this might be due to the rich learning experience provided to students on the LMS in her institution, which is designed in combination with academics and learning designers:

“I think the students would say they found it troublesome and certainly attendance dropped off. I think attendance was incredibly low all year. So, I'm not quite sure why, but it didn't seem to affect the marks, students still managed to be able to pass the unit at the same rate. And that's a testament actually to our online materials that are developed by [External University] online. You know, they have learning designers, they do some really clever things with that material. And we get the privilege of, you know, because we wrote it, we get the privilege of being able to use it. So, I think our online materials were probably better than a lot of universities.” (Tara)

Stephen suggested that he noticed some students making the transition to remote surprisingly easy:

“...Some students have... got used to it, some students who probably thought they'd never be [online] students, well now they are, and they're like, 'oh, this is okay, right!'” (Stephen)

The external academics also noted the effects of the absence of professional placement for their students. This absence of placement has meant the academic has needed to shift thinking to support those students who do not have a placement to draw or reflect upon. As a result, Mathew needed to think about how he could change assessment so that those without placement experience were not disadvantaged:

“One of the big issues for us with one of the assessments we do, ...there's an assessment task where they're meant to sort of blend theory: what they've learnt in their university classes with their practicum experience. And what we have had to do is modify that task rather than kind of a reflection, theorising task, to a kind of a speculative kind of assessment task, purely because a lot of our students didn't do their placements. So, we had to adjust that accordingly and think differently about how we would use the rubric or set up alternate tasks for those students, still using the same rubric and assessment criteria, but a different task for those students who weren't fortunate to get enough placement compared to those that did.” (Mathew)

Similar to what the internal academics reflected, there was an increase in workload during the shift into remote delivery in response to the Covid-19 teaching restrictions. This increasing workload resulted from associated administration, including the various individual student circumstances due to the pandemic.

Additional to workload demands, Samantha felt there was an increase in cognitive demand at that time. The pandemic affected individuals in different ways, but for most, it was a difficult time for all, students and academics alike. For Samantha, it was difficult to focus on many different things, and she reflected that she could only focus on her teaching at that stage to the detriment of everything else.

Mathew reflected on the increasing demands of academic workload, irrespective of the mode of delivery. He felt that the workload constraints did not allow for much time for conversation or planning outside the unit delivery. This in turn impacts the time and energy assigned to these discussions around assessment and planning.

In terms of assessment more generally, the external academics reflected on the student's assessment experience and the assessment planning experience for the

academic. Comparable to what internal academics and students asserted in the Phase One empathy interviews ([Chapter 4](#)), Mathew shared that assessment must be clear and transparent:

“I think we need to continually try and simplify, not dumb things down, but simplify what students need to do, so it's open and transparent and pretty clear.” (Mathew)

Several external academics spoke on the importance of assessment meeting its need for the student and their learning. Mathew believed careful thought and consideration needs to go into the processes and purposes of assessment. While he noted the importance of *“learning outcomes, matching your assessment”*, he also perceived that this is too simplistic in its form and that *“assessment still seems to be... in the form of some kind of narrative or long report that kind of sits with a genre of higher education”* and not necessarily meeting the authentic purposes of an ITE assessment.

Similar to the view of internal academics in Phase One ([Chapter 4](#)), Tara reflected that she was not satisfied by using the analytical rubric as the only form of feedback, and so provides additional written feedback to her students:

“The analytic rubric that you can put into canvas or blackboard or whatever elements you're using can save you time, but I would never just use that. I would always give written feedback as well.” (Tara)

Perhaps an outcome of her additional written feedback, Tara believed her students felt as if they were getting enough feedback:

“I think they do feel like they're getting enough feedback...I've never had any feedback from the team that says students don't feel they're getting enough. So, I think they do. Yeah.” (Tara)

In terms of the academic assessment planning experience, many voiced a real tension between the planning and implementation policies of the institutions and external bodies and their own pedagogical beliefs about what assessment should look and feel like. The tight regulation and compliance requirements set by external teaching bodies and the institutions guidelines of feedback and assessment provide a pedagogical tension and constraint in the planning process. The academics could not always implement what they would like to implement, what would be more authentic to the profession, and potentially provide a deeper learning approach due to learning due to

constraints. Although this was not a heavy focus of discussion for the internal academics in Phase Two of this research, it can be recalled that the internal academics noted this as a concern in Phase One ([Chapter 4](#)).

The confinements and constraints also developed from the time allocated to the academic's workload by the institutions for marking. Tara reflected, "*universities are now cutting back assessment marking time,*" and this allocated time is "*nowhere near enough*" time to properly assess and provide feedback to each student.

More generally, the external academics felt a real need for views of assessment to shift in the ITE context, irrespective of the mode of delivery. Mathew reflected that, "*seeing assessment as part of teaching rather than separate*" and that, "*assessment should guide the learning and not necessarily the guidelines of the institution.*"

Several external academics reflected on the need for students to focus on the assessment experience and motivated to learn:

"I think that's the nature of being a student, like I like to think of them as pre-service teachers, but when it comes to assessment, they're still students and they don't see the intrinsic value of the process of the task." (Samantha)

Patricia reflected that an assessment that incorporates peer-reviewed formative assessment relies on "*students interested in participating*". Students who actively engage in the process and learning can achieve, and those who leave assessment to the last minute constrain the process and assessment experience.

Lessons learnt in the process and experience of shifting into remote delivery for these external academics required a shift in thinking. For Patricia, her shift came 12 months before Covid-19, when she was moved to teaching entirely online in a move by the institution. Through this move, she shared that her initial thought was one of negativity, however, retrospectively saw it as a positive shift in her role:

"And I love the accessibility that it provides to students, but it came with a shift in my role, and I almost was tempted to say [at] a cost, but I don't know that it was particularly negative... I had to do some more thinking but I'm not 100 percent sure that it's a negative thing. I think the change that I've had to implement in my practice has just meant that I've continued to refine and reimagine really, rather than seeing it all as a "Oh, I can't do that anymore"

or, you know, "Because I'm not located or face to face this is not going to be as successful"." (Patricia)

Patricia articulated the shifting role of the educator. Samantha and Mathew similarly reflected on needing to be flexible:

"...be a bit more flexible and not to curl up in a ball when things don't go to plan" (Samantha)

"I think we've learnt that we need to be a little bit more flexible in our expectations about when and what students can do.... it's, again, humanising our practises in relation to people rather than be a conveyor belt and assume everyone's the same." (Mathew)

In many cases, this rapid shift into remote delivery forced academics to look at practices and resulted in improved practices. Mathew could see glimpses of colleagues returning to "bad practices" and hoped that the learning opportunities were not lost:

"One of my concerns really is with a lot of what I'm seeing is that people are hankering to go back to normal and I can understand that, but I really do hope that with some of the things we've learnt through this, we don't throw them out and we don't go back to some of the ways we were doing things before." (Mathew)

To highlight the commonalities and differences of the findings, Table 17 below compares the summary of findings of the internal and external academic cohorts in both phases of this research.

Table 17

Comparison of Internal and External Academics' Findings in Phase One and Two

Phase	Theme	Summary of findings	Internal academics	External academics	
Phase One	Assessment Teaching skills Engagement	<ul style="list-style-type: none"> • Passion for student support and success 	✓	✓	
		<ul style="list-style-type: none"> • Clear pedagogical understandings of good assessment and feedback practices, including modelling best practices in ITE 	✓	✓	
		<ul style="list-style-type: none"> • Wanted to re-engage students with deep learning processes when completing assessments 	✓	✓	
	Assessment Feedback Workload	<ul style="list-style-type: none"> • Tensions existed between providing high-quality assessment and feedback and workload 	✓	✓	
		<ul style="list-style-type: none"> • Demonstrated various assessment workload coping methods 	✓		
		<ul style="list-style-type: none"> • Wanted different feedback models to address student feedback engagement and authenticity 	✓	✓	
	Authentic assessment	<ul style="list-style-type: none"> • Authentic learning conditions for authentic opportunities for deep learning were considered difficult to provide. 	✓	✓	
		<ul style="list-style-type: none"> • Authenticity connected to future value to the student (assessment product) and acquiring teaching skills (learning process). 	✓		
	Phase Two	Teaching skills	<ul style="list-style-type: none"> • Rapid change to digitally supported remote delivery of teaching magnified the need towards being agile, flexible, and adaptable. 	✓	✓
			<ul style="list-style-type: none"> • Learning experience was enriched with the trial of different teaching tools 	✓	✓
<ul style="list-style-type: none"> • Many aspects of usual face-to-face teaching translated to the online learning environment 			✓		
Clarity of communication Absence of asking questions		<ul style="list-style-type: none"> • Clarity of communication critical in the digitally supported remote delivery 	✓		
		<ul style="list-style-type: none"> • How students asked questions changed 	✓	✓	
		<ul style="list-style-type: none"> • Reduced opportunities for flexible and adaptable organic peer conversations 	✓	✓	
Relationships Engagement		<ul style="list-style-type: none"> • New teaching environment challenged student-teacher social interactions and impacted relationship-building 	✓	✓	
		<ul style="list-style-type: none"> • Lack of social cues impacted observational engagement assessment strategies and social constructivist teaching approaches 	✓		
		<ul style="list-style-type: none"> • No visual observational cues from students choosing cameras off 	✓	✓	
Assessment Absence of professional placement		<ul style="list-style-type: none"> • Student engagement in assessment remained consistent, but results anecdotally improved 	✓		
	<ul style="list-style-type: none"> • Observed students struggling with collaboration in the online environment 	✓			
	<ul style="list-style-type: none"> • Gap in practicum experience impacted depth of learning of professional applications (linking theory to skill) 	✓	✓		
Workload	<ul style="list-style-type: none"> • Significant initial increase in workload due to planning and associated administration 	✓	✓		
	<ul style="list-style-type: none"> • Workload continued to be impacted by student emails asking clarifying questions, granting extensions, special considerations, and additional support to struggling students 	✓			
	<ul style="list-style-type: none"> • Noticed resources access was difficult for some students 	✓			

Discussion

Using the design thinking approach of gaining an empathetic understanding of end-users, the semi-structured interview findings have confirmed complex and varied views of end-users: students, teachers, internal, and external academics. The shift into digitally supported remote delivery presented both contrasting and comparable experiences and perceptions from these end-users. As indicated through the presented findings and evidenced through the participants' voices, there were multiple concerns about the digitally supported remote learning environment. These concerns were not in isolation but entangled for compounding effects. The key dimensions of their compounding effects were in relation to challenges of professional teaching and learning amidst the video conferencing platform, missing relational interactions with others, wellbeing concerns, and technical issues.

Professional Challenges

The professional challenge for teaching academics came from redesigning programs and upskilling to navigate and manage the required technologies, all within the eleventh hour. Academics attempted to hold on to familiar and well-established pedagogies and replicate class activities and learning experiences usually used in a face-to-face setting. The attempt to transition usual practices into fully online environments mirrored findings by Howard (2020) where teachers "commonly retain their established philosophies and beliefs" (p.13). However, the unfamiliar teaching environment presented "threats to their pedagogical effectiveness" (Howard, 2020, p. 10), paralleled in some participants' initial feelings of hesitation with novel tools and platforms. In the current study, many voiced an apprehension as they could not practice their online teaching skills nor extensively practice using the digital platforms before implementing. This is not surprising given Northcote's (2008) suggestion that transferring pedagogical practice from face-to-face to the online setting is not a simple task, nor should it necessarily be attempted due to the differences between the two environments. The express nature of the transition without sufficient time to delve deeply into the online pedagogical practices provided significant pressure.

Indeed, since online teaching requires considerable time and thought to plan for the teaching and learning experiences, Hodges et al. (2020) labelled the rapid shift into remote delivery as 'emergency remote teaching'. The worldwide shift into digitally supported remote delivery was a quick fix substitution in response to the pandemic's emergency, not allowing for adequate planning time (Hodges et al., 2020). This

definition is fitting given academics' trial-and-error approach to initial planning with somewhat limited experience and knowledge in online teaching and learning.

While academics initially looked for simple replacements, with time, practice, and more experience, their confidence in teaching practice with digital systems and platforms improved. And as this confidence increased, academic participants continued to make changes to their pedagogies to fit and adapt to the online environment (Redmond, 2011). Not surprisingly, becoming more comfortable with planning and teaching in the online environment over time. Additionally, those who had previous experiences teaching online expressed more capability in the online environment (Kaleta et al., 2007). As academics became more informed and experienced over time, their unease about online teaching relaxed, and some explored new avenues and approaches.

While the shift into digitally supported remote delivery focused academics to look at their effectiveness of pedagogies, the shift also compelled them to focus on particular teaching skills necessary in the novel delivery. Academics reflected three primary skills most important in the online environment: flexibility, agility, and clarity. While noted as essential skills in face-to-face teaching, their need was considered more magnified in the online space and the rapid shift into the online space. Being flexible through "keeping an open mind and having the ability to adapt" was influential in the online environment (Bailey & Card, 2009, p. 154). Being agile and adaptable in the face of the rapid shift and planning process was crucial (Marek et al., 2021). Moreover, clarity is vital in all forms of online communication as reflected in the "social and communication" category of Albrahim's (2020, p. 16) classification of essential online teaching skills.

The absence of professional practice placements for the students in schools also presented challenges in the effectiveness of integrating theory and practice together within the ITE program. A key inclusion in ITE is the connections and practice of professional capabilities through teaching in front of a classroom during the student's (pre-service teacher) placement in schools under an in-service mentor's guidance. During the social isolation restrictions and the closing of classrooms to shift into remote delivery for all schools in Melbourne, universities found it immensely difficult to find their students a practicum in the school setting. Schools were also navigating the shift into online learning, meaning many were not able or hesitant to add the extra responsibility of supervising a pre-service teacher (Seddon et al., 2021). Despite these barriers, some students were lucky enough to experience placement in the remote setting, but many had to wait until the following year when restrictions were lifted.

Those students in this research who did not experience placement felt a gap in knowledge resulting from the inability to practice the knowledge they were consolidating in their academic curriculum. This gap did not allow for that deeper analytical connection and reinforcement of the academic curriculum (Ingvarson et al., 2014). Nor did it allow students to have the important cyclical discussion of theory to practice, then from practice back to theory (Darling-Hammond, 2006). An effective professional practice experience is one that carefully considers the coordination between the learning experience at university and the teaching experience at the school (Le Cornu, 2015), and one with the absence of such may not provide the diverse experience for the pre-service teacher to become 'classroom ready'.

While teachers often hold strong motivations and aspirations for entering the teaching profession (Adoniou, 2013; Richardson & Watt, 2006), some students voiced their anxieties about wanting to experience teaching to confirm their choice and ease their apprehension. Additionally, professional practice develops teacher identity and agency through continuous professional development and reflexive opportunities (Le Cornu, 2015; Molla & Nolan, 2020; Walkington, 2005). Additionally, pre-service and beginning teachers often value professional placement experiences as the 'real' teaching experience (Allen, 2009). Therefore, it is not surprising that students in this research deeply missed the highly valued professional practice.

Despite academics' efforts to redesign and simulate usual classroom experiences, there were constraints of learning amidst the video conferencing platform. The video conferencing platform allowed students to engage in a synchronous classroom experience to communicate and provide somewhat of an interaction between the academics and their peers. Features within the video conferencing platform attempted to replicate face-to-face experiences, such as the breakout room feature allowing smaller groups from within the larger meeting to gather simultaneously in separate rooms. However, a significant concern from participants came from disparities of the online environment compared to face-to-face.

Participants in all end-user groups often commented on the unnatural feel of the conversation in the video conferencing classroom. Some students chose not to turn on cameras for privacy concerns or bandwidth issues, and others did not have access to built-in computer cameras. Thus, limiting the social cues available to the educator and student, and influencing the effectiveness of the social presence experienced in the online environment.

Without the usual social cues, there is an adaptation that occurs in the processing of information in the online environment where other social information is processed to adapt to the novel environment (Slagter van Tryon & Bishop, 2009; Walther et al., 1994). Students' motivation to participate is promoted with a strong social presence (Richardson et al., 2017; Weaver & Albion, 2005). Additionally, a strong social presence can impact active learning (Molinillo et al., 2018), and predicts student course satisfaction (Richardson et al., 2017). Conceivably, these factors would influence students' question asking and collaboration in the video conference classroom.

The breakout room feature of the video conferencing platform attempts to positively promote smaller discussions to allow for less vulnerable group interactions (Neuwirth et al., 2020) and promote social presence. However, as the students in this research were hesitant and held back in the rooms, the breakout room feature has demonstrated elements are missing to promote this work. Identified as necessary in the facilitation of online teaching (Martin et al., 2019), breakout rooms have also removed the academic's presence and perceptions of availability and oversight. All end-user groups noticed a diminished academic presence that may cause social loafing through students' perceived lack of accountability, which is known to occur in online learning environments (Loh & Smyth, 2010). Additionally, students' agency of choosing their groups is often removed (Tai et al., 2019). In face-to-face settings, students can move freely using social cues together with their past experiences to help categorise peers based on who will be able to assist and those who will not (Brewer, 1988; Slagter van Tryon & Bishop, 2009). Using this classification strategy to work out who they would like to work with is not easily accessible in the video conference classroom.

This processing of personal schemas was significant for those unfamiliar with the Australian education system, including international students. Although classified as a domestic student, Tanah had no prior educational experience in Australia. Therefore, she deemed it necessary to directly approach Australian students to understand the Australian school system better. With limited opportunity to use this schema processing strategy in the remote setting, the student is left with potential deficiencies in peer assistance and subsequent knowledge. Therefore, additional thought is needed to design the digitally supported remote delivery to guide this social support. In their review of the literature, Slagter van Tryon and Bishop (2009) noted that intentionally designed group social support within programs helped students adapt how they processed social information even in the absence of some verbal and nonverbal social cues. Accordingly, this initial social interaction and gaining of information about peers

can help improve collaboration through dialogue and sharing of knowledge (Heinze & Procter, 2006). The professional challenge for end-users in Covid-19 times, derived from the express nature of moving into a novel delivery mode, tremendously impacted programs necessitating end-users to redesign, upskill, and manage the absence of professional practice.

Relational Challenges

All end-user groups acknowledged the challenges of forming relational bonds within digitally supported remote delivery. As the learning from the relational approach is varied depending on context (Ramsden, 1987), it seems not surprising that end-users grappled with the initial change of context to the online environment.

The literature suggests that academics who promote relationship building with their students promote engagement (Pearce & Down, 2011). Therefore, there is little wonder why teachers and academics endeavoured to form these relationships through the computer screen but were faced with challenges of limited, and in some cases, the complete absence of social cues of not being able to see or hear students at all. This provided tensions with their usual pedagogies and subsequently they perceived the absence of relational teaching impacting the effectiveness of their programs. Tai et al.'s (2019) pre-service teacher participants also felt that learning in an online environment did not support the same level of connectedness as a face-to-face setting.

Research supports the importance of forming peer relationships in positively shaping the university experience (Maunder, 2018), and influencing the effectiveness of group work (Mamas, 2018). Considering this, it is disappointing to hear that students in this research felt an absence of relationships and personal bonds with their peers. Students noted limited opportunities and time to develop rapport, a lack of contribution of others, and not being able to see many class members behind blank screens all contributing to a relational disconnect. Additional anxieties in the video conference classroom have also been reported by American college students (Peper et al., 2021), and other research has described student feelings of discomfort about showing their appearance online preferring to keep cameras off (Castelli & Sarvary, 2021; Yarmand et al., 2021). These social anxieties are reiterated in this research with students not wanting to be the centre of attention on everyone's screen. Additionally, students voiced fear surrounding risk of interruption and not being heard. These trepidatious feelings presumably would have some effect on peer connectedness.

Participants discussed aspects of social presence being less prominent in the online environment, impacting peer interactions and limiting formation of peer bonds. Social presence is established within collaborative communities when trust and support with open communication free of risk, and the interaction between group members are trusted and meaningful (Duncan & Barnett, 2009; Garrison & Vaughan, 2008). The effectiveness of online group contribution and collaboration can be improved when students frequently communicate and share personal information (Korenman & Wyatt, 1996). However, it is essential that the sharing comes from a safe environment and the information shared is appropriate for the online classroom space.

While relationships were difficult to form within the classroom, there were also limited opportunities for student relationships to form outside the classroom. Students' connections through social interactions at informal social events are important for student engagement (Redmond et al., 2018). Meeting up with peers at a local café or a university club event was not possible due to social distancing lockdown rules, making this social element difficult and, at times, impossible to carry out. The absence of these social supports leaves a gap in students' university social experience and leads to a weaker connection to the university learning community (Rovai & Wighting, 2005). Additionally, the acculturation into university life, which is ever so important for international students, is "shaped by the interaction with the situated environment" in which the "learning about the university environment is an emotional cultivation" (Yu et al., 2010, p. 1500). With the absence of the 'environment' in the digital space, it may be difficult for these remote students to foster a sense of connection to community and belonging to the university and the student cohort (Boling et al., 2012).

Despite feelings of disconnection, students sought other ways of connecting with peers, including through avenues of online social networking. Online social networking can significantly benefit the student in providing social connections with others and improving student learning outcomes (Yu et al., 2010). And while this is known to have a positive impact on student social learning outcomes influencing their cognitive learning (Yu et al., 2010), the student participants did not feel these social networking groups, nor the medium they were conducted in, were superior to those networks established in face-to-face settings. This discrepancy may be attributed to the fact that feelings of empathy and connectedness are less likely experienced in online social media exchanges (Konrath, 2013). The positive aspect of extending the networking to a large scale, as demonstrated in Yu et al.'s (2010) research, was actually seen as a deterrent for using the large networks by participants in this research. However,

consistent with Yu et al.'s (2010) findings, the smaller, closer peer group online social networks were perceived as encouraging.

Accompanying a feeling of detachment from their peers, students also reflected a disconnect with academics. They were hesitant to seek informal advice and feedback from academics during the video conference. The unnatural feel of the conversation in the synchronous video conferencing platform was a barrier for students to ask questions. These findings are not surprising given online learning is affected by differences and difficulties in the natural feel of the communication of a computer-mediated compared to face-to-face environments (Kock, 2004; Weiser et al., 2016). There were challenges present in the video conferencing conversation, including the unusual taking of turns, where one cannot speak while another is speaking, as well as interruptions and backchanneling within the 'chat' function (Al-Samarraie, 2019). Instead of the usual larger scaled class communication, students were choosing to communicate individually, most often by emailing the academic, thereby adding to academic's workload (Adedoyin & Soykan, 2020; Jensen et al., 2020).

The difficulties in relational connection between end-users, lack of social cues and the unnatural feel of conversation were all suggested as barriers to effective communication whilst collaborating. Consequently, difficulties in student collaboration were reflected as affecting the productiveness of the teaching and learning program. All end-user groups noted collaboration as an important feature of the ITE program, which is not surprising given collaboration is considered an essential skill in the teaching profession (Daniel et al., 2013; Head, 2003; Owen, 2014). Aspects of collaboration are embedded into the AITSL standards that guide pre-service and in-service teachers towards improving the quality of their teaching (AITSL, 2017). Literature supports collaboration in teacher education as principal to improving teacher efficacy and student outcomes (Le Cornu, 2015), including in the online environment (Romeu et al., 2016). All end-user groups discussed aspects of collaboration were more difficult to facilitate, monitor, and practice online, which concurs with research that suggests group work is more difficult in the digitally supported remote delivery (Duncan, 2005; Duncan & Barnett, 2009). The barriers of the online environment triggered relational challenges and impacted opportunities for end-users to form relationships, which hindered participation, social presence, and aspects of collaboration.

Technical Challenges

Technical challenges were experienced by all end-users. Academics' discomfort with arising technology issues is confirmed in research when academics need to deal with technology related issues (Duncan, 2005; Palloff & Pratt, 2013). In the online environment, the academic requires technical knowledge and skill (Bailey & Card, 2009; Berge, 1995; Kaleta et al., 2007), to be able to "make participants comfortable with the system and the software" (Berge, 1995, p. 3). It is not enough for the academic to have a positive attitude towards using technology tools; they must also know how these tools are pedagogically practical and relevant to learning (Davies, 2014). Although many academics shared their upskilling and professional development in technology, the rapid nature of the implementation of digitally supported remote delivery conceivably meant that they did not have sufficient time to gather all the required information or skills. The success of the teaching, learning, and assessment program relied heavily on the technology infrastructure (Alhabeeb & Rowley, 2018; Marek et al., 2021; Selim, 2007) and skills of the academic (Bailey & Card, 2009; Zhu & Liu, 2020). Therefore, training those unfamiliar with online planning and teaching is central to implementing effective programs (Kaleta et al., 2007).

Reasonably, not all students also had the skills, knowledge, or digital competencies required to navigate digital devices and programs with efficiency and effectiveness (Adedoyin & Soykan, 2020; Ferrari, 2012). Even those considered digital natives born into a time of considerable technology cannot be assumed to have digital competencies (Adedoyin & Soykan, 2020; Bennett et al., 2008). On top of this, research has demonstrated that pre-service teachers overestimate their digital competencies, regardless of whether they were considered digital natives or not (Maderick et al., 2016). These are essential considerations as student perceptions of technology have been shown to play a part in students' learning strategy and behaviour in a bi-directional relationship (Richardson, 2006). In other words, students' technology skills, knowledge, and perceptions of self, influence their approach to learning and subsequent effectiveness of online programs.

Technology infrastructure is vital for the teaching, learning, and assessment of online programs (Alhabeeb & Rowley, 2018; Marek et al., 2021; Selim, 2007). Additionally, technology issues test the patience of both students and academics (Bailey & Card, 2009) and can contribute to the feeling of disconnect (McBrien et al., 2009). Bandwidth issues can slow the conversation and make it disjointed, and individuals can even drop in and out of the video conferencing platform. Access to technology was also a

concern, with some students with limited access to a computer, internet access, or camera facilities. Low socio-economic supports for students were provided by many institutions internationally (Adedoyin & Soykan, 2020), including the institution in this research, to assist with access. However, these interventions did not address the whole technology infrastructure needed for online learning (Bennett et al., 2020). Technical challenges were wide-reaching across the end-user groups, arising from technology and infrastructure issues, and limited digital competencies.

Wellbeing Challenges

The difficulties experienced by end-users were multifaced and complex. Across many difficulties shared were feelings of anxiety and disconnection. Although, mental health and wellbeing of learners and teachers are not traditionally considered in the context of education, it emerged as a significant theme in this research, probably due to the broader pandemic context and the rapid speed of change. The almost worldwide simultaneous rapid shift into remote teaching was experienced in different ways by different people. However, the mere fact that this rapid shift resulted from a global pandemic meant that poor mental health and wellbeing were potentially a by-product of this shift. While reflecting on the data, it was crucial to consider these mental health and wellbeing strains of the global pandemic on the individual participants and collective end-users focused in this research.

Fisher et al. (2020) suggested that there was “a widespread change in the mental health of the Australian adult population” (p. 462). In a survey conducted in the first month of the Stage Two Covid-19 restrictions, they found “about one quarter of respondents reported mild to moderate symptoms of depression or anxiety” (Fisher et al., 2020, p. 462), and those most affected were

“women and people aged 18–29 years; people living in regional and rural areas or in the lowest socio- economic positions, and those not in paid employment before the pandemic; people who had lost jobs or opportunities for study; people living alone, who have fewer opportunities for daily interactions with family and friends; and people whose main occupation is to provide unpaid care for children or other dependent family members” (Fisher et al., 2020, pp. 462-463)

Many participants in this research willingly shared information that identified themselves as these particularly vulnerable groups, often disclosing their difficulties

because of the Covid-19 restrictions. For example, domestic student Faye shared the challenges of home-schooling her two young school children without support. Isabella (internal academic) and some external academics also shared their experiences of many students not coping with their studies or personal lives. Many teachers shared the pandemic's strain on their own work lives, the lives of their students, and their parents. While there is an understanding of the adverse effects of social isolation from other past outbreaks of disease (Smith & Lim, 2020), there is limited research on the impacts of the rapid and severe nature of Covid-19 on individuals in communities, especially within the education sector.

In response to the highly contagious effects of the Covid-19 virus, individuals and communities were socially isolated. The dynamics of social interaction changed and, in many cases, limited the participants' social support. This social isolation was particularly challenging for the international students, who in many cases did not have family support in Australia. Furthermore, international students had limited support from the government and, when received, often experienced substantial waiting periods (Nguyen & Balakrishnan, 2020). In terms of personal wellbeing, a study by Dodd et al. (2021) highlighted the inequities between student cohorts at one university in Australia, including domestic and international students, and found that international students experienced higher anxiety about the uncertainty of a remote personal future. This is echoed in this research with some international students sharing that they had family members recovering from Covid-19 in their home country; sharing the anguish about not supporting them and being by their side during this challenging moment in time.

Additionally, research has indicated that isolation has been known to precipitate symptoms of depression and anxiety (Venkatesh & Edirappuli, 2020). While this current research did not initially aim to specifically examine participants' mental health and wellbeing, the emergence of this as an issue for the participants indicates that it is vital to contemplate the extremely challenging period each was experiencing, no doubt influencing their experiences and perceptions during those times and potentially underlying the themes in these interviews.

Further to experiencing the outcome of a pandemic, academics strongly voiced the massive undertaking it took to redesign programs and navigate a new space of teaching, adding to the already overburdened workloads of academics. Marek et al. (2021) also reported that their participants, academics from Asia, North America and European countries, "experienced considerable higher workload and stress" (p. 104) in converting their face-to-face classes to online. Additionally, Adedoyin and Soykan

(2020) reflected on instructors' heavy workload in the rapid shift into remote delivery. These findings are not surprising given the rapid nature of the shift, the subsequent planning involved, and upskilling due to new platforms and tools. However, it is vital to spotlight this because increased workload can head towards burnout, which can have detrimental effects on performance and wellbeing (Sabagh et al., 2018). Although not traditionally considered in the context of education, the broader perspective of the pandemic, including social isolation and rapid speed of change, renders consideration of academic mental health and wellbeing. Given academics were experiencing a seismic societal shift due to the pandemic, while simultaneously redesigning and teaching new programs, it is crucial to consider the underlying situational, mental health and wellbeing impacts on these individuals. Wellbeing challenges originating from the rapid local and global changes to individuals and communities, were broad and complex, and resulted in end-users experiencing anxiety, disconnection and increased workloads.

Affordances of Personal Gains

Despite the student participants voicing negative aspects of their online learning experience, most expressed the positives of the model, which provided them with flexibility. As a result, many students disclosed that they preferred the remote learning mode. The online learning environment was accommodating in that, depending on the different approaches, time, and place, provided flexibility and access (Ally, 2004; Fuller & Yu, 2014; Redmond, 2011). In the instance of this research, time commitments were consistent with the face-to-face tutorial practices as the synchronous video conference tutorials were conducted in the regular timetabling. However, the change of place provided students with convenience through not having to allocate time to travel and organise additional family commitments. Students also valued the ability to work (those who were essential workers) and simultaneously study online (Duncan, 2005). Additionally, the students also valued the opportunity to continue to study through the pandemic. They valued focusing on something other than the pandemic, although some noted this was sometimes difficult to do.

Chapter Summary

This chapter has presented the data collected from the semi-structured empathy interviews and applicable analyses aligning with the first stage of design thinking. The outcomes of the interviews for each end-user group has been detailed in terms of the themes presented as Insight Statements. Analyses revealed that students valued the

flexibility and support from the academics and university during a time that presented them with significant stress. Both teachers and academics experienced tension between their usual pedagogical practices and the limited social cues available to them in the online environment. It appears that students do not necessarily know how to collaborate, which has been magnified in the online environment.

Based on these empathy interview findings, another fit-for-purpose assessment framework was created for an online environment in an Ideation workshop. The next chapter presents the method and findings from this Ideation workshop. A discussion of end-user feedback on the design during the prototype stage is also provided with the presentation of the final prototype.

Chapter 8: Post-Covid (Phase Two) Assessment Design: Ideation and Prototype Findings and Discussion

“The best way to have a good idea is to have a lot of ideas.”

– Linus Pauling (Dual Nobel Prize winner, Chemist)

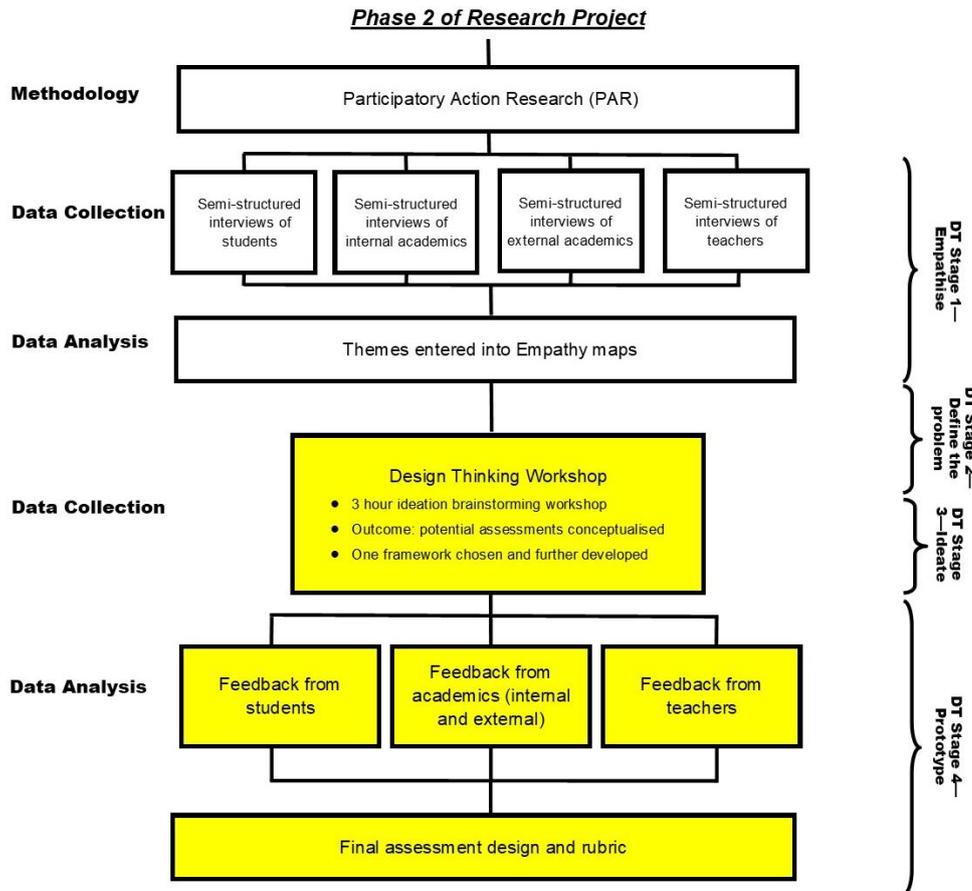
Introduction

Once more, the hands-on, lively ideation stage of design thinking is revisited in this chapter but in the post-Covid-19 context. It can be recalled from the ideation outline in [Chapter 5](#) that the new and novel ideas of assessment in teacher education are explored in this stage, through individual and collective brainstorming to ideate various assessment solutions to the complex problems. With many to choose from, one solution is picked for its impact, relevance, and ease of development and implementation during the prototype phase of design thinking. In the previous chapter, empathy interviews revealed new opportunities and challenges presented to end-users during the digitally supported remote delivery executed during Covid-19 social distancing restrictions. Therefore, another ideation workshop was undertaken in these new conditions to develop a fit-for-purpose assessment framework prototype for a digitally supported remote delivery in Phase Two of this research.

This chapter displays a similar structure to the Phase One Ideation and Prototype Chapter 5, with the procedures and outcomes of research activities in Stage 3 (ideate) and Stage 4 (prototype) of design thinking briefly outlined. The differentiating element that this chapter explores is the remote delivery position of teacher education due to Covid-19 restrictions of social distancing. To show these points in the overall research design, they are highlighted in Figure 12 below.

Figure 12

Phase Two: Ideation and Prototype Data Collection and Analysis



The following sections will outline the ideation and prototype stages adopted in Phase Two of this research. Firstly, the sample and method used in the ideation stage will be explained. Then, the findings from the Ideation workshop will be presented, followed by a discussion of the outcomes. Strengths of the workshop will be discussed, including an evaluation of the effectiveness of the remote delivery workshop. Following this, the assessment framework prototype is presented with an explanation of the iterative feedback processes, including the sample selection and method approaches. Finally, the feedback from end-users will be presented in the findings, followed by a discussion aligned to literature. As can be recalled in the pre-Covid-19 Ideation and Prototype Chapter (see [Chapter 5](#)), these design thinking processes aligned with participatory action research structures are guided by and incorporate participants' ideas and feedback in the development of this remote delivery fit-for-purpose assessment framework prototype.

Ideation Workshop

To keep as close to the original Phase One Ideation workshop as possible (see [Chapter 5](#)), the same approaches were adopted in Phase Two of this research. The workshop included two parts:

- 1) a presentation of the overall empathy findings, and then
- 2) individual and collaborative creation of possible solutions to the assessment problems faced by end-users during the digitally supported remote delivery (as presented in [Chapter 7](#) empathy interview findings).

Due to social restrictions, the Ideation workshop was unable to be conducted face-to-face. Consequently, the delivery mediums were changed to the video conferencing platform, Zoom, whilst simultaneously using the collaborative online whiteboard application, Miro (www.miro.com).

Ideation Workshop Method

Aligning to Phase One approaches and using purposeful sampling, the same three academic participants were invited to participate with the research team in the Ideation workshop. Thereby making six people (five women and one man) participators in the workshop, suggested within the ideal focus group range (Kitzinger, 1995). It was considered that these individuals had combinations of complementary skills and teaching experience, and a range of roles in unit development and delivery. Additionally, as they had participated in the previous year, they would be familiar with the ideation processes. Participants were sent an invitation email to the workshop, which they could either accept or decline. Although all participants consented to participate at the time of invitation, one participant was unable to attend on the day of the workshop for personal reasons.

At the start of February before the beginning of Semester 1, 2021, participants gathered on the video conferencing platform. The workshop followed the same structure as in Phase One (see [Appendix J](#) for workshop activities agenda), which was based on the pre-existing framework of design thinking (Wolniak, 2017) and its intent of co-creation (Plattner et al., 2012). As the workshop was scheduled during a circuit breaker lockdown with quick implementation of social restrictions, the online whiteboard tool Miro was used to enable remote written collaboration. Participants were invited to the Miro template a week before the workshop to familiarise themselves with the application.

Problem Identification. The beginning of the workshop featured welcomes and a brief introduction of the workshop proceedings. Then, the overall goal was presented to participants: To produce an innovative *digitally supported remote delivered* assessment for teacher education that is engaging and provides a deeper approach to learning but does not increase academics' workload. The assessment user journey map (see [Appendix F](#)) that was presented in the previously attended ideation workshop in the previous year (see [Chapter 5](#)) was presented again to remind participants of the end-user entry and user points in the assessment process. This was followed by explaining each empathy map with each end-user group's needs and perspectives, and overall findings from the Phase Two empathy interviews (see [Chapter 7](#)), aiming for participants to understand and empathise with end-users assessment wants and needs (Tschimmel, 2012), in a digitally supported remote delivery environment. While listening to these outcomes, participants took virtual notes in the Miro application on the emerging problems in the form of 'How might we' (HMW) notes by following directions outlined by Knapp et al. (2016). Aligned with the pre-Covid-19 workshop, participants were instructed to place a small "HMW" at the top of a virtual post-it note and write down problems heard while listening to the empathy findings. Each time a new problem was identified, participants used another virtual post-it note to write a separate HMW. Then, these HMW notes were collaboratively categorised under theme headings by dragging the post-it notes close together and illustrating connections across themes using arrows (see Table 18, Figure 13, and discussion in the following section). One of these grouped themes was chosen to launch the next ideation brainstorm.

Ideation. During ideation, participants were reminded of the group rules of brainstorming to suspend judgement and focus on producing many ideas, aligning with the concept of a design sprint (Knapp et al., 2016) and design thinking recommendations (IDEO.org, 2015). Participants were given 6 minutes to brainstorm as many solutions as possible on their virtual post-it notes to the theme of 'Collaboration' in the form of "HMW build collaboration in the assessment". Based on the problem identification outcomes, under this overarching HMW fell four subcategories which participants were able to brainstorm solutions to:

How Might We:

- develop relationships to enable collaboration
- teach collaboration explicitly
- facilitate and monitor collaboration
- assess collaboration

After this time, participants categorised similar and connecting solutions together. One participant volunteered to share their solutions one at a time. After each, participants could jump in to share their solution by using the “yes, and…” technique to explain how it connected to the offered solution. This was repeated until all solutions were categorised and a final classification was made by labelling these categories with headings. One of these grouped categories was chosen to individually sketch what it could look like in practice. Participants were given eight minutes to illustrate their best ideas of how the chosen solution could be implemented in practice. The ideation workshop activities agenda outlining the procedure of Phase Two is offered in [Appendix J](#).

At the completion of the workshop, all participants completed a brief anonymous online qualitative survey ([Appendix K](#)) that reflected on the workshop process and outcomes.

Ideation Workshop Findings

The problem identification findings completed by participants while listening to the empathy map findings are presented in Table 18. These were grouped into categories while each participant shared their HMW statement. Table 18 presents these HMW statements classified under each theme heading.

Table 18

Phase Two: Participants' Problem Identification Statements (HMW) Classified into Themes During the Ideation Workshop

Grouped themes	'How Might We...' participant responses
Collaboration	<ul style="list-style-type: none"> • Capture the collaboration discourse that occurs in the breakout rooms without the teacher presence • Use the language of collaboration in the assessment instructions • Teach collaboration in the assessment • Get students to connect to each other • Capture the collaboration discourse • Teach explicit collaboration skills for face-to-face and remote learning • Get students to feel comfortable on the online space • Build connections in the assessment • Build in explicit teaching of collaboration skills for remote t&l (teaching and learning) • Have a teacher presence across all breakout rooms • Motivate students to engage in breakout rooms without teachers 'present' • Incorporate peripheral scanning of breakout rooms • Adopt a team approach to teaching/assessing
Assessment	<ul style="list-style-type: none"> • Change to have built in audio feedback • Provide more emphasis on the formative assessment angle • Make assessment feedback feel more 'human' • Enhance constructive, personalised, supportive feedback • Have students self-assess their own skills and receive feedback from the students about what would be most useful as they build on these skills from unit to unit • Feature formative assessment
Shared understandings	<ul style="list-style-type: none"> • Enable valued peer feedback – i.e. Build capabilities and regard for peer feedback • Improve feedback online that is supportive • Change the view of feedback as evaluative judgement • Understand new ways of what engagement means in remote learning • Seek other ways to encourage students to seek clarity • Create different interactions online that promote inquiry • Begin the unit with building expectations a focus on collaboration • Ensure clarity of what formative assessment is in our work and work of teachers so there is a shared understanding • Develop new pedagogic approaches for online ecologies
Absence of placement	<ul style="list-style-type: none"> • Help PSTs see the direct link between building their collaborative skills and teacher professional practice? • Replace aspects of placement
Planning	<ul style="list-style-type: none"> • Make time and space for cognitive load and collaborative skill development

Table 18 (Continued)

Grouped themes	'How Might We...' participant responses
Relationships	<ul style="list-style-type: none">• Make spaces for relationships to develop in our online classrooms• Build stronger relationships which build rapport – is this a pedagogic issue of our activities• Facilitate/teach online collaboration directly• Develop relationships and rapport between tutor and student• Facilitate informal connections and friendships for students• Help students get to know each other informally
Question asking	<ul style="list-style-type: none">• Stop students emailing teachers• Encourage students to ask questions in class• Make students more comfortable in asking questions• Respond to student questions in a more public setting for collaborative learning• Encourage students to ask each other questions informally• Make asking questions less awkward• Reduce social anxiety associated with video conferencing and asking questions• Provide ways for informal sharing about the assessments? Including removal of the 'surveillance' or 'on show' feelings• Do feedback in a more broadcast way – groups, batches, less individual responses – to ensure timely for all

Figure 13 below is a screen shot of the Miro application to illustrate how these HMW statements (yellow notes) were grouped together with theme headings (blue notes). Arrows were made by participants as they shared their responses, to show interconnections across some themes and responses.

While there were many different intriguing and stimulating HMW responses, there was overwhelming participant support in favour of focusing on the ‘Collaboration’ theme. Participants felt that it was a reoccurring theme across all end-users’ needs and perspectives that emerged from the empathy maps, and one which was compelling in their own experiences. Therefore, the overall collaboration theme was articulated as ‘How might we build collaboration in the assessment’ to ideate possible solutions. Participants decided four subcategories were important to include as important foci to address online collaboration, in addition to appealing to wide applications in practice. Table 19 below presents participants’ brainstormed ideated solutions to the overarching ‘HMW build collaboration in the assessment’, classified by the workshop participants under each HMW subcategory.

Table 19

Phase Two: Participants’ Brainstormed Solutions Within Theme Classifications

Grouped theme	Ideation solution brainstorm responses
HMW develop relationships to enable collaboration	<ul style="list-style-type: none"> • Embodied learning risk taking at low value entry point collaborations in practice are not always assessed. • Need more resources of what is available online • Activities in class can be designed by some students for collaborative development • Develop group goals • TRUST • Build trust • Develop more of a ‘team’ culture • Vulnerability • Use protocols to develop shared norms • Sharing • Same classes/pod groups • Encourage offline clubs/meetings/chat • Icebreakers • Build expectations in group – proforma with roles • ‘myspace’ profile/ collage of me • My life story task → others read/watch • Normalising using the chat • Embed collaborative tasks across units to ensure development over time • ‘Silly’ tasks in the first few classes that require collaboration like film a collaborative tiktok or something

Table 19 (Continued)

Grouped theme	Ideation solution brainstorm responses
HMW teach collaboration explicitly	<ul style="list-style-type: none"> • Activities prior to this assessment need to be built in • Use teacher team collaborative texts and look at how these skills and ideas transfer to their own learning and working in the online space • Teach skills explicitly • Make direct links to department initiatives such as plcs • Maybe build scaffolded skill set development into the first two sessions of the program and the workshop • Need a shared understanding between academics, students and workshop teachers regarding what this looks like • How to ask questions • Watch a video of people collaborating and assess • Use videos/visual examples of what effective online collaboration looks like and doesn't look like • Learning intentions included • Include student reflexivity • Allow for practice of these skills • Teach: <ul style="list-style-type: none"> - Video case study analysis - HS [High School] teacher narratives - Regular 'communities' progress and activity report back – v[ery] targeted focus e.g., what is working • DEVELOP – NO! More teach <ul style="list-style-type: none"> - Shared understanding of collaboration through thinking tool e.g., Y chart - Discovery board keep adding to - Set up communities of practice • Use team roles. Have one of the roles as a critical friend for peer feedback • Cooperative learning group with roles
HMW facilitate and monitor collaboration	<ul style="list-style-type: none"> • Explicit key learning progressions built into the assessment task delivery • Workshop teachers and academics need training in this • Use miro! • Google doc • Ask zoom for more 'reaction' options • Green light, red light indicators • Use signals for or cues • Receive peer feedback about collaboration • Peer and self-monitor – check in mid points • Peer + self-assessment combined • Peer assessment – how well did your peer collaborate • Check points • Determine prior relations and new relationships and consider this when grouping students • Monitor: <ul style="list-style-type: none"> - Peer collaboration for feedback - Self-assessment • Ask zoom to have a feature that allows host to view all rooms • Signalling for teacher to come into the breakout room

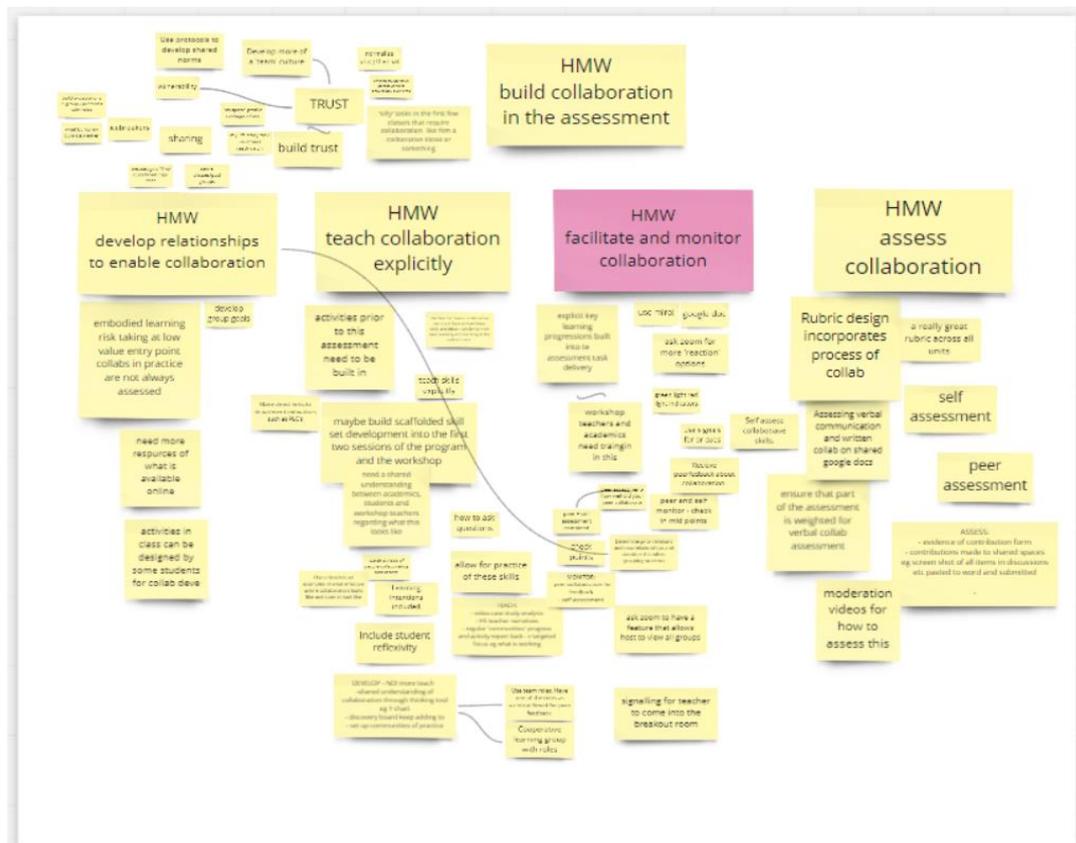
Table 19 (Continued)

Grouped theme	Ideation solution brainstorm responses
HMW assess collaboration	<ul style="list-style-type: none"> • Rubric design incorporates process of collaboration • A really great rubric across all units • Self-assessment • Self-assess collaborative skills • Assessing verbal communication and written collaboration on shared google docs • Peer assessment • Ensure that part of the assessment is weighted for verbal collab assessment • ASSESS: <ul style="list-style-type: none"> - Evidence of contribution form - Contributions made to shared spaces e.g., screen shot of all items in discussions etc pasted to word and submitted • Moderation videos for how to assess this

Figure 14 below is a screen shot of participants’ brainstormed solutions, classified into these subcategories. The online whiteboard platform allowed a visual representation of the interconnected nature of the themes and categorised notes, by allowing arrows to show these connections. The pink coloured HMW, shown in Figure 14, was chosen as a focus to sketch possible solutions to “HMW facilitate and monitor collaboration”.

Figure 14

Phase Two: Illustration of Participants’ Brainstormed Solutions in the ‘Miro’ Application



There was a strong consensus amongst participants that effort and time needed to be put into developing relationships early in the collaboration process. Participants noted the importance of relationships and group cohesion in influencing how groups work together, thereby impacting the effectiveness of collaboration. Participants tended to draw upon notions of trust between group members as important in building a culture of effective collaboration. Suggestions of building expectations and a proforma with group roles were ideated by participants to influence this notion and importance of relationships. Additionally, there were some novel ideas for connecting group members together to assist in getting to know each other personally and professionally, including creating a “‘Myspace’ profile/ collage of me” and “my life story task [for] others [to] read/watch”. These suggestions emphasise activities that encourage vulnerability in sharing information about oneself, which would expectantly promote understanding of others in the group and potential relationship development within these groups. In many of the grouped themes, participants tended to refer to this importance of shared understanding with common goals and embedded trust among group members.

Participants’ solutions to the subtheme of ‘teaching collaboration explicitly’ tended to focus on the activities undertaken in class as a scaffolding of understanding that leads towards demonstration of understandings, such as in a collaborative assessment. There was an emphasis on academics explicitly teaching these necessary collaborative skills, and for students to subsequently practice these acquired skills in tutorials. These class learning activities were suggested to scaffold understanding and skills of collaboration to allow the student to demonstrate these in assessment. Ideally, this teaching for knowledge transfer would then allow students to demonstrate these skills as graduate teachers.

A common view among participant responses was the importance of peer and self-assessment to facilitate, monitor, and assess collaboration. Deliberate ‘check points’ that occur mid-way through the learning were suggested to monitor students learning. Providing these feedback points aims to deliver effectiveness measures to students (as well as academics) to encourage thriving collaboration. Other facilitating suggestions included using online programs, such as Miro and Google docs, for group members and academics to see collaboration documented in real-time. Additional teaching tools that may assist monitoring and facilitating collaboration included students using signals, including visual cues such as “green light, red light indicators”; a teaching tool used to target students’ understanding or readiness for a task.

There were some suggestions that collaboration could be incorporated into course design and embedded across units to provide students with multiple exposures of experience for development over time. This was suggested to be facilitated through points of collaborative learning in each unit assessed with a rubric designed to use across multiple units. However, there was a sense that some participants felt that this might be difficult in practice due to institutional cultures and regulatory constraints.

After tentative discussions, participants chose to focus on the 'HMW facilitate and monitor collaboration' theme to sketch what they thought it could look like in practice. This decision was based on the wide application of the theme and usual implementation challenges experienced by participants. Participants' ideated sketches that centre around facilitating and monitoring collaboration in practice are presented in [Appendix O](#). Two of the participants sketches (Participant 2 and 3) include learning progression points of collaboration development and associated monitoring. These suggestions focus on the sequential elements of learning that contribute to an understanding of effective collaboration as a learning outcome. These learning points are echoed in another participant's sketch (Participant 4) that outlines a scoping document that students could use to 'check in' and evaluate their learning within these learning progression points with clear connections to strategies and assessment. Participant 1 ideated practical elements of facilitating collaboration, including an "8-minute video that can be embedded across units/courses/universities" to provide context and attention to the foundational elements of effective collaboration. Overall, actionable solutions were constructed by all participants, and although they were in their infancy, they provided solid guidelines to follow to produce the prototype.

Participants' Feedback on Ideation Workshop. Before the workshop began, the research team had trepidations about the efficacy of the online environment for ideation compared to face-to-face. In the qualitative questionnaire completed after the workshop, one participant also reflected their initial apprehensions towards converting the workshop to a remote setting in the post-workshop qualitative survey:

"I was a bit nervous about how it would work and how well I could contribute in a remote format..."

As was found in the empathy interviews from Phase Two in [Chapter 7](#), collaboration and communication in the remote delivery environment can be challenging with the limited social information accessible to facilitators. Despite these difficulties and the initial apprehension of effectiveness, the remote online workshop successfully

facilitated collaboration to produce an outcome of ideated solutions. The workshop was advantageous when social restrictions halted groups of people ideating in close contact within the same room. The video conferencing platform, Zoom, allowed collaboration through verbal discussions between participants. Additionally, the online whiteboard tool, Miro, allowed participants to document their thoughts into written virtual post-it notes and move them around to be sorted in a similar visual and tactile way as conducted in a face-to-face Ideation workshop setting.

Despite the opportunities provided by the online mediums, there were challenges experienced during the workshop. There were additional distractions that were not present in the face-to-face setting of Phase One. Participants were in a circuit breaker lockdown, quickly implemented by the Victorian Government in response to unexpected Covid-19 outbreaks. This meant that workshop attendees who had children were simultaneously juggling them home from school or childcare, whilst participating in the workshop. Additionally, there were additional freedoms and distractions afforded by being at home. Attendees were able to move around homes and complete other tasks simultaneously, which added additional distractions that are not ideal in the creative process. In an Ideation workshop, it is recommended that attendees have full attention and remove other possible distractions (Knapp et al., 2016). However, despite these additional distractions, there was effective collaboration and communication during the workshop, and actionable solutions were ideated.

Whilst the online platform, Miro, provided a space for collaborative documentation, it was also another tool that required skills to be learned by the participants. Although the access to the application was sent before the workshop, with a short tutorial on how to navigate and use the space, participants were busy, and many did not have time to explore prior. Despite this, participants quickly picked up the skills necessary to navigate and use the online platform and enjoyed using the application. Two participants reflected:

“Melissah did such an amazing job of setting everything up to make the workshop run smoothly. I loved the experience of using Miro once we all got used to it!”

“I’ve learned some new skills with online Miro.”

When asked about the value of the workshop, participants valued the opportunity to collaborate and reflect on their own teaching and assessing practice:

“It was very valuable to spend time collaborating on analysis and solutions-finding about remote teaching and learning. There were also specific ideas in the workshop that I will use in my own practice.”

“I think it makes us, in general, re-evaluate why and how we assess what we do. We do this type of approach where the feedback is ongoing then surely it reduces the need for that heavy, you know, laboursome type of assessment and reporting that we’re used to doing.”

Another participant appreciated the opportunity to think broadly and deeply into the global concerns of the pandemic:

“[I have valued] trying to solve problems that are existing across the world due to a global shift to remote learning.”

The video conferencing platform coupled with the use of the online whiteboarding application afforded the opportunity to be able to continue planning despite social restrictions. One participant shared that they valued *“the opportunity to talk about practice and ideate and seek what is possible.”* While difficult to compare outcomes of the two settings and speculate to whether there would be difference in output of ideations had this workshop been conducted face-to-face, one could consider the remote workshop successful in addressing a need for ideation in a time of social distancing restrictions. Perhaps the decision to utilise either face-to-face or online mediums comes down to the ease of meeting in one physical space and the accessibility or preference of attendees.

At the completion of the workshop, there were some concerns regarding the systemic constraints of implementing the ideated solutions. For example, some valuable solutions suggested changing features of the video conferencing platform to improve feedback cues and monitoring breakout collaborations. Other solutions suggested adapting unit and course approaches to allow for interconnections between their assessments and learning outcomes. It can be recalled in the Phase Two empathy findings in [Chapter 7](#), that both internal and external academics also proposed that this interlacing planning approach was a need in a potential teaching, learning and assessment reform. While these suggestions are certainly constructive and appealing, their implementation in practice may be difficult within current institutional cultures. One workshop participant voiced similar concerns:

“I have concerns about how to realistically implement some of the ideas for the unit. Plus, the need for a whole course/College adoption of some strategies to be really effective - but ambitious aim!”

The ideation workshop provided these busy academic participants with allocated time for rich planning discussions. As found in Phase Two empathy findings in [Chapter 7](#), these allocated moments for planning discussions are often neglected due to workload and other constraints. One workshop participant wished that this could be a part of the culture of planning:

“I wish we could do this in January and mid-year every year as part of our planning.”

The workshop allowed for structured discussion and creative application, for time to be spent more wisely, and all individuals to be heard. As offered by domestic student, Tanah, in [Chapter 7](#), one does not need to be “aggressive and loud” to be heard in the remote delivery environment, as all individuals are represented in the workshop discussions and ideation processes.

Ideation Workshop Discussion

There was a strong presence of the notion of building trust in the collaboration process in the ideated solutions and subsequent discussions between workshop participants. This is not surprising given the importance of trust in collaboration (Tschannen-Moran, 2011) and PLC teams (Hallam et al., 2015). Tschannen-Moran (2011) suggests that benevolence, honesty, openness, reliability, and competence can influence trust in collaboration; however, she also notes that developing trust can take time. In the context of PLC teams, Hallan et al. (2015) suggest that being “kind and patient with other team members and reliable in fulfilling responsibilities build trust and eventually lead to increased collaboration” (p.211). These trust-building factors were also noted as important to participants in this research, as demonstrated by responses connected to the importance of these in building relationships in collaborative groups.

Workshop participants noted the importance of developing a ‘team’ culture through shared norms and protocols. Barkley et al. (2014) suggest applications for establishing group ground rules and recommends setting them early in the collaboration process by establishing accountability and bringing awareness to individuals set an agreement for productive collaboration. Barkley et al. (2014) indicate that individual responsibility could be advocated by encouraging “interdependence for group members to work

together and success is dependent on the group as a whole and not individual students" (p. 56). Furthermore, building group expectations focusing on collaboration can be done with a proforma of group roles, which can be adapted for online environments (Barkley et al., 2014). Therefore, it is not surprising that participants in this research noted the importance of consistent understanding and agreement of group roles for harmonious and productive collaboration.

Participants in this research noted the need to explicitly teach collaboration skills so as not to assume students know how to collaborate. Subset to these skills, participants recognised the significance of teaching group roles and individual accountability approaches. Participants suggested various modelling practices, including watching videos of 'good' and 'not-so-good' collaboration. Other research has also indicated that explicit modelling should be incorporated to draw attention to specific teaching strategies in teacher education (Boyd, 2014; Loughran & Berry, 2005). Increased scaffolding may overcome the challenge of the physical distance between students during collaboration (Robinson et al., 2017)

Workshop participants connected the essential elements of collaborative assessment to the role of the self (as in with self-assessment), and the role of the other group members (as in with peer-assessment); and how these aspects of reflexive practice might be monitored over time. These 'check-in' points were suggested by participants to provide feedback modes for students to identify learning gaps to subsequently build upon, ideally in a cyclical model for reflexive revisions. Literature supports self-assessment as important in identifying one's strengths and limitations (Duque Micán & Cuesta Medina, 2017) and improving self-regulation (Panadero & Alonso-Tapia, 2013). Likewise, peer assessment has been demonstrated to enhance active learning (Chew et al., 2016) and motivation (Planas Lladó et al., 2014). However, student perceptions of fairness of these assessment measures are noteworthy. Not surprisingly, research suggests that social loafing impacts students' attitudes of peer assessment fairness (Tucker & Abbasi, 2015). Additionally, students value peer assessment and feedback when their peers have the capacity for fair and valid evaluations (Kaufman & Schunn, 2011; Struyven et al., 2003), which was also confirmed by student perspectives in Phase One empathy interviews in [Chapter 4](#). To increase accuracy and consistency of evaluation, research by Sridharan et al. (2019) suggest that peer and self-assessment should not contribute to the final score. Alternatively, if these scores are essential in the final score, Salas et al. (2017) advise that assessment of the team's performance should not be from one summative result, but instead be triangulated over multiple

tasks. Other research proposed that students appreciate evaluating anonymously (Sridharan et al., 2018), and that this anonymity potentially provides more critical feedback (Panadero & Alqassab, 2019). Most importantly, participants in this study suggested the collaborative skills should be embedded into learning outcomes and subsequent rubric, within or across units to enhance engagement and emphasise the importance of its inclusion and place within teacher skillsets.

Examining the ideated sketches of participants (see [Appendix Q](#)), the ideas centred around the concepts discussed above of coupling learning outcomes and learning progressions to an assessment of collaboration. Learning progressions are a sequence of building blocks that indicate the learning pathway and progressions required to achieve a learning outcome (Shepard, 2018). Additionally, self and peer assessment strategies featured heavily in participants' ideated sketches, which is indicated in the literature to allow for students to develop in their reflective (Glasswell & Ryan, 2017) and reflexive practices (Feucht et al., 2017), and evaluative judgements (Tai et al., 2018). The need to explicitly teach and model effective collaborative strategies was also common, connected to the authenticity of these skills in the teaching profession.

Prototype Development

As can be recalled from the Prototype outline in [Chapter 5](#), the central aim of prototype development in Stage 4 of design thinking is to visually represent a palpable design. The prototype in this first form, often termed the Minimal Viable Product (MVP), aims to design through fast and efficient ways to achieve a product to be able to validate with end-users early, without expending vast amounts of time and effort in the initial prototype development stage (Ries, 2011). The research team developed the assessment MVP based on outcomes from the Ideation workshop. Subsequent appraisal and end-user feedback were sought to determine the MVP's feasibility and further improvements made based on feedback and suggestions from end-users before future implementation.

Minimal Viable Product

The MVP was based on the challenges of aspects of collaboration being more difficult in a remote environment. It was considered that students did not necessarily know how to collaborate nor how to collaborate in a remote setting. As the theme of effective collaboration in the remote delivery environment was purposeful and applicable to both units, for which this research was based, only one prototype was developed. The MVP

(see Figure 15 below and [Appendix P](#)) presents two elements. Firstly, a framework with recommendations is offered to embed collaboration into teaching, learning and assessment. Secondly, a task that could be either coupled with an additional collaborative assessment framework or task, such as what was designed in Phase One (see [Chapter 5](#), and [Appendix N](#) for final Phase One prototypes), or a stand-alone assessment. Although presented as an assessment framework to end-users in this research, it could also be used in an alternative way. For example, as an ongoing formative assessment tool where the outcomes of the cumulative list of learning progressions are used by an observer, watching the group collaborate, to be able to provide feedback to the group on the effectiveness of their collaboration.

The focus of the designed product is on synchronous collaborative learning due to the institution's context. As confirmed by the external academics in [Chapter 7](#), other institutions also adopted synchronous learning during 2020 and 2021. Synchronous collaboration also aligns with how schools collaborated during remote delivery. Conceivably, these recommendations could also apply to both a combination of synchronous and asynchronous, and hybrid learning environments.

Figure 15

Phase Two: MVP Presented as the First Prototype

Prototype Version 1

Building Collaboration into Assessment in Remote Delivery

<p style="text-align: center;">Develop relationships to enable collaboration</p> <p>Trust needs to be built:</p> <ul style="list-style-type: none"> ○ Factors influencing trust in collaboration include benevolence, honesty, openness, reliability, and competence, noting, however, that this can take time (Tschannen-Moran, 2004) ○ Individuals should be "kind and patient with other team members and reliable in fulfilling their responsibilities build trust and eventually lead to increased collaboration" in PLC teams (Hallan et al., 2015, p.211) <p>Use protocols to develop shared norms:</p> <ul style="list-style-type: none"> ○ Barkley et al. (2014) suggests applications for establishing group ground rules (p. 67) <p>Develop a "team" culture:</p> <ul style="list-style-type: none"> ○ Provide rationale behind the focus on collaboration. ○ Individuals made aware of accountability. ○ Barkley et al. (2014) suggested individual accountability can be advocated by "stimulate interdependence for group members to work together and success is dependent on the group as a whole and not individual students" (p. 56). <p>Build group expectations with a focus on collaboration: can be done with proforma with roles.</p> <p>Barkley et al. (2014) suggest how group roles may be adapted for online environments, especially for asynchronous collaborations (p89).</p>	<p style="text-align: center;">Teach collaboration explicitly</p> <p>Explicitly teach group goals and individual accountability</p> <p>PSTs need to see a direct link between the skills they need to develop and their own teacher development practice.</p> <p>Learning progressions taught explicitly, either determined by the teacher or student-led development.</p> <p>Include a variety of collaboration skills, both verbal and written.</p> <p>Demonstrate and model good and not-so-good collaboration.</p> <p>Provide explicit modelling to draw attention to specific teaching strategies (Boyd, 2014; Loughran & Berry, 2005), with increased scaffolding to overcome the challenge of the physical distance between students during collaboration (Robinson et al., 2017)</p> <p>Provide skills training for new technology platforms (Barkley et al., 2014).</p> <p>Critical thinking and reflection through the use of questions:</p> <p>How do we question each other? What are the different types of questions we ask, and how do we use that to stretch ourselves?</p>
<p style="text-align: center;">Facilitate and monitor collaboration</p> <p>Stimulate interdependence for group members to work together where success is dependent on the group as a whole and not individual students (Barkley et al., 2014)</p> <p>Build-in self-assessment</p> <ul style="list-style-type: none"> ○ as a mode of feedback ○ for students to identify what their learning gaps are to build in reflexivity. ○ that is cyclic to be able to come back and revise these. <p>Academic to present "authentic and real-world problems and projects that demonstrate their relevance" (Robinson, 2017, p.38)</p> <p>Allow for a combination of asynchronous and synchronous learning opportunities: asynchronous for spontaneous discussions and synchronous for further and potentially deeper cognitive reflections (Yamagata-Lynch, 2014)</p>	<p style="text-align: center;">Assess collaboration</p> <p>Formative or summative assessment of collaborative skills</p> <p>Self and peer assessment:</p> <ul style="list-style-type: none"> ○ not contributing to the final score as to increase accuracy and consistency of evaluation (Sridharan et al., 2019), or ○ contributing to a small proportion of the final score where students are aware if their contributions will be evaluated. <p>Collaborative skills embedded into learning outcomes and subsequent rubric.</p> <p>Individual or group evaluative assessment dependent on the task/s and whether individual contributions can be isolated:</p> <ul style="list-style-type: none"> ○ It is best if the assessment of the team's performance is triangulated (Salas et al., 2017) <p>An example of a collaborative assessment is presented as the MVP below.</p>

Task Title: Collaboration in PLCs

Overview:

The purpose of this task is to build upon your theoretical knowledge of skills, attributes, and processes of effective collaboration in Professional Learning Communities (PLCs).

Additionally, this task allows you to practice breaking down proficiency scales into smaller progressions in a purposeful way connected to how you will be required to do when planning and assessing your students.

Details:

This task could be coupled with a task focused on collaboration or stand alone. As a group, you will plan for effective collaboration to improve outcomes.

Instructions:

1. Determine the Learning Outcome (teacher or student chosen).
2. In your group, develop a sequential list of learning progression (LP) points to achieve the Learning Outcome through effective collaboration in your PLC.
3. Decide on how you will facilitate and monitor your LP points. For example, when and how will you check your progress? How will this inform your progress? Will you include self/peer assessment?
4. Develop a reflexive professional development plan (based on "Guided Teacher Self-Reflection Activities," DET, 2018) to assess and plan for improvement in collaboration:
 - record your strengths with an assessment of where you are now,
 - opportunities for improvement and specific professional development goals,
 - evidence that will be gathered to inform if you have accomplished your goals,
 - measure your performance,
 - reflect on your progress and next steps that need to take place

Assessment Criteria:

Your submission will be assessed on:

1. Analysis of LPs to achieve effective collaboration.
2. Analysis and assessment of facilitation/monitoring of collaboration
3. Reflexive professional development plan
4. Post-self reflection

Prototype Development Method

Adopting PAR cyclical points of reflection (Stringer, 2014), the prototype development method in this research sought end-user feedback on each assessment framework prototype design. Following the same iteration process as incorporated in Phase One of this research ([Chapter 5](#)), feedback on the prototype was sought from participants from the initial empathy interviews in Phase Two (see [Chapter 7](#) for a description of these participants). Participants were emailed individually and sequentially to invite them to discuss the prototype design via an informal open interview on a video conference platform. After participation acceptance, the latest prototype was sent to allow participants to view it before the interview. The participant who held the role of the unit convenor was contacted first to ascertain if appropriate to be operationalised in practice. After this initial feedback interview, feedback was managed so a range of end-users provided feedback on the design in succession according to the response time to the email invitation. Four academics (two internal; two external), two students and three teachers accepted the invitation to give feedback on the design.

In each interview, participants were asked what they liked about the assessment framework prototype, any foreseeable issues, and suggested changes if applicable. Notes were taken by the researcher, who later edited the assessment framework prototype based on feedback provided by the participant. Following cyclical iterations, each time a participant suggested an improvement it was entered into the assessment framework prototype. After the ninth participant accepted the invitation, no other participants returned an email to provide feedback. Furthermore, it was considered that data saturation was also reached as participants were not identifying significantly new structural improvements that could be implemented into the design. Therefore, the eighth assessment framework prototype was accepted as ready for testing.

Prototype Development Findings

Table 20 below presents the feedback from participants and associated changes made to the assessment design prototype in each version of iteration.

Table 20

Phase Two: Prototype Version with Associated Changes Based on End-user Feedback

Prototype version	End-user group	Feedback given
1 (MVP – see Appendix P)	Academic - Isabella (Unit Convenor)	<p>Participant liked:</p> <ul style="list-style-type: none"> - Allows PSTs to understand and practice looking for points of learning, which could be applied to curriculum points. This allows PSTs to look at learning outcomes in a different way. - Collaboration as a learning outcome <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Clarity in some sections - Where is the transformational pedagogy connected to how learning progression's function? - PSTs do not understand curriculum and therefore find it difficult to plan for purpose. <p>Improvements:</p> <ul style="list-style-type: none"> - How are PSTs going to find evidence of learning as a formative experience as planned for and not planned for experiences and learning? - Done as a paired peer collaboration to form stronger new relationships and collaboration skills which they can filter out into other collaborative groups that they work with.
2	PST - Seann	<p>Participant liked:</p> <ul style="list-style-type: none"> - Working in pairs is "more straightforward" because there are "less moving parts". - The explicit modelling of teaching skills and collaborating remotely, which they consider is important. - Working through progression points <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - What happens when you are paired with someone who has different teaching philosophies to you? - What happens if the pair does not contribute, and the collaboration is not effective? <p>Improvements:</p> <ul style="list-style-type: none"> - Examples of the progression points to have an idea to model from.
3	High school teacher - Erin	<p>Participant liked:</p> <ul style="list-style-type: none"> - The recommendations. They could be picked up and included in planning with lens on how students will collaborate. - The recommendations are usable, "short, sharp and clear". - 'Relationship' part clear. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - The MVP is harder to follow, but participant was unable to articulate why. - The teacher is required to "do more work" to work out what the task looks like in practice. <p>Improvements:</p> <ul style="list-style-type: none"> - Include a proforma in the mvp to follow (include 2,3,4 with a brainstorm). This reduces the cognitive load of the teaching staff. - Step 5 could be scaffolded further for pst to link back to proficiencies.

Table 20 (Continued)

Prototype version	End-user group	Feedback given
<p>4</p> <p>Changes made:</p> <ul style="list-style-type: none"> - Proforma developed with scaffolding 	<p>High school teacher – Melinda</p>	<p>Participant liked:</p> <ul style="list-style-type: none"> - The transferability of the task. The task can be used in multiple times in different ways. - The framework to be able to refer back to on an ongoing basis - The recommendations and task reflect practice. - Determining the learning outcome as the first step is so important and often forgotten about. Bringing the PST back to the question of “What are we trying to achieve?” - This task would help with students writing their own Learning Intentions and Success Criteria in practice. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Learning progressions are a “tricky thing to do”. What would students draw upon to be able to do this task? Step 2 and 3 in the proforma would be a “lengthy part that needs unpacking”. “What do you go to for support?” - The conversation of building the skills to collaborate would be “amazing”. How could they be supported to have that conversation? How could the academic monitor the conversation? <p>Improvements:</p> <ul style="list-style-type: none"> - Psts could connect to HTS and DET policy to assist in developing learning progression points. - Literature as a direction for psts to “check in” with how to unpack Learning progressions - The task could be done a variety of ways. One suggestion of set it up with observers who watch the conversation and use a checklist as a feedback tool.
<p>5</p> <p>Changes made:</p> <ul style="list-style-type: none"> - LP support material - Additional scaffolding questions in the task - Suggestion of variety of ways to conduct task 	<p>PST - Mike</p>	<p>Participant liked:</p> <ul style="list-style-type: none"> - The focus on collaboration “is a good thing”, especially in the digital space. Collaboration in the breakout rooms is “insanely difficult” as many people have their cameras off. - The PST’s only experience with group assessments is that individuals just split up tasks to complete separately and then come together to submit. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - How do you facilitate “meaningful collaboration”? This seems like a “next to impossible” task. - The peer reflections tend to only be surface reflections and often the group members agree with what is being said. There is no challenging of views. <p>Improvements:</p> <ul style="list-style-type: none"> - The PST liked the peer as an observer giving feedback on peers about what they see or don’t see. If this task was embedded across a unit (or sets of units), the overarching procedure of observation and providing feedback could encourage rich feedback and discussion points.
<p>6</p> <p>Changes made:</p> <ul style="list-style-type: none"> - Inclusion of alternative use of the MVP with the peer observer providing feedback to collaborative group 	<p>Academic - Stefan</p>	<p>Participant liked:</p> <ul style="list-style-type: none"> - The conversation of what is needed to make change. <p>Foreseeable issues:</p> <ul style="list-style-type: none"> - Assessing individually is not assessing the collaboration. - Assessing the task - Collaboration is hard, but it should be that way. Sometimes different people are difficult to collaborate with, but they also provide different perspectives <p>Improvements:</p> <ul style="list-style-type: none"> - No explicit improvements suggested. However, the participant would like the institutional shift of assessment away from an environment that doesn’t support change.

Table 20 (Continued)

Prototype version	End-user group	Feedback given
7 Changes made: - Removal of individual post reflection as the only form of evaluation - Edits to include more of a focus of the task embedded unit and course wide.	High school teacher – Mary	Participant liked: - The task mirrors what happens in schools - The recommendations are clear, and Mary likes that it is connected to literature - Teachers in schools seek answers themselves similar to the way the task provides - Multiple exposures are good - The conversations could be really organic - The PST observer could be really effective in watching and providing rich feedback - There is “rigor in the task” and it could be a real “benefit” to the psts in training them for “professional conversations” - Pair makes the psts more accountable Foreseeable issues: - Psts may have difficulties creating LP - Psts may not be able to do this well Improvements: - Provide an example of learning progressions to assist with quality and difficulty - Find/create resource that models a rich collaborative discussion
7	External Academic - Spencer	Participant liked: - Unpacking a learning outcome as the task. Students find it difficult to unpack learning outcomes and understanding the difference between learning outcomes and learning progressions. Additionally, students often don’t know what a learning progression is or how to identify one. - Steps 3 and 4 are useful steps and are in a logical sequence. - Unpacking collaboration. Participant reflected on students finding it difficult to collaborate, therefore making the task relevant and applicable. Foreseeable issues: - Wonders if step 5 comes too late - Potentially too many steps, especially for those who have not “bought in” to the task Suggested improvements: - Coupling step 5 with 3-4 to allow reflexive development
7	External Academic – Samantha	Participant liked: - The task is “doable and achievable” - It is an example of having “fresh eyes” in “current contexts”, as collaboration is not new, but we need to have another approach. The activity is not re-inventing the wheel but includes a change of focus - The observation elements - The ‘can do’ attitude Foreseeable issues: - Challenges may not be known until implemented - Will the students see the value in the activity? - Participant liked including “trust” element, however discussed how difficult it is to build trust. How do you get students willing to share and put themselves out there? “Trust is the trickiest thing, but not impossible”. Suggested improvements: - Change the arrow to comfort zone → stretch zone

Table 20 (Continued)

Prototype version	End-user group	Feedback given
8 (see Appendix Q)		
Changes made:		
<ul style="list-style-type: none"> - Change the arrow to include comfort zone → stretch zone - Step 5 moved to step 4 		

There was a general consensus from all end-user groups that the prototype would be valuable in allowing students (pre-service teachers) to understand the practice of looking for points of learning within their own practice. This suggests that pre-service teachers may align their internalised learning with classroom applications as they look for points of learning in their own students in the future. Some participants proposed this transfer of skill and knowledge would be beneficial in affording multiple opportunities for pre-service teachers to unpack learning outcomes and identify learning progressions, which hints at improved professional skills in this area.

While many participants from all end-user groups valued the undertaking of unpacking progression points, several also indicated that this aspect connected to foreseeable implementation issues. Several teacher and academic participants suggested that, in practice, pre-service teachers find unpacking learning outcomes and learning progressions challenging to do, which would potentially be pain points for pre-service teachers. However, as shown in Table 20, student (pre-service teacher) participant Seann liked this component of the prototype task. He valued the opportunity to improve and practise this skill that was indeed considered difficult. These issues were acknowledged during the prototype design, and the fifth iteration was changed by creating a list of resources that pre-service teachers can use when the groups' thinking or planning becomes stuck.

Another promising prototype feature appreciated by participants was the focus on collaboration. All end-user groups considered it an essential skill in teacher education. Some participants valued this focus on collaboration as a starting point to address some of the complexities in practice. Internal academic Stefan suggested that collaboration was complex, which should not necessarily be seen as a negative feature. The difficult conversations that can occur, sometimes with difficult collaborators, allow different perspectives to be heard and consequential growth of the individual. As was seen in the empathy interviews in [Chapter 7](#), collaboration in the

digital space can provide challenges to individuals. Providing feedback on the design, student Mike praised the focus on collaboration because collaboration is “*insanely difficult*” when individuals have their cameras off, providing no visual observation cues to other group members. Samantha (external academic) recognised and valued this aspect of having “*fresh eyes*” to “*current contexts*”, not required to necessarily re-invent the wheel but to concentrate on a change of focus on collaboration, as could be considered demonstrated in the prototype task.

Although some academic participants thought working in pairs promoted accountability and was more manageable in the online environment, Seann (student) was concerned with the smaller group size. He was worried that the collaboration would be difficult if the other student had a “*different teaching philosophy*” to him. While a valid point, Seann’s reflection is possibly more focused on the notion of work ethic rather than teaching philosophy here. However, both could plausibly impact the effectiveness of the collaboration process. There is no doubt that difficulties will arise in the collaboration process for some groups, despite including supportive measures. However, as Stefan (internal academic) suggested, the practice of collaboration itself is complex and sometimes problematic. Therefore, the experience of those problematic practices, including tricky conversations, allows pre-service teachers to experience and practice this prior to being on the job.

While the assessment framework prototype was considered “*doable and achievable*” by Samantha (external academic) and similarly reflected by other participants, the challenges of execution and difficulties involved may not be known until implementation. For example, both external academics were worried that students would not see the value of the activity. If this complacency were coupled with the task being too difficult, students would not necessarily fully engage with the task. It seems possible that this could be related to the student’s prior experience, perceptions of learning or assessment, and facilitation effectiveness. All of which would be considered ambitious and potentially burdensome to control for in the assessment design.

In comparing prototypes version 1 (see Figure 15 and [Appendix P](#)) and the final version 8 (see Figure 16 below and [Appendix Q](#)), there were no significant changes to the framework recommendations or the task instructions. The main changes were in response to Erin’s (high-school teacher) concern of clarity of the task, which resulted in a proforma being created that provided scaffolded steps and instructions to reduce the cognitive load of the academic teacher. Additionally, as unpacking learning progressions was considered challenging and academics and high school teachers

wanted teaching support in this area, a list of resources was created to support students. The eighth version was accepted as the prototype ready for testing, as no new significant improvements were suggested that could be implemented into the design.

Figure 16

Phase Two Final Prototype Ready for Implementation

Prototype Version 8

Building Collaboration into Assessment in Remote Delivery

<p style="text-align: center;">Develop relationships to enable collaboration</p> <p>Trust needs to be built:</p> <ul style="list-style-type: none"> o Factors influencing trust in collaboration include benevolence, honesty, openness, reliability, and competence, noting, however, that this can take time (Tschannen-Moran, 2004) o Individuals should be "kind and patient with other team members and reliable in fulfilling their responsibilities build trust and eventually lead to increased collaboration" in PLC teams (Hallan et al., 2015, p.211) <p>Use protocols to develop shared norms:</p> <ul style="list-style-type: none"> o Barkley et al. (2014) suggests applications for establishing group ground rules (p. 67) <p>Develop a 'team' culture:</p> <ul style="list-style-type: none"> o Provide rationale behind the focus on collaboration. o Individuals made aware of accountability. o Barkley et al. (2014) suggested individual accountability can be advocated by "stimulate interdependence for group members to work together and success is dependent on the group as a whole and not individual students" (p. 56). <p>Build group expectations with a focus on collaboration. can be done with profoma with roles.</p> <p>Barkley et al. (2014) suggest how group roles may be adapted for online environments, especially for asynchronous collaborations (p89).</p>	<p style="text-align: center;">Teach collaboration explicitly</p> <p>Explicitly teach group goals and individual accountability</p> <p>PSTs need to see a direct link between the skills they need to develop and their own teacher development practice.</p> <p>Learning progressions taught explicitly, either determined by the teacher or student-led development.</p> <p>Include a variety of collaboration skills, both verbal and written.</p> <p>Demonstrate and model good and not-so-good collaboration.</p> <p>Provide explicit modelling to draw attention to specific teaching strategies (Boyd, 2014; Loughran & Berry, 2005), with increased scaffolding to overcome the challenge of the physical distance between students during collaboration (Robinson et al., 2017)</p> <p>Provide skills training for new technology platforms (Barkley et al., 2014).</p> <p>Critical thinking and reflection through the use of questions:</p> <p>How do we question each other? What are the different types of questions we ask, and how do we use that to stretch ourselves?</p>
<p style="text-align: center;">Facilitate and monitor collaboration</p> <p>Stimulate interdependence for group members to work together where success is dependent on the group as a whole and not individual students (Barkley et al., 2014)</p> <p>Build-in self-assessment</p> <ul style="list-style-type: none"> o as a mode of feedback o for students to identify what their learning gaps are to build in reflexivity. o that is cyclic to be able to come back and revise these. <p>Academic to present "authentic and real-world problems and projects that demonstrate their relevance" (Robinson, 2017, p.38)</p> <p>Allow for a combination of asynchronous and synchronous learning opportunities: asynchronous for spontaneous discussions and synchronous for further and potentially deeper cognitive reflections (Yamagata-Lynch, 2014)</p>	<p style="text-align: center;">Assess collaboration</p> <p>Formative or summative assessment of collaborative skills</p> <p>Self and peer assessment:</p> <ul style="list-style-type: none"> o not contributing to the final score as to increase accuracy and consistency of evaluation (Sridharan et al., 2019), or o contributing to a small proportion of the final score where students are aware if their contributions will be evaluated. <p>Collaborative skills embedded into learning outcomes and subsequent rubric.</p> <p>Individual or group evaluative assessment dependent on the task/s and whether individual contributions can be isolated:</p> <ul style="list-style-type: none"> o It is best if the assessment of the team's performance is triangulated (Salas et al., 2017) <p>An example of a collaborative assessment is presented as the MVP below.</p>

Task Title: Collaboration in PLCs

Overview:

The purpose of this task is to build upon your theoretical knowledge of skills, attributes, and processes of effective collaboration in Professional Learning Communities (PLCs).

Additionally, this task allows you to practice breaking down proficiency scales into smaller progressions in a purposeful way connected to how you will be required to do when planning and assessing your students. In pairs, you will plan for effective collaboration to improve outcomes.

Details for academics:

This task could be coupled with a task focused on collaboration or stand alone. For example, if the task is stand alone, the Learning Outcome (LO) could be 'effective collaboration with peers/PLC.' If the task is coupled with another, the LO could be 'collaborate with peers to facilitate the development of a product or to solve a problem', in which the product or problem is determined by the unit curriculum.

The task could be facilitated in several different ways for the PST to experience multiple exposures. One suggestion is included below.

Another example of its use could have an additional group member as an observer who watches the conversation and collaboration of the pair (or group) and uses a checklist as a feedback tool. The observer then provides feedback based on the determined criteria (Step 4) about what they observed or did not observe. This process could be embedded across the unit multiple times (where collaboration is used) where the observer swaps each time to provide feedback to the group. It is recommended students work on a collaborative document, for example a Google Doc.

Figure 16 (Continued)

Instructions for students:

1. Determine the LO (teacher or student chosen).
2. Together in your pair, develop a sequential, cumulative list of learning progression (LP) points to achieve the Learning Outcome through effective collaboration in your PLC.
For example, ask yourselves:
 - What key knowledge and/or skills is needed to achieve the LO?
 - Which is simpler, that may come first?
 - Which is more complex? How do the knowledge/skills build upon each other?
 - Are there multiple pathways to achieve the LO?
3. Decide on how you will facilitate and monitor your LP points.
For example, ask yourselves:
 - How are you going to plan for purpose?
 - Which learning theory/theories and pedagogy/pedagogies are you connecting your learning to?
 - How is this informing your planning?
 - What will you look for as evidence of learning? How will you know what you are looking for?
 - What data will you collect?
 - Will you include self/peer assessment? When and how will you check your progress? How will this inform your future planning and progress?
4. Develop a reflexive professional development plan (based on "Guided Teacher Self-Reflection Activities," DET, 2018) to assess and plan for improvement in collaboration:
 - record your strengths with an assessment of where you are now,
 - opportunities for improvement and specific professional development goals,
 - evidence that will be gathered to inform if you have accomplished your goals.
5. Complete a post-self reflection to measure your performance, reflect on your progress, and next steps that need to take place in your learning.

Assessment Criteria:

Your submission will be assessed on:

1. Analysis of LPs to achieve effective collaboration
2. Analysis and assessment of facilitation/monitoring of collaboration
3. Group collaboration through shared culture of trust, ownership of planning responsibilities, respectful challenging of mindset's, knowledge and practices
4. Reflexive professional development plan

Example of Task Proforma for PSTs

Step 1 –

Determine the Learning Outcome (LO):

(e.g. "effective collaboration with peers/PLC in a remote setting")

Step 2 –

Brainstorm all of the points of learning progressions (LP) that need to occur to achieve the LO.

For example, ask yourselves:

- What key knowledge and/or skills is needed to achieve the LO?
- How will you recognise progression of the LO?
- What support is needed to enable the LO success?
- How can you stretch your own thinking and the thinking of others in achieving the LO?

Step 3 –

From your list in Step 2, develop a sequential, cumulative list of the LP points to achieve the LO.

For example, ask yourselves:

- Which LP is simpler, that may come first? Which LP is more complex? How do the knowledge/skills build upon each other? What are the sequential steps to achieve the LO? Are there multiple pathways to achieve the LO?

Figure 16 (Continued)

Step 4–

Decide on how you will facilitate and monitor your LP points

For example, ask yourselves:

- How are you going to plan for purpose?
- Which learning theory/theories and pedagogy/pedagogies are you connecting your learning to? How is this informing your planning?
- What will you look for as evidence of learning? How will you know what you are looking for?
- What data will you collect?
- Will you include self/peer assessment? When and how will you check your progress? How will this inform your future planning and progress?

Step 5–

Develop a reflexive professional development plan below to assess and plan for improvement in the LO.

<p>Strengths <i>record your strengths with an assessment of where you are now</i></p>	<p>Opportunities for improvement <i>record your areas of practice in need of improvement</i></p>
<p>Evidence <i>Record the evidence that will be gathered to inform if you have accomplished your goals (from above)</i></p>	
<p>Post – self reflection <i>Measure your performance in achieving the LO on the following scale:</i></p> <p style="text-align: center;"> Comfort Zone → Stretch Zone </p> <p>Provide an explanation of your self-evaluation, linking back to your LP points in Step 3 and the evidence you collected:</p> <p>What are the next steps that need to take place in your learning? How are you planning to achieve this? <i>In your answer, provide a connection to applicable AITSL standards.</i></p>	

Where to go for help in developing LP:

- Alonzo (2011) considers how LP can inform your formative assessment in the context of your classroom. The literature provides explanations of how LP are built upon and landmark the students' learning journey:
Alonzo (2011) Learning Progressions That Support Formative Assessment Practices, *Measurement: Interdisciplinary Research and Perspectives*, 9:2-3, 124-129, DOI: 10.1080/15366367.2011.599629
- Black, Wilson and Yao (2011) outline how LP can inform assessment purposes:
Black, Wilson & Yao (2011) Road Maps for Learning: A Guide to the Navigation of Learning Progressions, *Measurement: Interdisciplinary Research and Perspectives*, 9:2-3, 71-123, DOI: 10.1080/15366367.2011.591654
- VCAA provide curriculum planning documents to assist in planning the sequencing of key knowledge and skill across and within year levels:
<https://curriculumplanning.vcaa.vic.edu.au/home>
- Learning Intentions (LI) can be descriptions of LP as points to provide feedback and evaluation for the learning as progression towards the LO. AITSL provides practical suggestions on how to write effective LI and success criteria:
https://www.aitsl.edu.au/docs/default-source/feedback/aitsl-learning-intentions-and-success-criteria-strategy.pdf?sfvrsn=382dec3c_2
- Wiggins and McTighe (2005) provide extensive pedagogical perspectives of curriculum and assessment planning using backwards design. The design process considers the specific learning goals to understand the learning sequence involved in achieving those goals, similar to breaking down LO into LP:
Wiggins, G.P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Hawker Brownlow Education.
See also McTighe's website: <https://jaymctighe.com/resources/>

Prototype Development Discussion

Collaboration was considered a meaningful feature of the prototype design that addressed the difficulties of online group work and authenticity in the teaching profession. Collaboration in research has also been demonstrated as necessary in workplaces (Gallagher, 2019), including within the teaching profession (Hattie, 2015), and considered as an important graduate skill in literature (Oliver & Jorre de St Jorre, 2018). Although recognising that there are different forms of teacher collaboration in the literature (Vangrieken et al., 2015), the recommendations presented in the prototype framework were encouraged to be built-in and scaffolded throughout a unit with consideration of delivery mode. This was in response to end-user feedback coupled with literature suggesting that building collaboration into assessment should be a holistic experience of practice and, ideally, stated as a course or unit learning outcome (Barkley et al., 2014). These approaches would plausibly emphasise its importance of inclusion in the learning program. The collaborative learning task in the prototype was focused on student interactions and drawing attention to what constitutes effective collaboration. The task intended students to understand compelling collaboration features, including facilitation and monitoring of collaboration and reflection on their professional collaborative development. While completing the task, students would break down what good teamwork looks like and how it could be achieved, which ties well with signalling good practices in PLC research (Venables, 2011). Thus, when they come to experience collaborations in the workforce, they may apply these prior learnings to new and tricky situations.

All end-user groups also valued the authenticity of the task in allowing students to understand and practice how core concepts can be broken down into smaller sequential, interrelated, cumulative ideas. Many participants liked this aspect of students being able to understand the practice of looking for points of learning in their own practice, which hints at the application of this skill in their own classrooms when they are looking for learning progression points to formatively assess their own students (Alonzo, 2018). Therefore, the skills learned by doing this prototype task could be applied in new contexts allowing for knowledge transfer, which is suggested in the literature to offer more profound learning opportunities (Wiggins & McTighe, 2005). Student participants in this research who provided feedback valued the chance to practice unpacking learning outcome and learning progression points, as they considered it was somewhat challenging to do in practice. They liked multiple opportunities to practice before they began teaching. Both internal and external

academics also reflected that past students found this aspect of planning difficult. Therefore, its inclusion into the design seems particularly important and authentic to the profession.

Notably, the framework itself would not necessarily be considered a novel innovation. A combination of these recommendations has previously been presented in the literature (e.g. Barkley et al., 2014; Hallam et al., 2015; Loughran & Berry, 2005; Robinson et al., 2017; Salas et al., 2017). Even though novel solutions were not necessarily designed, the findings suggest that the ideating and prototyping methods have allowed “fresh eyes” to discover that the shift into remote delivery has magnified the need to look, once again, at collaborative pedagogical practices. Considering how collaboration and associated scaffolded learning experiences can be integrated to improve overall teaching and learning practices has been highlighted. Additionally, it has spotlighted that a similar pattern of collaborative foci is needed in both face-to-face (in-person) and remote delivery methods.

Chapter Summary

The outcomes from the ideation workshop and prototype development have been presented in this chapter. From the empathy interviews in Chapter 7, it was deemed that students found it challenging to complete group work as many did not know how to collaborate effectively, and the need for this was magnified in the online real-time environment. Therefore, the assessment framework prototype was created with two main features: a framework of recommendations to build collaboration into assessment in remote delivery; and a task that could be used alongside a group assessment or a stand-alone assessment to build an understanding of effective collaboration.

Reflections of participants’ ideation brainstorming revealed the need for students to develop relationships to enable collaboration, teach collaboration explicitly, facilitate and monitor collaboration, and assess collaboration. Hence, these were outlined in the prototype framework. Additionally, the ideated solutions centred around the need to break the collaborative learning outcome down into learning progressions, which features in the final assessment framework prototype task. The next stage in the design thinking process would be to test the framework’s effectiveness in practice by implementing it into the curriculum and assessment program. However, it was considered that a testing phase would extend beyond the scope of this PhD study, which has been significantly constrained by Covid-19 changes, to ensure a timely submission. It is hoped that the testing phase (in both phases of this study) is an avenue to pursue in future research.

Based on the findings in both pre- and post-Covid-19 environments, the next and final chapter offers a discussion of the implications and recommendations for future higher and teacher education assessment practice and research.

Chapter 9: Conclusion – Implications and Recommendations

“Design thinking is about cognitive flexibility, the ability to adapt the process to the challenges.”

—Idris Mootee (Author of Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School)

Introduction

Despite the demonstrated complexity of assessment, this thesis has presented ways of investigating and integrating potential novel approaches to developing solutions to identified assessment problems. Aligned to PAR processes, design thinking has enabled exploration of end-users' assessment wants and needs to effectively create tangible assessment products that are considerably different to what would be generated in usual assessment design conditions. This research was positioned within a pragmatist approach with underpinnings of constructivism to provide several original contributions to the assessment and assessment design literature. The pragmatist approach of being problem-focused aligned with the more novel research choice of using PAR coupled with design thinking procedures, which resulted in the development of tasks that were novel and met the needs of all stakeholders, as determined by empathy interviews. The empathy interview phase utilised the phenomenological approach. Qualitative measures of semi-structured interviews assisted in answering the research questions about the lived assessment experiences of end-users, including discussions of what they wanted and needed from assessment. This research has presented an alternative, practical approach to assessment design, by producing assessment frameworks which act as solutions to identified assessment problems. Moreover, it has contributed to the limited literature of teaching, learning, and assessment experiences and perceptions during the pivot to online classes during the Covid-19 pandemic. These findings strengthened by triangulation of collecting multiple sources of data, thereby validating interpretations of multiple sources.

This chapter concludes the research and presents the summary of findings in both pre- and post-Covid-19 teaching, learning, and assessing environments to reflect on foci for future inclusions of post-Covid-19 ITE assessment. The research strengths and limitations are discussed. Finally, the implications and recommendations are offered for future higher and teacher education practice and research.

Summary of findings

This research was represented by two phases.

Phase One – Assessment Wants and Needs Pre-Covid-19

Following the PAR model and Stanford d.school design thinking procedures, Phase One sought to explore the assessment perceptions and experiences of end-users in a face-to-face teaching and learning environment. Twenty-five semi-structured interviews were undertaken in the first stage of design thinking to gain an empathetic perspective from academic, student, and high-school teacher end-users. Interview data was analysed using thematic analyses aligned to design thinking procedures. Analysis themes were then entered into empathy maps to create a 'persona' for each end-user group.

In the pre-Covid-19 environment detailed in Chapter 4, findings revealed several key themes of student engagement with assessment. High-quality assessment experiences prosper as a result of relevance, clarity, and transparency. All end-users desired authenticity and relevance to link theory and skill and connect to professional placement. Students (pre-service teachers) wanted assessment that assisted in them becoming better teachers, and academics wanted to accommodate this to produce skilled teachers. High-school teachers valued authentic connections to how teachers actually work. Despite acknowledging the difficulties, collaboration was esteemed as authentic and encouraging deep learning situations. Barriers to productive collaboration were discussed, including assessment literacy affecting success of peer assessment and feedback.

Assessment workload influenced both students and academics. Students craved assessment that afforded challenging, deep learning opportunities but requested a manageable amount of work. Students' external responsibilities also constrained their learning, including family and work commitments. Academics workload was affected by many job demands, including constricting workload models.

Disparities existed between what was known and what was practiced. Although barriers contributed to some deficits, end-users acknowledged good assessment practices. In particular, high quality and detailed feedback was mostly affected by the academic's workload constraints.

The personas and summary of findings were presented in an ideation workshop with three participants and the three-person research team. Solutions were ideated to the complex and interwoven problems as identified by participants and later informed by literature. One solution was then chosen to be developed into a prototype and thereafter refined based on iterative feedback sought from 11 participants. This resulted in a final assessment framework ready for implementation. At this stage, social restrictions due to Covid-19 arose which meant the assessment framework could not be implemented and tested in a face-to-face setting.

Phase Two – Assessment Wants and Needs Post-Covid-19

As a consequence, Phase Two was actualised, to explore shifts in perspectives as a result of teaching, learning, and assessment programs relocating to digitally supported remote delivery. The same design thinking procedures as Phase One were followed. Thirty-seven semi-structured end-user empathy interviews were conducted, with the inclusion of another group of academics from four external institutions. At the time of the interviews, end-users had been enduring lengthy lockdowns and teaching and learning by online remote deliveries for at least six months. Based on these findings and informed by literature, another fit-for-purpose assessment framework for an online environment was created in an ideation workshop. This was further developed and refined based on feedback from nine participants, representative of all end-user groups.

As a result of the pivot to online classes during the Covid-19 pandemic key factors centring around dimensions of professional capacity and effectiveness, relational connections and engagement, workload impacts, and affordances of personal gains became important to participants. Technical issues were also experienced by all end-users. As the environment was new to most, and usual practices adopted in face-to-face settings could not always be relied upon, the change into the new online environment caused many participants to (re)evaluate old approaches and trial new techniques. These novel experiences encouraged participants to want to share these teaching and learning practices further to assessment approaches, with the associated opportunities and challenges.

Relational bonds were particularly difficult to form over the video conferencing platform used for classes during lockdown. Academic and high-school teacher participants found connections with students problematic. Students struggled to form peer rapport. Student engagement and motivation was challenging to gauge through usual practices.

Teaching, learning, and assessment experiences were impacted by students' hesitation to ask questions in the video conference environment. Overall, collaboration suffered.

Despite limitations in the post-Covid-19 environment, most students preferred this mode of learning due to affordances in personal gains, particularly through flexibility and convenience. Students also valued the support provided by the institution and academics allowing them to continue to study through the pandemic.

Pre- and Post-Covid-19 Connections

There were notable similarities between end-users' wants and needs from assessment in both pre- and post-Covid-19 environments. Interestingly, relational aspects of teaching, learning, and assessment were valued by end-users across both teaching and learning environments. According to practice architectures (Kemmis et al., 2014), the preparation work in teacher education is a social practice (Sjølief & Østern, 2021). Consequently, relational practices are expected and should be fostered in the different teaching contexts. Practically, explicit inclusion of relational aspects of teaching and learning may be useful in future ITE teaching, learning, and assessment programs. It is seen as professionally vital to adopt a collaborative approach.

In both phases of this research, end-users recognised the need to reprioritise collaboration techniques and the importance of embedding collaboration into unit designs in teacher education programs. While also identified as important in face-to-face settings, as illustrated by participants' voices in the pre-Covid-19 empathy interviews (see [Chapter 4](#)), the need to focus on collaborative understanding and skill sets was perhaps more magnified in the online environment, potentially due to the limited social cues available to group members (see [Chapter 7](#) post-Covid-19 empathy interview findings). While the online environment has enabled collaboration over vast distances, the removal of some social cues normally relied upon in teaching has caused usual approaches to be examined to establish what is applicable now and what may be useful in the future.

Collaboration has been demonstrated to be multifaceted and complex. As ideated in the post-Covid-19 workshop (see [Chapter 8](#) Ideation workshop findings), collaboration needs to be a holistic learning experience combining common goals and the encouragement of relationships. Trust amongst group members must be ongoing to encourage individuals to be vulnerable enough to participate, which can be even more difficult in the online setting. Students cannot be assumed to know how to collaborate,

regardless of the mode of class delivery. Collaboration needs to be explicitly taught, and to do this, academics require the necessary resources. Additionally, students require support to know how to facilitate and monitor their groups' collaborative process and their own valuable input. Careful planning, implementation, and monitoring of these collaborative and communicative skills would support student groups working together. Furthermore, collaboration should be assessed through various measures, including peer and self-assessment. Finally, collaboration ideally should be ingrained into course design and embedded across units to achieve a holistic approach.

Connections to professional practice were highly valued to link theory to skill in order to equip students (pre-service teachers) toward being 'classroom ready' in both phases of this research. In the absence of professional placement and practice, students found it difficult to visualise classroom contexts, often depending on their own historic classroom experiences. This was more pronounced for international students, leaving gaps in culture and school knowledge which impacted assessment work.

Design Thinking as a Qualitative Research Tool

This thesis presented design thinking as an approach to qualitative research, aimed at bringing participants' voices into focus. Collecting data through empathy semi-structured interviews allowed individuals to share stories and extend rich discussions beyond research questions (Nelsestuen & Smith, 2020), much like ethnographic studies (Carlgren et al., 2016). Literature has suggested that through capturing the voices, behaviours, and emotions of end-users, the researcher can immerse themselves into the user experience (Plattner, 2010). The participants in this current research were open to sharing experiences about past assessments, professional practice, and their home and study lives. As Plattner (2010) eloquently suggest, "the best solutions come from the best insights into human behaviour" (p. 4). A key feature of empathy interviews is acknowledging research bias, holding judgements aside, and just listening to "uncover needs that people have which they may or may not be aware of" (Both & Baggereor, 2010, p. 1). The empathetic approach provided an additional novel style to the semi-structured interview qualitative process by including pain and gain points, aiming to ease participants into personal sharing and elicit insightful responses. As with the usual qualitative interview process, the empathy interview also allowed for observable body language and tone of voice to be noted.

The empathetic approach encourages seeking diversity to enhance insights into end-users' experiences. The empathetic approach can be an effective way of

understanding students, in particular, by challenging assumptions (Henriksen et al., 2017). By collecting an empathetic understanding of end-users, design thinking emphasises the diversity of the end-user sample in order to collect data from a wide range of people for whom the innovative product will be designed for. In a business sense, the more acceptable the product is, balanced to a broader range of people within the targeted population, the potentially more product sales will occur. This notion equally applies to education contexts where student cohorts are more diverse than ever (Norton et al., 2018), and assessment must meet the needs of many stakeholders with different agendas.

The additional novelty of the design thinking process comes from analysing the data to form each end-user group's empathy maps. The empathy maps allow for a holistic view of the end-user or aggregated group of end-users. Representing the data in this way captures the perspectives, persona, and experience 'picture' to tell a story about the group of end-users.

The use of Insight Statements as a qualitative data analysis method was an additional strength of this research. After empathy interviews were conducted, the learnings were entered into empathy maps to capture the powerful narratives of end-users. From there, themes were extracted from emerging patterns, compelling perceptions, experiences, or repeated problems. As a result, significant areas were identified as being appropriate for ideating solutions (IDEO.org, 2015), which align to thematic qualitative analyses (Braun & Clarke, 2021). These themes were rephrased into Insight Statements to produce thoughtful visions about end-users' experiences and perceptions of ITE assessment. The Insight Statements allowed intimate, empathetic, and personal conceptualisation of the end-user thereby offering holistic authentic and sincere understandings that remind the designer of the real person from where the data was derived. In light of the above, this thesis contributes to the limited body of research connecting empathy interviewing to well-established qualitative data collection and analysis.

Design Thinking as an Assessment Designing Tool

The ideation phase in design thinking is generally highly structured. In a group environment, the process allows individuals to work separately and then come together to share ideas with the result that every voice is heard and every idea is considered for conception. In their Design Thinking Bootleg document, Plattner (2010) suggest ideation is successful due to the collective strengths of individuals who come together

in collaboration with “times of focus and flare” which aim for “fluency (volume) and flexibility (variety)” (p. 7) in solutions. This research also supports this feature of working independently within the collaborative experience as essential. The usual practice of designing assessment in higher education is often done individually or with a small team. Designing alone potentially limits the knowledge input. However, designing together can also provide challenges, including managing group dynamics or ‘loud voices’. A key feature of ideation processes, such as with design sprints (Knapp et al., 2016), is the scheduled time for both individual brainstorming and collaborative discussions. This process offers an alternative assessment design approach for uninterrupted time and space for all individual thoughts to be heard and documented. As was found in this research, this may be useful in finding the array of assorted solutions to find ‘the one’ to action.

Another encouraging aspect of the ideation workshop comes from considering the voices present in the workshop and those who are significant as essential stakeholders in the product design, or in the case of this research, the assessment design. Allowing for an empathetic understanding of end-users in assessment design has been valuable in keeping end-users’ core wants and needs at the forefront of the designing minds. As Mortensen (2020, para 5) highlights, the importance of empathising with end-users in designing: “we should always do our best to leave our own assumptions and experiences behind when making observations” to allow other opinions and experiences to be considered without judgement. This can be contrasted to the usual assessment design approaches in higher education, where the academic’s past experiences can shape and influence design (Bearman et al., 2017). While these past experiences are not necessarily a negative influence – indeed academics bring vast personal and professional knowledge to design practices – allowing an open mind and ‘beginners mindset’ may allow alternative possibilities in design to emerge (Mortensen, 2020).

Some processes often used in ideation in marketing and business industries were not implemented in the workshops. In these fields, many examples of ideation include a voting with dot stickers phase to determine the groups’ hierarchical preferences (Knapp et al., 2016). This was not needed in the workshops conducted by this research because the participants and facilitators were easily able to move through each stage and focus on the main ideas that were feasible within the time frame. One possible reason behind this could be the education context from which these participants come

from. Reflexive and iterative practices within education are features of good teaching (AITSL, 2017, 2018); so, discussions of this nature are expected within the profession.

The workshop undertaken remotely in Phase Two ([Chapter 8](#)) was equally successful in producing actionable solutions. Despite the physical distance between participants due to social restrictions, the workshop provided a space for collaborative ideation. It demonstrated that Ideation workshops, usually conducted face-to-face, can be facilitated by synchronous remote methods, and do not negatively impact the creative process. It would be interesting to conduct asynchronous workshops or hybrid approaches, to understand further the advantages of individual and collaborative ideation techniques in future research.

Seeking feedback from end-users through prototype development procedures of design thinking has been a worthwhile practice in refining the assessment design. As a foundation, this process allowed end-users to have input into design. It also provides confirmation that the design is appropriate before it is implemented. Additionally, it has allowed another opportunity for insight into end-user assessment perspectives.

There are some notable differences between the usual practice of creating assessment in higher education and designing by prototyping. In their rich qualitative research exploring how academics design assessment in higher education, Bearman et al. (2017) found that intricate design practices involved “strongly interwoven personal, organisational and environmental factors” (p. 60). After initial design impacted by these factors, educators in their research undertook iterative development that firstly considered their personal environmental influences (including institutional circumstances and requirements, and student learning), and secondly, professional influences (such as pedagogical and past experiences) to ensure cohesion between constraining factors (Bearman et al., 2017). Following this, feedback and support are sometimes sought from other colleagues and departments before implementation. Students are rarely mentioned in the design feedback process in their research, apart from ‘selling’ the assessment purpose to students during the implementation phase (Bearman et al., 2017). By way of contrast, in seeking feedback from student end-users this research provided opportunities for student input and agency.

Contrastingly to initial design procedures discussed in Bearman et al.’s (2017) research, the initial prototype in design thinking does not need to be perfect (Knapp et al., 2016). This allows quick feedback on the prototype before devoting further time and resources. In the usual assessment design, iterative adjustments may be made. They

are likely modest until implementation; whereby more extensive refinement can be made after execution. In design thinking, prototyping allows an imperfect design in its infancy, thereby taking some pressure off the designer and their resources to further refine in cyclical iterations. Additionally, the input from stakeholders is more significant early in the design thinking process. This allows quicker feedback on the design, which can then be embedded to improve it before implementation. While the usual practice may involve a team of academics in the planning or feedback process, students and teachers infrequently provide input during assessment design.

As can be seen, the process of seeking feedback from various individuals enriches the assessment design. It allows the design to be shaped with a wide range of different knowledge and personal experiences; factors suggested by Bearman et al. (2017) to influence higher education assessment design practices. Using this prototyping method as a feedback-seeking tool in higher education assessment development may improve the overall effectiveness of assessment programs and further improve student learning and experience.

Although not able to be tested due to Covid-19 and timeline constraints, the three prototype assessments developed in this research through design thinking processes have design strength from collaborative development and iterative prototyping feedback well beyond approaches usually involved in designing ITE assessment. As such, these robustly designed assessments resulting from this study can provide models for future implementation, and are a possibility for future research, as will be discussed later in this chapter.

Strengths and Limitations

A significant strength of this research was its incorporation of design thinking as a novel qualitative approach. The design thinking approach not only contributed to creation of actionable solutions to complex assessment problems, but it allowed for the highly structured and reflexive investigation into end-users' experiences and perceptions. Aligning these procedures to the well acknowledged PAR methods, allowed for rigorous data collection and triangulation of data to occur.

Although contextualised to one Australian university, an appreciable number of end-users were interviewed, broadening the diversity of each end-user group. Additionally, incorporating high school teachers' perspectives of ITE assessment, which is underrepresented in literature, was contributory in this research, resultantly extending

data source triangulation. Furthermore, there was clear triangulation between user-group findings further establishing the validity of the research.

This thesis contributes further discussion and perspectives of assessment practices and experiences in ITE. It brings further conversation to the assessment debate to highlight students, academics, and high-school teachers' wants and needs from ITE assessment, highlighting similarities and discrepancies between what is known in theory as good assessment practice and what is experienced in the field. This research has collected perspectives of significant stakeholders in ITE teaching, learning, and assessment practices: students, academics, and high-school teachers. The external academics from other universities confirmed the views and experiences by the internal academics, allowing for a degree of general experience in several different institutions in Melbourne at the time of the teaching and social restrictions. Moreover, this research adds to the limited research investigating academics' professional experiences as they navigate the shift into the remote delivery during Covid-19 restrictions.

The large cohort of international students at the institution where this research is based has also added an important perspective to the student view. Underrepresented in literature, this research contributes to an understanding of international preservice teacher experiences, spotlighting differences of experience between domestic students and potentially improving future ITE practices. It is essential to reflect upon these differences to address some of the assumptions made regarding the learning and assessing space.

This research, however, is subject to consideration of its limitations. As with other qualitative action research designs, this research cannot be generalised due to the small sample size mainly populated from one university. Nonetheless, the sample size was considered adequate for the nature and purpose of this research (Baker & Edwards, 2012), and data saturation was considered reached, with no new identification of concepts or concerns from end-users (Bowen, 2008; Fusch & Ness, 2015; Saunders et al., 2018). Additionally, voluntary participation may have biased results for those with a particular interest or expertise in the research area. Purposive sampling was used in this case in an attempt to gain a broad perspective of student views.

Unfortunately, the students' invitations to participate in the feedback interview in Phase Two (see Prototype Development Method in [Chapter 8](#)) were not readily accepted, and only two accepted the follow-up email invitation. Although both students had similar

perceptions of the prototype and provided comparable feedback, their reflections may not be generalised to the student population with this limited student sample. Therefore, a broader sample of student perceptions of the prototype could be investigated during the design implementation in future research.

In retrospect, another limitation to the data collection may have resulted from high-school teachers having the opportunity to share their attitudes and perceptions through email correspondence by responding to the prompt questions in Phase One empathy interviews (see description of participants in [Chapter 4](#)). The choice of teachers to contribute via the more impersonal method was made due to the convenience of time and location of the participants, as most were working full time and scattered over Victoria. All but one teacher requested this mode of correspondence, which limited the opportunity to delve deeper into the responses than what was presented in responding emails. Therefore, this participation method was modified in Phase Two to only include video conferencing interviews.

As previously mentioned, the initial plan of this PhD project was to implement and evaluate the effectiveness of the implemented assessment framework prototype in a post-test. Ideally, in design thinking the created prototype is tested with end-users to validate the design (Brenner et al., 2016; IDEO.org, 2015). Ultimately, this would be done by implementing the prototype into the unit to allow students and staff to use and experience the task and provide feedback on teaching and learning usability. This would assist in understanding if the design enhanced depth of understanding, engagement with assessment, provide authentic and sustainable assessment practices, whilst improving the marking efficiency. However, the assessment framework created in Phase One required face-to-face teaching to test its effectiveness, and unfortunately, the Covid-19 pandemic resulted in all education sectors moving to a digitally supported remote delivery at the time of this research. As a result of the uncertain times of the pandemic, it was unknown when universities would return to face-to-face teaching. Considering the timeline restrictions of the PhD project and typical of design thinking's flexible approaches, a pivot in research design was undertaken to explore shifts in perspectives. It is hoped that these prototypes will be implemented where an evaluation may be undertaken in future research. However, even though the prototypes have not been implemented, this research has gained some information on the validity of effectiveness by seeking feedback from end-users during prototyping stages.

Finally, although several techniques were employed to increase trustworthiness and reduce biases, my educational experience as an experienced high-school teacher and more recently teaching academic may have influenced the research process. My teaching, learning, and assessment experience at both sectors were central to my interpretation of the data and formation of the assessment design.

Implications and Recommendations for Future Practice

The end-users in this research presented their voices about experiences of assessment within ITE in pre- and post-Covid-19 environments through empathy interviews. These perspectives are important to hear to consider future ITE programs, with potentially permanent shifts to remote and hybrid modes of teaching and learning in tertiary education in the future (Benito et al., 2021; Clapsaddle et al., 2021; Pelletier et al., 2021). Accordingly, from the findings of this research of end-users' experiences of assessment and the work of others, the following suggestions are presented to address the barriers and concerns about engaging with ITE assessment in both environments.

Assessment Engagement Factors in Universal Environments

This research promotes the widely accepted effective assessment practices that reflect validity, transparency, and reliability appropriate for its proposed purpose (Biggs & Tang, 2011; Gerritsen-van Leeuwenkamp et al., 2017; Ramsden, 2003; Sambell et al., 1997). It is also recommended that the value and purpose of the assessment are explained and visible to all end-users to enhance trust between academics and students so that students feel comfortable taking risks in assessments within the tight constraints of tertiary accountability systems (Carless, 2009).

Authenticity is Valued. Within the multiple assessment purposes (Boud, 2000), an important ITE assessment focus is authenticity. There is a vast body of research surrounding the notion of authentic assessment, with different contexts and disciplines describing what authentic assessment is to them. Despite subtle differences, the definitions of authentic assessment remain somewhat consistent towards the notion of assessment being meaningful real-world tasks that enable students to apply essential knowledge and skill, confirmed in participants' voices in this research. Within the context of education, the importance of authenticity in assessment is widely accepted as providing connections to real knowledge, contexts, and varied problems that may be experienced in professional employment (Darling-Hammond et

al., 2010; Lombardi, 2008; Wiggins, 1989), allowing students to integrate their knowledge with practice and apply this learning (Biggs & Tang, 2011). In a literature review, Villarroel et al. (2018) connected characteristics of authentic assessment as based on the student's use and production of knowledge and skill in the context connected to industry and have worth beyond the university classroom. Therefore, it is not surprising that authenticity was a genuine need for all end-users in this ITE research.

The benefits of authentic assessment include students experiencing a greater engagement with deeper learning (Bohemia & Davison, 2012; Struyven et al., 2003; Wiggins, 1989), students being motivated and inspired (Lombardi, 2008), becoming self-regulated learners (Swaffield, 2011), and demonstrating academic integrity when related closely to real-world scenarios (Sotiriadou et al., 2020). Therefore, we want the authenticity of the task to be seen by the student so that they move away from the view of assessment as the motivator (Ramsden, 2003) towards holding value in the learning process to engage deeply when they perceive the authenticity and worth of the task. Carless et al. (2006) argue assessment should be “constructed, so they are the learning tasks as well” (p.9), and while they assert “designing tasks as learning tasks is far from straightforward” (p.10), the key features of the design are authentic to the profession and in promoting skills and knowledge, provide a worthwhile challenge to students, and extend the class learning.

Within the context of ITE authenticity, this research noted academics wanted assessment that supported them to produce better teachers, while students wanted assessment that connected to their professional practice and assisted in linking theory and skill to improve their practice. Therefore, assessment authenticity within ITE is recommended to be connected to the ‘real world’ aspects of classroom readiness, teacher competencies, and assessment and feedback literacy. Authentic assessment within ITE programs is connected to shaping and developing teacher competencies, modelling best practices in school settings, and feature collaboration. And while collaboration has been suggested for the authenticity and pedagogical values it provides, it can be partly connected to managing aspects of assessing workload for academics.

Feedback is Valued. This research recommends continued discussion and implementation of ‘feedback literacy’ designs. Here, the teaching, learning, and assessment program should create environments where the student has multiple opportunities to use, provide, and model feedback (Carless & Boud, 2018). The

teacher should be the facilitator of the feedback environment and not just the feedback generator (Carless & Winstone, 2020), and evaluative judgement is further developed within student skill-sets (Tai et al., 2016). Additionally, students of teaching should develop assessment capability (Charteris & Dargusch, 2018; Stiggins, 2002; Willis et al., 2013), to prepare them with sustainable assessment and feedback capabilities that allow them to deal with future situations and challenges (Krause et al., 2014). Furthermore, as Barker and Pinard (2014) suggested, connecting the student and academic perceptions of feedback may improve the effectiveness and efficiency of feedback use. If there is a more aligned understanding between these end-users, collectively, they may be more committed to the process, and the feedback culture between the two may be enhanced. It may also be critical to consider how feedback experiences can be incorporated into the curriculum and assessment experiences for the student.

Workload Autonomy is Valued. Academic participants discussed somewhat constricting outcomes from neoliberal reforms that have shaped university teaching, learning, and assessment practices. In some cases, universities allocate workloads across teaching, research, and administration activities; however additional activities, increasing demands on academic time, and accountability tasks may not fit into these allocated workloads (Kenny, 2018; Kenny & Fluck, 2018; Miller, 2019). Additionally, increasing stress levels of academics have been reported due to limited funding resources, increased workload, and job insecurities (Langford, 2010). Some of the academics in this current research wanted more autonomy and influence over the fundamental processes that influence their academic workload, as control can be applied through workload allocation and performance management (Kenny, 2018). It could be suggested that less emphasis on control measures and accountability may result in academics having more influence over the assessment design, perhaps adopting or incorporating an assessment closer to underlying pedagogies, including those presented in this research, to produce better teachers.

Considering these assessment implications, this research has supported the notion that higher education assessment should be valid, reliable, transparent, authentic, with rich feedback embedded within its design while concurrently considering the student and academic workloads within the assessing and evaluating processes. While good assessment practices are clearly understood, there seems to still be a disparity in how these design ideals are reflected in practice. While these are not new considerations or new research concepts or outcomes, end-users still reflect deficits in their experiences.

Consequently, more work in this area to fully understand continued discrepancies is necessary.

Assessment Engagement Factors in Situational Environments

The rapid shift into digitally supported remote delivery provided end-users with additional complexities. Accordingly, from the findings about end-user experiences of remote teaching, learning, and assessment ([Chapter 7](#)), the following supportive strategies for addressing the barriers and concerns about engaging with remote delivery in tertiary education are provided.

Pandemic Support. The pandemic provided challenging experiences and contexts for end-users attempting to manage significant changes to their social, personal, professional, and study lives. Consequently, attention should be given to end-users' emotional and personal situations to consider how individuals have been affected negatively and support them accordingly. Those especially vulnerable students should be given opportunities and additional support where appropriate to prevent inequalities (Aristovnik et al., 2020; Dodd et al., 2021; Fisher et al., 2020), including financial and educational support with greater flexibility in the learning experience, and access to mental health and wellbeing support (Salimi et al., 2021). Our findings clearly show the importance the students placed on academics' efforts in supporting their students, which is also being recognised and valued by other students (Aristovnik et al., 2020). However, universities should also continue to provide appropriate ongoing support, including trauma-informed educational, financial, and wellbeing services, to mitigate the issues caused by the sometimes traumatic disruptions through the Covid-19 pandemic.

Notably, many academics and teachers expressed an excessive workload and additional stress during the time of these interviews. Although not surprising given the circumstances of the pandemic, this is concerning given the current research into academic workload (Kenny & Fluck, 2018; Miller, 2019; Tynan et al., 2015) and burnout (Sabagh et al., 2018), and teacher stress and burnout (Rajendran et al., 2020; Schwarzer & Hallum, 2008). Therefore, consideration to how to support academics workload within the higher education sector and teachers within the secondary education sector must be given.

Learning how others have navigated and thrived in these challenges of shifting to online teaching and assessment through a sharing community can help others

circumnavigate the technology-mediated environment and associated pedagogies. Moving practices beyond the emergency mode of education in response to Covid-19 (Hodges et al., 2020; Whittle et al., 2020), towards potentially new improved forms of hybrid educational practices (Fullan et al., 2020) could improve future teaching, learning, and assessment practices.

Technology Support. Technical support, both in terms of infrastructure and skill is required for all end-users. Despite the technological advancements of the times, it cannot be assumed that students have the digital literacies and competencies to navigate the environment with ease (Adedoyin & Soykan, 2020; Bennett et al., 2008). With time and use, the students in this research became more familiar and effective in using the technology tools and valued the opportunity to upskill in their technology skills. Therefore, technology support for students would increase the efficiency and comfortability in learning to use technology tools and platforms.

Furthermore, research suggests that academics want to adopt technology supported teaching and assessment in their programs, but often do not due to infrastructure, skill, support, and time constraints to do so effectively (Bennett et al., 2017; Gregory & Lodge, 2015). The success of programs has been found to rely heavily on the technology infrastructure (Alhabeeb & Rowley, 2018; Marek et al., 2021; Selim, 2007). Therefore, training those unfamiliar with online planning and teaching is central to implementing effective programs (Kaleta et al., 2007), coupled with sufficient infrastructure requirements. The pandemic may have shifted aspects of higher education towards accelerated online and technology-assisted teaching, learning, and assessment programs in the future (Benito et al., 2021; Clapsaddle et al., 2021; Pelletier et al., 2021). Therefore, additional technical support may be needed if this is the way forward in education to avoid issues testing students' and academics' patience (Bailey & Card, 2009) and efficacy of programs.

Participation Support. Pedagogical thought needs to go into online real-time teaching, learning, and assessment design (Ramsden, 2003), including online planning (Bailey & Card, 2009). For example, online teaching should integrate the effective use of technology, pedagogy, and content knowledge (Koehler & Mishra, 2009; Thompson & Mishra, 2007), whilst simultaneously considering creating meaningful connections between online members. Collegiate learning communities should be established (Garrison & Vaughan, 2008), which could be founded through deliberate planning of supportive peer interactions, where students are provided multiple opportunities to collaborate in active learning experiences. Additionally, relationships between teacher

and student should be fostered (Garrison et al., 2000) by adopting relational teaching strategies (Pearce & Down, 2011) and empathetic and supportive approaches in the online environment (Bailey & Card, 2009). The differences in the online real-time learning environment may produce different requirements or emphases on these pedagogies. For example, expectations of learning pace may need to be adjusted in the online environment as events take longer (Scull et al., 2020). Additionally, it might be worth considering adding aspects of asynchronous activities and discussions to assist engagement, as this provides time for students to research and think about their answers reducing anxieties around participation, especially for introverted students (Baglione & Nastanski, 2007). Given the distinctions between the environments, and many academics are not necessarily experienced in online teaching, academics need appropriate training to develop their capacity for effective online teaching, learning, and assessment programs (Zhu & Liu, 2020). For example, professional development could focus on these relational and supportive online pedagogical practices and the knowledge and skills required for navigating various online programs.

The online learning environment removes many visual and verbal social cues, and the conversation flow does not always seem to be effortless, smooth, or feel natural. It is equally difficult for the academic to evaluate student engagement using face-to-face methods, as engagement is expressed and measured differently (Tai et al., 2019). Therefore, the academic needs to consider the alternative ways their students can communicate and display values of engagement in the online environment. Such practices could include using video conferencing chat functions and annotation tools to allow students to formulate responses to questions and interact with presentations, digital platforms and websites that encourage interaction, and collaborative online documents to gauge individual and group participation. Online synchronous live chat programs may also promote help seeking behaviours (Broadbent & Lodge, 2021). Including other engagement methods that enable students to display their thinking may assist in the online environment where many usual visual and verbal cues that academics use in classes to gauge student learning are removed.

Deliberate relationship building support strategies are needed for students to feel comfortable in the synchronous classroom environment. Students need to feel comfortable and vulnerable enough to participate and ask questions in the remote delivery. By approaching the teaching and learning through a relational approach, student relationships and support can be fostered (Pearce & Down, 2011). This relational approach is well established in higher education literature as effective in face-

to-face teaching (Ramsden, 2003), and also applicable to effective online teaching (Bailey & Card, 2009; Rose, 2018). Support in the online setting can be provided through displaying a compassionate understanding (Rose, 2018), being approachable (Richardson et al., 2016), and with a “strong desire to help students be successful” (Bailey & Card, 2009, p. 154). Arguably, these elements also ring true in the face-to-face setting. Further research into the efficacy of various support systems would assist in the implementations of future remote delivery practice.

Future program design is recommended to focus on the role of the student in the learning process, and the “relation between a learner and a learning task” (Ramsden, 1987, p. 276). Regardless of medium, design should also consider the authenticity and relevance of the learning experiences for the student (Tai et al., 2019). Perhaps this deliberation is moving away from a dual model of considering face-to-face versus online teaching as separate parts, towards a view of enhancing the learning experience for the student. The student participants valued the academics’ ability to provide active teaching and learning experiences that were authentic and engaging aligned with what teaching and learning should be, especially within their future secondary classrooms. These relational, student-centred, and authentic values in teaching and learning design carry weight for both face-to-face and online teaching, learning, and assessment designs.

To promote students valuing the learning process of assessment, rather than focusing on the final grade (Duncan & Barnett, 2009), examination of the assessment pedagogy is recommended. Perhaps this could be promoted with a greater focus on the formative learning within the assessment design (Broadbent et al., 2018), and the students’ role and subsequent actions in the feedback process (Boud & Molloy, 2013b). Additionally, when technology is incorporated, regardless of delivery, design should target the pedagogical concerns and only be applied when enhancing the assessment or learning process. Therefore, when the technology enhances these processes, it should be adopted in both delivery environments where applicable.

Social Presence Support. One significant area missing from the online environment was the lack of social cues available to end-users, which restricted effortless and open communication. While social presence is important in face-to-face teaching environments, it appears to be more vital in the online environment due to the reduction in social cues available via the online platform. Thereby indicating that strategies to boost the social presence of all end-users are essential to counteract the restrictions of the online environment. Furthermore, social presence is a likely predictor

of student satisfaction and perceptions of learning (Richardson et al., 2017), a component of building a Community of Inquiry (Garrison & Vaughan, 2008), and a means to engage students in critical and higher-order thinking (Cleveland-Innes et al., 2013)). Moreover, effective online teachers can combine this social presence with cognitive and teacher presence (Perry & Edwards, 2005). Therefore, intentional planning of social presence is arguably more critical in the online environment, with limited social cues accessible to students. Students must feel comfortable that they can openly communicate, express themselves and feel secure in the space to fully engage and maximise the learning experience.

Consequently, due to the inconsistency of social presence, collaboration and group work can be more difficult in the online environment (Mamas, 2018). Therefore, additional thought needs to go into how this will be taught and facilitated. It is recommended that collaboration be explicitly taught, modelled, facilitated, and monitored in ITE programs to ensure students (pre-service teachers) have the skills and capabilities to collaborate within the profession, both in the face-to-face setting and remote.

The findings of this research suggest participants were feeling disconnected with each other in the online environment. Agreeing with Mamas' (2018) recommendation, this research advocates for incorporating an inclusive pedagogy in digitally supported remote delivery that focuses particularly on enhancing student relationships. Additionally, this research supports Northcote (2008)'s recommendations that

“...the future of online sense of place could be a little more humanised, a little more supported, a little less formal and a little less jungle-like than the past”
(p. 682).

In order to improve teacher-student relationships and subsequent learning experience, humanising the interactions between teacher and student can be achieved through empathy and humour (Berge, 1995). If this is recognised, valued, and developed by end-users, this would undoubtedly improve social presence and the sense of connection with content, community, and compassion for all within the digitally supported remote delivery space.

Applications of Assessment Framework Prototypes

Although contextualised to one institution, the assessment frameworks presented in this research or parts thereof may be influential or useful in other settings (see

[Appendix N](#) and [Appendix Q](#) for final assessment frameworks). [Chapter 5](#) saw authentic aspects of planning through simulating a PLC, adopting additional professional development of collaboration skills. The constructivist and social constructivist approaches of exploring learning through a form of ‘assessment for learning’ was valued by participants in the Ideation workshop. Given many participants in this research provided positive feedback during the prototyping stage, and the literature supports scenario-based learning as constructive skill development (Hursen & Fasli, 2017; Reesa, 2013; Yetik et al., 2012), others may be attracted to these active forms of assessment. The PLC scenario may be especially attractive to other ITE contexts to assist in collaborative learning, supportive, and constructive planning conversations towards potential pathways to job-readiness. Additionally, adopting novel approaches of ‘fill in the gaps’ and annotating as assessment aimed to promote metacognition and self-awareness of social regulation, which may be of interest to others aiming to approach assessment in novel ways.

Academic participants in [Chapter 8](#) (see Prototype Development Findings) strongly voiced their difficult teaching experiences of unpacking learning outcomes and learning progressions. Academics could see that students find this difficult in practice, and a student participant also shared this view. Therefore, this research recommends student support and scaffolded teaching and learning experiences to fully understand and practice unpacking learning outcome and creating sequential, cumulative learning progressions. An implication of this is the possibility that using the prototype framework and task presented in Phase Two of this research ([Appendix Q](#)) could scaffold and sustain understanding within various units or courses.

Implications and Recommendations for Future Research

While this research has contributed to the students, academics, and high-school teachers' experiences and perspectives in both pre- and post-Covid-19 environments, it has done so from mostly a nuanced perspective of one university in Melbourne. It has confirmed academics' perspectives by interviewing external academics at four other institutions. However, further research into perspectives within other universities could broaden the research findings. Additional research into practical implementations of assessment and feedback designs in ITE that promote end-users' wants and needs of practical assessment and feedback is welcomed. Furthermore, this research has highlighted the need for support for each of the stakeholders. Thus, ongoing research into the efficacy of various support systems would assist in the implementations of future practice.

This research aimed to design an optimised assessment that ensured academics would not be allocating more workload to mark and provide feedback. As the prototypes have not been tested for effectiveness, it is hoped that either or both created assessment frameworks will be tested in the future. As well as collecting data on the design effectiveness and marking efficiency, this would also complete the design thinking process through implementation of the final 'test' stage (Wolniak, 2017).

While this thesis has contributed to the international student perspectives, it is an area that could benefit from additional research to understand the international student experience better. As the student cohort within higher education becomes more diverse (Norton et al., 2018), the need for such examination is essential. International students may experience challenges in acculturation (Ecochard & Fotheringham, 2017). Additionally, as Soong et al. (2020) assert, there is minimal research and subsequent understanding of how international pre-service teachers approach teaching, especially at the beginning of their course. Further study into this area may therefore improve future practice.

This study highlighted contrasts between what was known about quality assessment, and what was conceptualised. As end-users discussed disparities between what is known in theory as good assessment methods and what is occurring in practice, further research into why these disparities exist could help to better address the implication of this finding. This research spotlighted academic workload as one contributing factor to limited feedback; however, there may conceivably be other factors at play. Further research is recommended to bridge this theory-practice gap.

Moreover, additional qualitative and quantitative research into the educational approach of online teaching and learning on the academic and student experience would lead to a richer understanding of effective online teaching practices. Investigating the challenges of online pedagogies and how the challenges of the technology platforms, including how the video conferencing platform effects student learning would be highly beneficial. Ongoing discussion on how engagement is expressed and measured in the online environment would also be critical. Learning how others have navigated and thrived in these challenges through a sharing community can help others circumnavigate the mediated environment and associated pedagogies to improve future teaching, learning, and assessing practices.

Despite academics noting obstacles in forming relational bonds with students, students did not discuss any difficulties in the reciprocal relationship. It would be valuable to explore the relational experiences of the students further to understand their perspective in the academic-student relationship better. As academics found this relational aspect difficult across the screen, it would be interesting to explore if students felt the same difficulty or, conversely, if they felt some form of a relationship with the academic. Likewise investigating the perspective of the student behind the blank screen in this relational aspect would provide further insight.

While this research included the perspectives of high-school teachers, it did so from the perspective of their work in the university. While many eagerly shared their experiences within their high school teaching employment, it was not the focus of this research. So, for a more in-depth understanding of the teacher end-user experience, further research should be undertaken. For example, there are potential opportunities to investigate the practical aspects of authentic assessment and affordances in assessment capabilities in the classroom.

Although it was a deliberate choice to use academics as the sample pool in the ideation process, it would be interesting and exciting to consider an ideation workshop with students. This may provide additional agency and potentially emphasise assessment co-creation with the students as pedagogical co-designers (Bovill et al., 2016), done with students only or combined with students and academics. Equally as exciting would be including in-service high school teachers in the ideation collaboration with their classroom and professional currency, which could provide additional industry partnerships and further connection to the profession during ideation of assessment practices and processes. The addition of these extra end-user groups may create a further heterogeneous expertise, recommended in design thinking for improved creative outcomes (Liedtka et al., 2017).

Many creative and valuable solutions were generated from the Ideation workshop that renders consideration and possible future prototype development. Due to the time constraints of this project, these other brainstormed solutions were not able to be investigated further. Only one of these sketched solutions (the most popular with the participants) was chosen to develop further to minimise time and resources on development. For example, a collection of collaboration resources, such as videos modelling practical collaboration skills, could be made for helpful SoTL resources that promote practical approaches to teaching and learning.

Equally interesting are the outcomings of the problem identification brainstorm in the form of “how might we...” questions (see findings in [Chapter 5](#) and [Chapter 8](#)). Used as problem identifiers, these “how might we...” questions could be used in future solution brainstorming ideation sessions. There are many brainstormed ideas that further exploration. For example, “HMW inspire a sense of agency in the pre-service teachers?”, or “HMW create different interactions online that promote inquiry?”, could be explored further to ideate future solutions to further improve teaching and assessment practices in both online and face-to-face environments.

Finally, using design thinking empathy interview and mapping as qualitative research practices has been an exciting inclusion in this research. Design thinking as a qualitative research strategy is an area under-researched, especially in educational research. Further exploration of empathy interviewing and subsequent analysis through mapping would benefit leveraging design thinking in qualitative research.

Final Reflection

Assessment is essential to learning. Assessment develops learners’ knowledge and skill competencies needed in the 21st Century and, in particular, future professional contexts. The assessment problems affecting end-users remain interwoven and complex. Despite these challenges, there are actionable solutions. Design thinking has been demonstrated to be a significant practice that can impact higher education assessment processes thereby ensuring continuous improvement. While acknowledging the limitations of this research, it is hoped that the findings will provide critical insights to facilitate enhanced teaching, learning, and assessment in higher and teacher education.

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Appendices

Appendix A. Phase One: Participant Information and Consent Forms

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH - Academics

Ethics application ID: HRE19-064

You are invited to participate

You are invited to participate in a research project entitled 'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course'. This project is being conducted by a student researcher Melissah Thomas as part of a Master by Research course at Victoria University under the supervision of Dr Helen Widdop Quinton and Dr Zali Yager from the College of Education and the Institute for Health and Sport [IHES].

Project explanation

In this research, we will be creating an assessment design framework in the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. The assessment design is looking to promote an increase in student motivation, increased academic performance and deeper approach to learning. This innovation, while optimising the learning experience for the student, will aim to not increase the time it takes tutors to mark. We are interested in your thoughts, feelings and experiences of assessment in Initial Teacher Education (ITE) and would like your feedback on the design framework prototype that will be created.

What will I be asked to do?

If you agree to participate in this research, we will ask you to participate in 2 one-on-one interviews during the Semester at a time and location convenient to you. The interviews will take no more than 30 minutes each. The researcher will contact you via email to arrange a suitable time for the first interview. The questions in the first interview will relate to your thoughts towards assessment in ITE. After an assessment design prototype is created by the team of researchers, it will be sent to you via email, and you will be contacted to arrange a suitable time for you to give feedback on the created design. Interviews will be voice-recorded with your permission.

What will I gain from participating?

By participating in this research, you may gain an increased awareness of your attitudes and beliefs about assessment practices in education. You will be involved in important work that aims to improve current assessment practices in ITE in terms of both engagement and depth of learning.

How will the information I give be used?

The information you provide in the interview/s will be confidential and kept private. The information that you provide in the interviews will not be shown to your employer/s or supervisors. We will use the information to do some statistical analyses, create the assessment framework, write a report, and present these findings in a thesis for the Master by Research and/or PhD. We will retain anonymous electronic databases for future potential research.

What are the potential risks of participating in this project?

There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time. If you feel any distress, it is advised that you contact Victoria University Counselling Services (+61 3 9919 5400) or Lifeline (13 11 14).

How will this project be conducted?

The assessment design framework will be created through consultation with the participants of this research. The research project will follow the 5 stages in the design thinking model as proposed by

Stanford d.school, with the input of tutors and students from the university, as well as high-school teachers working in the 'Specialisation Curriculum and Pedagogy' programs. The innovative framework structure will be informed by literature with consideration of the contribution of participants from the interviews.

Who is conducting the study?

Chief Investigator:

Dr Zali Yager
Zali.Yager@vu.edu.au
+61 3 9919 4555

Student Researcher:

Melissah Thomas
Melissah.Thomas@live.vu.edu.au
+61409018626

Any queries about your participation in this project may be directed to the Chief Investigator listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH - Students

Ethics application ID: HRE19-064

You are invited to participate

You are invited to participate in a research project entitled 'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course'. This project is being conducted by a student researcher Melissah Thomas as part of a PhD course at Victoria University under the supervision of Dr Zali Yager and Dr Helen Widdop Quinton from the College of Education and the Institute for Health and Sport [IHES].

Project explanation

In this research, we will be creating an assessment design framework in the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. The assessment design is looking to promote an increase in student motivation, increased academic performance and deeper approach to learning. We are interested in your thoughts, feelings and experiences of assessment in Initial Teacher Education (ITE) and would like your feedback on the design framework prototype that will be created.

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What will I gain from participating?

By participating in this research, you may gain an increased awareness of your attitudes and beliefs about assessment practices in education. You will be involved in important work that aims to improve current assessment practices in ITE in terms of both engagement and depth of learning.

How will the information I give be used?

The information you provide in the interview/s will be confidential and kept private. The information that you provide in the interviews will not be shown to your employer/s, supervisors or tutors. We will use the information to do some statistical analyses, create the assessment framework, write a report, and present

these findings in a thesis for the PhD. We will retain anonymous electronic databases for future potential research.

What are the potential risks of participating in this project?

There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time. If you feel any distress, it is advised that you contact Victoria University Counselling Services (+61 3 9919 5400) or Lifeline (13 11 14).

How will this project be conducted?

The assessment design framework will be created through consultation with the participants of this research. The research project will follow the 5 stages in the design thinking model as proposed by Stanford d.school, with the input of tutors and students from the university, as well as high-school teachers working in the 'Specialisation Curriculum and Pedagogy' programs. The innovative framework structure will be informed by literature with consideration of the contribution of participants from the interviews.

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Ethics application ID: HRE19-064

You are invited to participate

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Project explanation

In this research, we will be creating an assessment design framework in the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. The assessment design is looking to promote an increase in student motivation, increased academic performance and deeper approach to learning. This innovation, while optimising the learning experience for the student, will aim to not increase the time it takes tutors to mark. We are interested in your thoughts, feelings and experiences of assessment in Initial Teacher Education (ITE) and would like your feedback on the design framework prototype that will be created.

What will I be asked to do?

If you agree to participate in this research, we will ask you to respond to some questions either by email or over the phone, whichever you prefer, on two occasions during the semester. The questions should take about 10-15 minutes to complete on each occasion. The questions in the first correspondence will relate to your thoughts towards assessment in ITE. After an assessment design prototype is created by the team of

researchers, it will be sent to you via email, and you will be asked for your feedback on the created design. Phone interviews will be recorded with the permission of the participant.

What will I gain from participating?

By participating in this research, you may gain an increased awareness of your attitudes and beliefs about assessment practices in education. You will be involved in important work that aims to improve current assessment practices in ITE in terms of both engagement and depth of learning.

How will the information I give be used?

The information you provide in the responses will be kept private. Any identifying information in the responses will be removed to ensure confidentiality. The information that you provide in the interviews will not be shown to your employer/s or supervisors. We will use the information to do some statistical analyses, create the assessment framework, write a report, and present these findings in a thesis for the Master by Research. We will retain anonymous electronic databases for future potential research.

What are the potential risks of participating in this project?

There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time. If you feel any distress, it is advised that you contact Victoria University Counselling Services (+61 3 9919 5400) or Lifeline (13 11 14).

How will this project be conducted?

The assessment design framework will be created through consultation with the participants of this research. The research project will follow the 5 stages in the design thinking model as proposed by Stanford d.school, with the input of tutors and students from the university, as well as high-school teachers working in the 'Specialisation Curriculum and Pedagogy' programs. The innovative framework structure will be informed by literature with consideration of the contribution of participants from the interviews.

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INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study that is developing an innovative assessment design framework in Initial Teacher Education (ITE) within the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. Within this assessment design we are looking to promote an increase in student motivation, increased academic performance and deeper approach to learning. This innovation, while optimising the learning experience for the student, will aim to address the marking efficiency for the tutor. We are interested in your thoughts, feelings and experiences of assessment in ITE and would like your feedback on the design framework along the way.

If you consent to participate, we will ask you to participate in two one-on-one interviews during the Semester. The interviews will take approximately 30 minutes each. The questions in the first interview will relate to your thoughts towards assessment in ITE. The second interview will ask for your feedback on an assessment design prototype. Interviews will be recorded with your permission. The information you provide in the interviews will be anonymous and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

CERTIFICATION BY PARTICIPANT

I, _____ (participant full name)

of _____ (participant suburb)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Melissah Thomas and that I freely consent to participation involving the below mentioned procedures:

Participation in this study involves:

- 1) Initial interview to understand your thoughts towards assessment in ITE
- 2) Second interview for feedback on an assessment design prototype

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: _____ (participant signature)

Date: _____

Any queries about your participation in this project may be directed to the researcher

Dr Zali Yager

+61 3 9919 4555

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

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If you consent to participate, we will ask you to participate in two one-on-one interviews during the Semester. The interviews will take approximately 30 minutes each. The questions in the first interview will relate to your thoughts towards assessment in ITE. The questions in the second interview will ask for your feedback on an assessment design prototype. Interviews will be voice recorded with your permission. The information you provide in the interviews will be anonymous and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

PARTICIPANT INFORMATION

Gender identity: _____

Domestic / International Student: _____

Number of months into the Master of Teaching course: _____

My two teaching specialisations are: _____ & _____

CERTIFICATION BY PARTICIPANT

I, _____ (participant full name)
of _____ (participant suburb)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

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I have been informed that the information I provide will be kept confidential.

Signed: _____ (participant signature)

Date: _____

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Dr Zali Yager
+61403011643

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INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of a study that is developing an innovative assessment design framework in Initial Teacher Education (ITE) within the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. Within this assessment design we are looking to promote an increase in student motivation, increased academic performance and deeper approach to learning. This innovation, while optimising the learning experience for the student, will aim to address the marking efficiency for the tutor. We are interested in your thoughts, feelings and experiences of assessment in ITE and would like your feedback on the design framework along the way.

If you consent to participate, we will ask you to respond to some questions either by email or over the phone, whichever you prefer, on two occasions this Semester. The interviews should take about 10-15 minutes each to complete. The questions in the first interview will relate to your thoughts on authentic assessment in the teaching profession and the questions in the second interview will ask for your feedback on an assessment design prototype. The information you provide in the interview will be anonymous and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

CERTIFICATION BY PARTICIPANT

I, _____(participant full name)

of _____(participant suburb)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Melissa Thomas and that I freely consent to participation involving the below mentioned procedures:

Participation in this study involves:

- 1) Initial interview to understand your thoughts towards assessment in ITE
- 2) Second interview for feedback on an assessment design prototype

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: _____(participant signature)

Date: _____

Any queries about your participation in this project may be directed to the researcher

Dr Zali Yager

+61 3 9919 4555

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix B. Phase One: Semi-structured Interview Questions

Students:

Gender identity:

Domestic / International Student

Number of months into the Master of Teaching course: _____

What are your two specialisations?

What are your experiences with assessment in higher education?

Assessment design

What are your current concerns in terms of assessment in ITE? What would you like to see changed?

Engagement

What experiences with assessments have you really enjoyed?

Level of understanding

What aspects of an assessment determine important aspects of the curriculum? (e.g. knowledge, behavioural competence, values, etc.)

Feedback

What type of feedback is the most valuable for you?

When have you been able to personally reflect on your own work in assignments?

Authentic Assessment

What assessment practices do you think will help students understand good assessment practices for their own future classrooms?

Academics:

Gender identity:

Higher Ed Teaching experience (Number of years):

What are your experiences of assessment in ITE?

Assessment design

What are your current concerns in terms of assessment in ITE? What would you like to see changed?

Engagement

What aspects of assessment do you feel students engage most with?

Level of understanding

When do you find students demonstrate deep learning in assessment? I.e. What tasks, situations, conditions, etc.

Feedback

Do you think students feel as though they receive enough feedback?

What feedback should we include in the framework?

Academic Workload

How do you think we can reduce the workload for marking assignments?

Authentic Assessment

What aspects of a 'Unit Plan assessment' do you feel are most authentic to the profession?

High-school Teachers:

Gender identity:

Teaching experience (Number of Years):

Teaching experience in the Master of Teaching program:

Specialisations/Disciplines:

What are your experiences with assessment in ITE?

Authentic Assessment

What parts of a 'Unit Plan assessment' do you feel are most authentic to the profession?

What skills do you feel are the most important to the profession?

Do the skills you have mentioned above apply to a 'Unit Plan assessment' task?

Please explain.

Assessment Design

Are there any assessment strategies that you use in your (high-school) classes that you could see being able to be applied in the higher education context?

Feedback

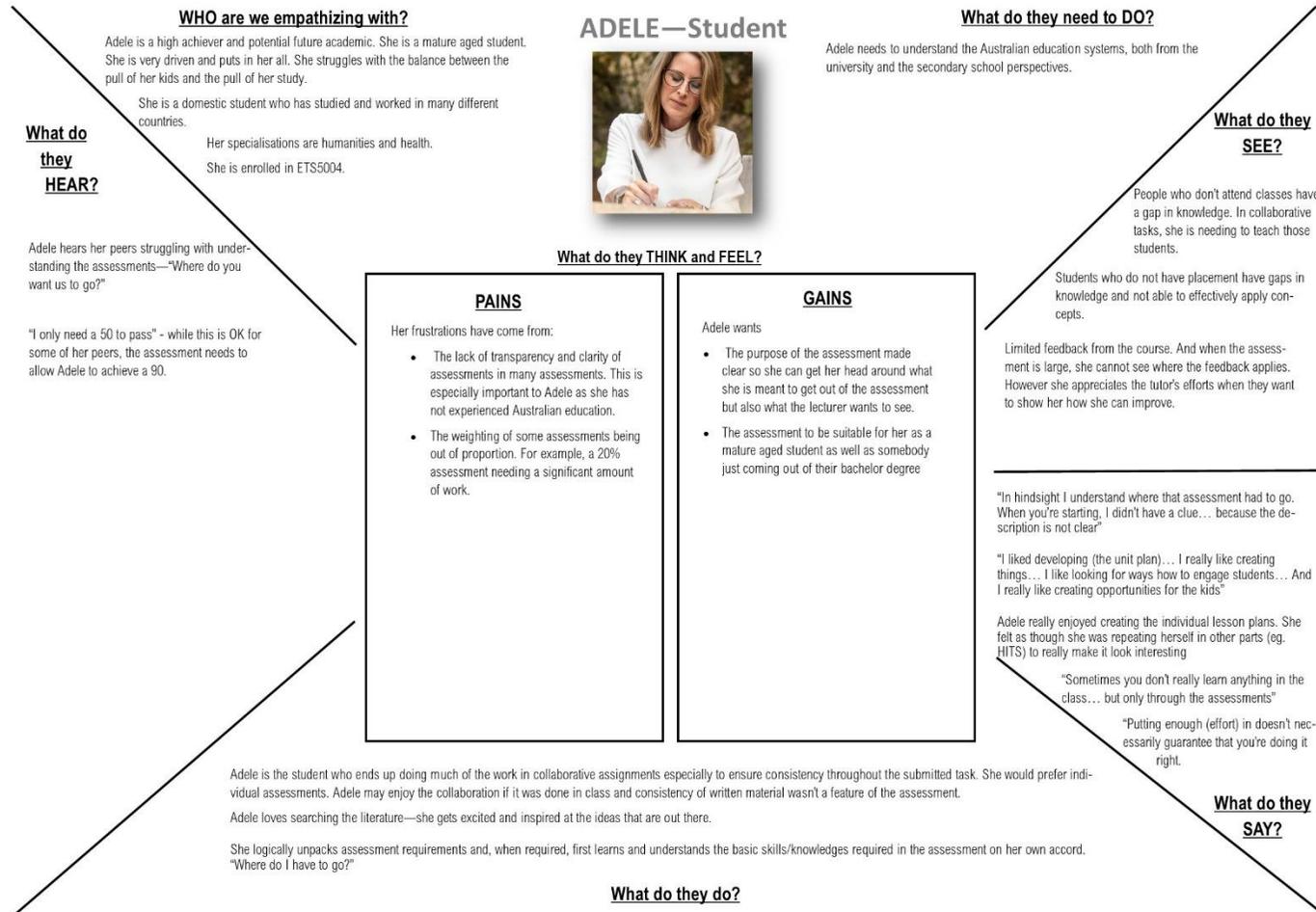
What feedback do you believe we should include in the framework?

Academic Workload

How do you think we can reduce the workload for marking assignments?

Note: The term 'student' here is referring to pre-service teacher

Appendix C. Phase One: Empathy Maps



WHO are we empathizing with?

Amelia is a domestic mature aged student who is studying to improve her career pathway. She was working as an integration aide. She has also worked in the film and media industry. She loves a chat.

She is going through a really tough time in her life: divorced, single provider for her two high-school aged kids.

She is very time poor. She is completing two other courses concurrently.

She hasn't studied since 1998.

Her specialisations are Media and Humanities.

She is enrolled in ETS5003.

AMELIA—Student



What do they need to DO?

Amelia needs to get her head around the Higher Education systems as she is perplexed with the changes since she last studied. She finds the online nature of the course difficult to navigate and is only a little more comfortable after 6 months of trying to work it out.

Amelia needs to understand the importance between theory and practice as she receives conflicting information in her field of work and on placement.

She needs to see the connections between her specialisations (and expertise) and apply that to her teaching.

What do they SEE?

Other students (including herself) struggling with the workload of the course. The readings, government policies take a long time to read and comprehend.

What do they HEAR?

Amelia showed one of the specialisation unit videos to an experienced teacher friend and explained that she didn't even understand the requirements of the assessment.

Experienced teachers are telling her that she isn't really going to use the all of the theories she is learning about. "You'll take it in (through experience)"

VU Master of Teaching course is more practical. Other people in her circle have told her Melbourne Uni and others are more theory based.

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Her life responsibilities
- The overload of information in the first specialisation unit—so many documents that she had never been exposed to before. She is overwhelmed.
- Confusing assessments
- "Finding the time for everything"

Amelia struggles with academic writing and referencing. She is aware of the resources available at VU to help her. It seemed she didn't have the energy to seek out help, but would rather the ease of it being part of the course.

GAINS

Amelia wants

- Clear assessment
- Basic use of language—limited jargon
- Instructions broken down further with scaffolding questions
- The explanation of the assessment in class for clarity.
- Assessment that she can use
- To connect deeply with assessment that allows her to reflect on her own learning.

Lecturers not giving written feedback. She can see the parallels between schools providing feedback to students, but a lack thereof from universities.

Peer feedback is valuable to a limit but then can be extended upon by the lecturer with a professional point of view.

Her mentor create a website with the Media resources for the whole year—Amelia was impressed.

"Things need to be more simplified because they've got to take into consideration people like me that have had such a gap."

"How is this going to help me in my teaching?"

"I don't think we should be worried about the mark. I think we should worry about the process of learning..."

Amelia has been playing around with the online platform to try to get used to the systems.

She seeks out help and advice from her teacher friends. She holds their advice in high esteem.

What do they SAY?

What do they do?

WHO are we empathizing with?

Eleanor is a high-achieving student in her 30s who has a background in Sales and Biology (degree in Biomedical Science). Was involved in education component in her role in diagnostic medical pathology. Always had a passion for education.

She is into the second semester of her Master of Teaching course.

Specialisations: Science and Middle Years

She has decided on a career change and taken a large pay-cut to become a teacher. She is struggling with the life style change of student life. She is living at a friend's home in a spare bedroom.

She wants to be a teacher to help others. She cares about her students, and those who are less advantaged.

ELEANOR—Student



What do they need to DO?

Eleanor needs to turn up to class—she learns better from the interaction and face-to-face learning component.

Conceptually she understands what the Middle Years specialisation is, but it is too general and she struggles to link to assessment tasks.

She just needs to get through the course and will learn more practically (on the job).

What do they SEE?

Eleanor connects with the Inquiry model, but doesn't see the link in schools.

She hasn't seen it implemented in practice (on placement).

She noted that not many students turn up to class.

Other students completing the assessments before learning about the material. "I know I'm going to be busy in a few weeks, so I've just done it now" - and they still perform well

Eleanor doesn't always understand why she receives the mark she receives. Sometimes she submits something that she doesn't even totally understand and receives a HD for it.

She uses the educational discourse, but doesn't always understand what she is writing.

Although analytically minded, she reflects on the importance of free-thought in assessment: "The uncomfortably is important in my growth as a person"

"I liked it because I'm good at it"

She likes formative assessment

What do they SAY?

What do they HEAR?

Eleanor notices other students in class becoming overwhelmed with assessment and wanting to start the assessment straight away—without covering the important content in class. She gives the advice to "just wait because we're probably going to learn things"

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- getting her head around the unit before starting to understand the assessment.
- Not understanding the fundamentals of the assessment (or the unit itself).
- The vast amount of information on VUC
- Vagueness of assessment instructions—what parts are important?

Her frustrations have come from:

- her tutor not being fully informed of the unit or assessment

Didn't feel the specialisation A subject was of any benefit.

She understands that at a Masters level there needs to be a high level of written component, but would like the practical links.

GAINS

Eleanor wants

- clarity in assessments to reduce confusion and anxiety.
- Transparency in assessment
- Why should she be doing this assessment? Why is she reading this literature? What skill set is she working on and why? Where does this all fit together?
- Relevant assessment + also relevance to placement
- Flexibility
- Critical thinking within assessment (not regurgitation of information)
- Structure in curriculum and assessments
- Human interaction—but not group work assessment. Working individually and then coming together to practice practical skills.
- Goals to work towards in assessment—assessment that builds

Eleanor links ideas and concepts together well to understand and make sense of how they connect. She likes writing essays because she is good at that skill.

She picks up on what is important in something. Often this happens when other students are grappling with the wrong focus.

Regularly reflects on feedback by documenting on what areas she can improve on. Although, often minor improvements are needed (referencing, etc).

She chooses tutors/lecturers on the basis of relationships, often putting herself out in terms of time commitments—more one-on-one feedback is wanted.

She watches her tutors/lecturers teaching "how they teach" and tries to understand what is effective and what she can use in her own teaching.

What do they do?

FLORENTINA—Student



WHO are we empathizing with?

Florentina is an experienced educator of 8 years who works at Deakin and Monash University teaching Spanish. She now wants to teach in the secondary system.

She has a Masters in International Development, Bachelor in Business and a Diploma in Teaching Spanish as a second language.

She completed her education in Mexico, including her BBus.

Her specialisations are LOTE and Humanities.

Enrolled into ETS5004.

Florentina loves teaching. She finds teaching secondary students challenging.

What do they need to DO?

Florentina already knows the basis on how to teach. She has the experience in teaching adults. She needs to be able to see the link between what she already knows about education and how that applies to Secondary education.

What do they SEE?

Florentina notes the differences between assessment in Mexico and Australia. Mexico assessments are heavily weighted around tests.

Monash Uni seems more practical in it's assessment compared with VU.

She sees the value in having a worldview of education. "What's going on in other countries, what can we learn from there..."

What do they HEAR?

Florentina is understanding of the tutor assessment constraints and wants to fix them, as a University tutor herself.

She heard her peers say the specialisation teachers didn't know what the assessment was about. There was no collaboration with the specialist teacher while doing the assessment.

It doesn't matter how you create a unit plan, you have to comply with the school and use their template. So whatever you're doing now you still have to change it. "Teach us what is (the) important thing we have to create and put it into a template, or whatever..."

What do they THINK and FEEL?

PAINS

Her frustrations have come from:

- Her workshop teacher not having experienced teaching Inquiry-based learning. How does the teacher know that her assessment good if they have never done it.
- Peer assessment—doesn't always reflect honest feedback to improve on professional skills. Also there is not enough time or expertise to give proper feedback.
- Having to place a weight on assessment, eg. 20%, that seems worth nothing, but University policy prescribes weightings.
- The assessment workload is too much. The assessments are too easy and there is too much of it.

GAINS

Florentina wants

- Assessment to be for something, to hold a value—not just an essay that's going to be forgotten. She wants her assessments to "give back" to the University.
- To meet with people within the education field—people of position and standing in various expertise. She wants networking with others in the field of education. "More conferences or meet ups or networking things" or a relationship with the teaching associations.
- Room for creativity and to be able to extend beyond the constraints of the assessment task. To be able to delve deeper into a part of the assessment task and be rewarded for it.
- To meet with people and ask them what they need and create an assessment around that.

Florentina notes the challenge differences between teaching University students and high school students. "It's not just about teaching, it's about control, engage..."

Timed assessment, like the LANTIDE, doesn't allow enough time to process things.

"Assessment feels so structured" - She understands she needs to follow the AITSL standards and know about HITS but she wants more meaning than this.

SET/SEUs regarding assessment shouldn't reflect on the tutor as the tutor may not be the person designing the assessment.

"It's important, once you create an assessment to also evaluate how it works or not"

In her university job, Florentina marks within the rubric, and notes the equal opportunity a rubric provides to the students. However she finds it "heartbreaking" when a student has provided creativity and put so much effort into an assessment, but this cannot be reflected in the rubric and the student does poorly as a result.

She doesn't place effort or emphasis on microteaching assessment tasks. She doesn't see the relevance to the task and doesn't see it as authentic—possibly due to already having teaching experience. Peer feedback is not valued and she questions the competence of her peers giving quality feedback and accurate results. She accepts the peer feedback but moves on and doesn't really take it on board.

What do they do?

What do they SAY?

WHO are we empathizing with?

Julia is a high achiever. She went to a Catholic school with little diversity.
She works as a Nutritionist.
Her specialisations are Health and Science (Biology)
She is enrolled in ETS5004

JULIA—Student



What do they need to DO?

Julia needs to understand the curriculum and know how to plan around the resource accordingly.
She needs to gain content knowledge because her degree and previous job field doesn't cover what she is going to teach in school.

What do they SEE?

Some tutors not having a clear understanding of the assessment tasks

What do they HEAR?

Julia hears other peers being very confused with assessments.
Not enough about unpacking the curriculum in the spec Saturdays—it was more about activities—she wasn't told about the logbook requirements of VCE Biology

What do they THINK and FEEL?

<u>PAINS</u>	<u>GAINS</u>
<p>Her frustrations have come from:</p> <ul style="list-style-type: none"> • The confusion with assessments. The language and instructions are unclear and the explanation from tutors is also unclear. • Not understanding why she does well in some assessments (often when she has no idea what she is doing) but not in others. • The rubric doesn't clearly match up to what is happening in the assessment • Her peers not having a clear awareness or knowledge base of what they are looking for in order to give quality feedback. • The workload of the multimodal Master's course. One hour of 'homework' takes 3.5 hours. 	<p>Julia wants</p> <ul style="list-style-type: none"> • Each assessment to be different and to build upon each other and the learning that has occurred previously. Each assessment should be assessing and learning something new. • More feedforward feedback. And the feedback to make sense to her. • To see how the university would do formative assessment with them. They speak about it's importance, but it is not seen in the course. • The assessment marks back before the start of the next assessment in order to try to improve.

While completing the unit planner last semester, Julia liked going over the curriculum—"learning how to break things up and then planning my lessons to go"

"We don't look at the curriculum in any other subject"

She doesn't know how the assessment should be changed or what she wants or needs out of an assessment.

She doesn't mind written assignments.

She doesn't mind what type of feedback she gets—written or verbal.

What do they SAY?

Julia tried to make sense of the curriculum herself. The workshop teacher didn't unpack the curriculum but instead spoke about different resources.

She connects deeply with assignments that she perceives are important, or teaching something of importance. Assessments that are valuable to her now are connected with more deeply. Also assignments that allow her to think from a different perspective; through a different lens.

Julia doesn't complain. She gets on with it. If it's an assignment that needs to be done, she gets it done and before the due date.

What do they do?

JEREMY—Student



WHO are we empathizing with?

Jeremy is in his 20s who has nearly finished his course. He is a domestic student who chose to complete ETS5003 at the end of his course.

He puts a lot of effort into his studies, but he is not necessarily a HD student—inconsistent results.

“Uni is a bit of a get in, get out scenario for me”

His specialisations are Humanities and Commerce.

What do they HEAR?

When Jeremy showed the Specialisation teacher his unit planner, they pointed out, “I know that’s what you’re looking for in your assessment, but how are you going to formatively assess them more? How are you going to provide the feedback?”

Jeremy was able to take the information given to him on placement and adapt it to his own teaching style. He made changes to the mentor’s suggestions (which she valued) as it wasn’t her expertise. “You see it a lot in classrooms, when you observe, ... this is just going in (one ear) and out the other”

What do they THINK and FEEL?

PAINS

- Written instructions that are not clear enough to know how to achieve full marks.
- Rubrics that are vague.
- Lack of participation from other students in the Saturday workshops really effects the days and how much you get out of it.
- “If there’s an assignment that troubles me, I’m glad it’s done and I’m just happy to have the P”
- Jeremy is not understanding why he gets mixed results in some subjects. It is unclear to him what he has done differently in the assessment.
- What are you looking for in assessment?
- “...when creating these things you are creating for an unknown classroom.”

GAINS

Jeremy wants

- The unit plan linked more closely with the AIGT. Possibly in the justification of incorporating differentiation and inclusion or engagement. “They want you do show how you demonstrate each standard (in) each lesson constantly”
- More of a variety of teaching strategies towards certain things, for example classroom management. “You get a couple of them on placement and a few of them on Saturday classes..., but I feel like I’ve still got a really small toolbox to work with.”
- Reduce the scope of the unit planner somehow, but include an aspect of needing to create something that you want to focus on improving (e.g. worksheet, rubric, assignment)
- “Tell me one thing I’ve done well and one thing I can improve on” and “keep it as simple as possible”

What do they need to DO?

Jeremy wants more consistent higher results.

He is eager to start his teaching career.

What do they SEE?

Jeremy sees the importance of theory. He feels he’s got a good grasp on it now.

Theory is covered in great detail in the course and he is happy with the amount.

He sees the importance of developing a unit plan and the different skills required in the wholistic and sequential lesson development.

He values skills more than content knowledge, due to the inclusion of technology. He noted the AT1 (framework) as a valuable skill based assessment which required him to connect to the government policies.

A gap in knowing how to complete ILPs.

On reflecting why the designing SAC task assessment was helpful, Jeremy stated “Sometimes you won’t have the resources around you to do that so you have to figure out how you’re going to design a SAC” and “it forced you to read and analyse the study guide”

“The unit planner could have made us work harder”

The important take aways from the unit planner assessment: what’s your process; how much time are you going to dedicate to each topic within it; how are you going to provide variety; incursion/excursions.

“Anyone can write a good lesson plan, but it’s really hard to do a bulk series of lessons”

What do they SAY?

Jeremy puts in effort and time in assessments as well as trying to make sense of instructions and criteria.

Even though he didn’t want to be at Unit on a Saturday, he put effort into connecting with the Specialisation teacher to learn as much as he could. He wanted more from his peers to be able to collaborate and learn off each other, “Two heads are better than one”.

Jeremy tries to consider the pervious feedback given even when the assessments are not clearly linked.

He evaluates who would be good to work with in collaboration: “...he knows what he’s talking about. He’s eager. And that made it really valuable”

What do they do?

WHO are we empathizing with?

Karla is an international student who is 18 months into her course. She is enrolled in ETS5003 as she failed the unit last year.

She has worked as a lecturer in the Philippines.

Her specialisations are Humanities and Middle Years. She also has a background in sociology and economics.

KARLA—Student



What do they need to DO?

Karla needs to understand and be exposed to the classroom as she has not experienced education in Australia.

She needs to develop confidence in her teaching skills.

She needs to develop the skill of 'thinking on her feet'.

Karla needs to make connections between units—she has a surface understanding on good assessment is being able to make a good test. She does not fully understand the complexities of assessment.

"I really did enrol in this course to be a better teacher whether here or abroad"

What do they

SEE?

Karla sees multiple units in the MTeach course "addressing the same concern" - "having the same question" and "researching the same topic"

Karla sees the importance of developing both her academic writing and integrate this in her teaching skills.

Teachers in the Philippines have more respect from students than in Australia. When a teacher says "no", they listen.

"I don't know anything that is happening in the classroom"

"I don't have any teaching experience in Australia... It's very hard for me to think of a certain situation where I could apply what is being taught to us"

Karla values the lecturer's feedback more than peer feedback, especially at the beginning of her course.

I'm not very good at academic writing, particularly in the form it's being used here.

"The assessments are too vague. We didn't know if we were doing it correctly."

What do they HEAR?

International students found placement extremely difficult as they didn't have any experience or knowledge on Australian education.

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- In class assessment that is fast paced. She wanted to discuss it first

Her frustrations have come from:

- Some of the learning spaces are not conducive for in-class assessment.
- Not being able to see the connection between the unit and it's assessment.

GAINS

Karla wants

- "...more assessment in terms of gauging my teaching capacity and development of my teaching skill"
- more on classroom management, or how to deal with a specific concern in the classroom. She wants a case presented to her that she could strategize and answer.
- The succession of assessment to be scaffolded. Start with an assignment that is not very difficult and increase in difficulty.
- Feedback from the lecturer/tutor
- Written feedback when the rubric cannot explain it all

Karla spends a lot of her study time hand-writing perfectly organised notes. She also writes all of the feedback given to her in a book and tries to reflect on it and apply it in the next assessment.

What do they do?

What do they

SAY?

MUJAHID—Student



WHO are we empathizing with?

Mujahid is a domestic student in his 20s.
His specialisations are Health and PE.

He works a lot and is very busy with this outside of university.

Mujahid just wants to get the course done. He wants to complete the assessments, get the degree and get a job.

What do they HEAR?

What do they need to DO?

Mujahid needs to turn up to class.

He needs to connect more with the unit's curriculum.

As a teacher practitioner he needs to reflect on a deeper level.

He may need to achieve better results.

He needs placement to be able to connect theory to practical (as well as the unit's curriculum).

What do they SEE?

Working and earning money is more important than turning up to class.

Mujahid looks at the assessments at a surface level. He doesn't see or reflect on what he can take away from the assessment. Just that it needs to get done.

What do they THINK and FEEL?

PAINS

- Mujahid would have a fear of not passing
- Not being able to see the relevance and importance of the curriculum.
- The assessment is important only because of the result (gaining accreditation) - not the worth of the assessment.
- Not getting placed in a school for his professional practice.

GAINS

Mujahid wants

- Worth and value out of curriculum and assessment in order to turn up to class.
- More practical links

The assessment is the important part of the course as it determines the completion/ passing of the degree.

Turning up to class is not important.

You learn a lot on placement.

Mujahid appears to do the bare minimum to complete the course.

He doesn't turn up to class much.

He doesn't necessarily feel the need to come to class—just do the assessment.

What do they SAY?

What do they do?

WHO are we empathizing with?

Madhu is an international student from India who has been in Australia for 2 years. It appears she is a high achieving student, she is very good at writing and often receives an HD for her written assignments.

Specialisations: English and Media Studies

Enrolled in ETS5004 (already completed 6 months of Masters of Teaching course)

MADHU—Student



What do they need to DO?

Madhu needs to understand the features of a unit plan: how to read it, understand it's different parts and know how to get what she needs from it.

She also needs to understand the Australian education system and the various features of it.

What do they SEE?

Schools not using lesson plans—but using unit plans

The workshop teachers valuing theory connected with the assessments. Madhu's workshop teacher reiterated that "theory will really help you" and "you'll understand that... when you are an actual teacher"

What do they HEAR?

Her mentor teacher telling her:

"you have to be spontaneous"

"teaching is not always a more structured thing"

"(Differentiation) is one of the most important things that you need to keep trying"

"I know the kids in class that I'm going to be with (and plan according to that)"

Madhu hears her peers saying they are not given enough time to really put our best into it.

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Not understanding the Australian education systems
- The tutor not explaining the system explicitly and the VCAA website not being clear.
- The assessment example given is not in her specialisation (which was very different to her specialisation)

Her frustrations have come from:

- Not understanding all of the VCAA documents and the vast amount of information that comes from them.
- Conflicting feedback from tutors and inconsistency in feedback.
- Lack of time—
 - * to spend on each unit and assessment in each unit
 - * to reflect on the feedback given to her

GAINS

Madhu wants

- Assessments linked to her professional practice
- Clear, logical structured assessment where the parts naturally flow and build upon each other.
- To go into (important) theory deeply and not just feel like she is rushing over it.
- Verbal, explicit instructions (and feedback)
- A link between what she has not done effectively in (theory) assessments and how that would affect her classroom teaching

Madhu seeks help from VU staff when needed—and she values this help. She also utilises the videos to help explain the assessments.

She creates detailed lesson plans that are highly organised so that she is prepared for her classes on placement—often relying on them too much

What do they SAY?

Assessment has to be "worth" something.

"I love and learn a lot more when I'm in school on placement"

Madhu connects deeply with assessment that links her own personal experiences with teaching theory. And incorporates self reflection in the process.

What do they do?

WHO are we empathizing with?

Zala is an international student from India. She started her studies at La Trobe and was very unhappy with the university so transferred to VU. She is very happy with VU's course and assistance it provides her.

She is very passionate about teaching and about her studies. She values the Australian education system and the voice and agency given to students. She had a difficult experience in the Indian education system growing up. She notes flaws in the system there and says it delivers terrible assessment.

Apart from her husband, Zala doesn't have family in Australia. She has increasing pressures from family back home to start a family. She is also managing poor health issues.

Her Specs are IT and Business.

ZALA—Student



What do they need to DO?

Zala needs to understand the structure of the units, subjects, and textbooks in Australia, which are very different to India.

"It is difficult to understand when you don't have connection with the country"

What do they SEE?

Teachers not using lesson plans or unit plans on placement.
"What if the mentor is not following what I'm leaning?"

Students not having placement finding it difficult to complete the assessments.

The amount and quality of feedback depends on teacher to teacher.

Zala is very happy with the feedback from VU.
"Every standard style that a teacher should meet in a 21st Century learning is given to us"

The collaboration component of the assignment doesn't reflect authenticity in a school.

"I love collaborating but the topic we're given to collaborate on... I don't really think that's taking me anywhere" - She couldn't see the link between what she was doing and the need for the collaboration.

We get a lot of constructive feedback: "They literally explain what you're supposed to do, how you're supposed to do (it), what you're supposed to do it"

"The first time I ever made assessment it was completely only about the topic. I never thought about the branches of it or maybe I could make it a little more creative or put in my thoughts or experiences..."

What do they SAY?

What do they HEAR?

When collaborating with other students from various backgrounds, Zala appreciated the difference in ideas and creating activities.

Zala hears feedback in a positive way and values the lecturers' experienced knowledge on "what I'm supposed to change in me"

The lecturers are empathetic when giving feedback. "Here the one thing that lecturers were really concerned about was, how am I going to take it as well"

What do they THINK and FEEL?

PAINS

Her frustrations have come from:

- Vague assessment descriptions on VUC and vague explanations from lecturers.
- Not having experience in a VCE classroom. She feels like she will lose important things learned in theory because she cannot link it to the practical aspect (as in placement).
- Not understanding how the subjects are related. "Why am I having this subject in my life"

GAINS

Zala wants

- Assessments that are "narrow and at point"
- Assessment that links to your own professional practice and relevant.
- Assessment being exploratory with a combination of theory and practical (making clear links between)
- Sequence in assessment:
 1. Guiding questions to give direction to achieve goal.
 2. Making your own picture—come up with own questions (this shows the learning taking place)

Zala completes most of the assessment when in a collaborative group. Mainly due to her being placed in a school and the others not (others also international students; one other domestic that wasn't placed).

Zala reflects upon her own educational experiences as a student to help her "teaching to be better" - "what (she) didn't like", what "teacher she loved", and what she "definitely wants to be in (her) teaching".

She investigates ways of engaging her students in her specialisation, but is also passionate about trying to make them interested in education.

What do they do?

WHO are we empathizing with?

Zhi is in his late 30s and is extremely well educated. Holds multiple Masters. His education stems around finance and accounting. He is technically a domestic student; originally from China. He has worked around the world: Sydney, China, South Africa, California in fields of accounting, marketing and higher education.

His specialisations are Business and LOTE

He has been away from study for nearly 10 years.

He wants to try a different lifestyle and work in Australia as a teacher for a couple of years and then will possibly return to China.

ZHI—Student



What do they need to DO?

Zhi needs to learn a different way of assessing because he is used to completing examinations, which require a different set of skills.

What do they SEE?

Australia's education system is vastly different to China's.

He notes Chinese students are more studious and driven by examination studies.

Chinese students are driven by themselves and their parents—they are pushed hard. No classroom discipline to worry about.

In Australia, parents give more freedom and teachers need to motivate and engage students.

The assessment in this education course is weighted more heavily on formative assessment. And also teaches logical thinking and how to apply theory to practical.

He is surprised at the level of differentiation needed in Australia now due to the different cultures present in the classroom.

Zhi is extremely happy with the feedback he gets from his lecturers/tutors. He can see the improvements from 10 years ago. "They are so responsible"

"The students here are more creative, more practical."

"I think the culture is quite important. Culture is like the invisible factor"

A teacher in Australia has more autonomy than in China.

What do they HEAR?

Zhi hears his tutors giving feedback on the "drawback of my assignment (and) what (are) the strengths of my assignment".

The Chinese government has reviewed their education system and found they need to improve students' creative thinking and critical thinking. Also need to improve practical value of some subjects.

His friends in China would prefer to live in Australia for the lifestyle and conditions.

What do they THINK and FEEL?

PAINS

He feels his spoken English is limited and that he cannot express himself as deeply.

He takes a lot more time with writing in English.

He doesn't do many of his hobbies here in Australia—many because his job required him to socialise in these ways

GAINS

Zhi wants

- To be assessed in placement more than a pass/not pass result—have a real result
- A stronger link between the placement and the formative assessments—to complement each other.

What do they SAY?

Zhi doesn't apply the feedforward feedback given on assessments to future assessments with different criteria. However, when he sees the commonalities he holds the feedback in the back of his mind.

He tries to connect deeply with all assessments. He doesn't have a job and puts every minute he can into his studies. This may be partly because he mentions that education is vastly different to his previous experience in commerce.

When Zhi needs to improve on something, he finds various ways to upskill.

What do they do?

Academic Empathy Map

Who are we empathising with?

Tutors and Lectures of varied experience from 1 year to 20+ years of higher ed experience. 5 Males and 3 females.

All come from an education background, teaching in schools – mainly secondary, some also primary.

Most have experienced Block model – dichotomy between the controlling factor of time (or lack thereof) and quality assessment and feedback

Varied roles from the College of Arts and Education with varied levelled positions. Most teach, assess and mark.

Many have experienced the changing shift in structures and curriculum in higher education, often needing to re-evaluate and re-design themselves within the transition.

What do they need to do?

They note that Block Model has pushed them to manage assessment differently and that there is still room for improvement. It has forced a focus onto the learning outcomes.

They need to be able to mark quickly but with quality feedback.

They need to prepare PSTs for:

- the vocational outcomes
- future leadership roles of these PSTs
- innovation in education

They need to design assessment that

- delivers and aligns with the learning intentions of the unit;
- benefits the PST without the skills as well as benefits the PST with the skills already
- provides feedback on the “next steps” for the PST
- allows PSTs to gaining the skill of lesson planning against a curriculum

What do they SEE?

Students engaging in assessment

- that is multimodal allows for the demonstration of differentiation from the high achievers to show complex thinking and lower level students to engage in more active learning.
- when they can see it connects to them; how they identify themselves as a teacher. The assessment is bound with their identify and the sense of what they would be doing in their field of practice.

Students not engaging in assessment when they perceive the assessment:

- is too much work or too laborious
- they don't see a purpose

The potential to scaffold and build knowledge and transferability of competencies through a collaboration process across units.

A balance between tasks that are useful and practical as well as links to academia. Linking theory to practical.

They see students demonstrating deep learning when they are able to explain how their own thinking has changed.

They see other colleagues:

- providing less and less written feedback on assessments.
- demonstrating 'chalk and talk' methods of teaching and difficulty in becoming the role of the 'facilitator'.
- Finding it difficult to respond to change.
- Not paying enough attention to learning outcomes. Consideration of pathways of learning outcomes: trajectory through content, through to assessment, out from rubric. No formal validation process of learning outcomes.

What do they SAY?

The student culture now:

- They are not doing enough reading
 - Within the readings of the unit (often don't reference the readings in assessments)
 - Extending research themselves
 - Personal reading in discipline also (books, journals, news, etc)
- "If I'm bored reading this, you must have been bored writing this.." → Assessment shouldn't be a chore for the student or the assessor.
- There is a readiness to learn and take it to the next step – an ongoing discourse is needed to facilitate the learning. And the discourse should be valued (from both tutors/lecturers and students).
- They engage in assessments where they perceive to have the best ability to achieve a good mark. Not necessarily for an enriching experience or to have learned something. Students that connect with both, perhaps engage on a deeper level with assessment.
- Assessment has value. A poor performance on assessment will always result in a negative response. Therefore, feedback must be embracing and gentle and support student in the next steps.
- Some do not see the point of some assessment – possibly a poorly designed assessment.

The pedagogical culture:

- Formative assessment is important. Even in the discussions of summative assessment, the tutors placed emphasis on the aspects of formative assessment within the summative task. Iterative process is highly valued.
- Essays are not valued as good assessment – not engaging, not addressing differentiation.
- The regurgitation of information is no longer seen as pedagogical sound. The block model is bringing to light this unresolved issue – the final assessment must be the largest.
- Assessment must be forward thinking and pioneering in preparing PSTs with the skills that are needed in future new practice teaching.
- The (Uni) classroom is a co creation of learning – mirroring school approaches; gaining understanding of student-level challenges.
- Assessments should be backward designed.
- They really care about their students – sometimes going against policy to ensure the student becomes a good/better teacher.
- There is room for VU to develop an assessment culture.

- “If you can’t celebrate the teaching work, it is very difficult to get a positive message to the students”
- “If you can’t connect to the work, someone is being disadvantaged somewhere down the line.”

What do they DO?

Find strategies in assessment that works for them.

Constantly refining to address quality of assessment and tips and tricks for efficient marking.

Many aligning their experiences in teaching in school setting with academia. They are trying to incorporate what they considered good assessment when teaching in schools, from their own experience, to the academic context.

Consider the type of student in their units when designing assessment (and curriculum).

They consider the students in their classroom to inform and make judgements about the PSTs ability by using skills such as:

- Cognitive load
- Take notes about what’s going on
- Aware how the assessment is going to turn out
- Effective marking doesn’t work when time is extended (late submissions)
- Becomes easier the longer you teach it – intuitively developed
- Connecting assessments together to allow PSTs to show a progression of learning
- Getting to know the students – listening to conversations

They help students – and they want to help students. They do this by providing feedback in all forms (verbal, email, written, rubric, drafts in some cases)

Try to provide a strong basis of formative assessment throughout their assessment program. They note that the first assessment should have a diagnostic element – that allows for quick, useful feedback in terms of the expected knowledge and competencies of the unit.

They often model what they are teaching.

They deliver a scaffolding approach of pedagogy within the classwork that directly links to the assessment.

Collaborate – they note that designing assessment should be done collaboratively to address the richness of task and the size of the task. And that there should be a reflective component with a similarly qualified academic.

They say they connect theory to practice.

What do they HEAR?

Students want relevance of the learning and assessment.

Students say they want more feedback. “Feedback is the most looked for but the least given”. Feedback is often relevant to the student’s perception. In education the feedback should be an ongoing dialogue, not just feedback on one assignment.

Students reflecting on and classifying themselves in ranks (I can’t get higher than a credit).

Others suggest the idea that the rubric can do it all – they believe this is ridiculous.

Other colleagues making assumptions about what students should already know or be able to do.

Colleagues referring to 'owning' units – this fosters a challenging and possibly negative assessment culture (and pedagogical culture).

Authentic features of a unit plan assessment?

- Timing and structure of the lesson plan
- The environmental constraints of teaching a unit – ecology of the classroom; Placing the self within the classroom and unit. The lesson plan has an important place in teaching ecology, but it's about quality over quantity.
- Content knowledge of discipline and teaching pedagogy. And also demonstrating understanding of how the discipline could be and should be taught. An understanding of how the subject/discipline works and operates and how you could teach that to someone else.
- Being able to articulate practice with teaching colleagues – understanding teaching discourse
- Consistency of what is good practice, and the things PSTs should be striving for – not just trying to fill out a template consistently.
- The PST being actively involved.
- What is teacher performativity mean in this space?
- Getting PSTs to consider
 - the social construct issues
 - how their own teaching philosophy connects
 - their student (and the demographic of the school)
 - a strong data focus (e.g., Mazano & McREL) to substantiate differentiation
 - reflecting on classroom management strategies – creating a positive learning environment and culture
- We ask them just to help them get that specific content to their field into the lesson plan framework that they've already considered

What do they THINK and FEEL?

PAINS	GAINS
<ul style="list-style-type: none"> • They are worried about PSTs: <ul style="list-style-type: none"> ○ don't have enough of the skills required to teach or be good teachers ○ don't do enough reading ○ literacy levels ○ articulation • They are frustrated with the dichotomy between the need to deliver authentic assessment, and the difficulty in doing that in ITE. • Current assessment practice doesn't necessarily serve its purpose (somehow gauge whether the learning (content or skills) that you've planned has been learned) • Assessment workload contributors: <ul style="list-style-type: none"> ○ Number of students ○ Amount of time to give feedback ○ Complexity and nature of task • Conflict between grading students/ranking students and the role of assessment. The conflict extends to giving feedback that is not worthwhile that is constraint within the ranking levels. • There is a challenge of trying to convert academics to new ways of thinking. • Word counts – the flexibility of some word counts, with non-enforced penalties etc. 	<ul style="list-style-type: none"> • They want to output high quality teachers • They want PSTs to go "backwards and forwards" in working out the solution to the problem themselves • They want iterative assessment and feedback in assessment • Reflections in assessment – addressing authentic nature of assessment in ITE • Build in feedback in the same way the assessment is engaging with. I.e.. Active assignment – active feedback. Written assignment – written feedback • ITE assessment needs to have a practical element that they can utilise in placement straight away (either in full or part thereof). The theoretical must be able to transition to the practical element as teaching in such a practical profession. • Scope in assessments to allow students to go further in their learning. • They want students pushed outside of their comfort zones in the learning process. • Minimal assessment (or no assessment!) • Assessment clearly linked to learning outcomes

<ul style="list-style-type: none"> • Finding the time to moderate with colleagues – especially with tight turn arounds • Assessment shouldn't be so complex that the students do not know how to achieve good outcomes. Students require access to success. • It is difficult to assess teaching and education – it is difficult to figure out what teaching/education is. Assessment in education and teaching assumes some level of predetermined outcomes that you need the PSTs to meet, but the student may just not want to engage in the assessment. Is this a reflection on the student or teacher or the assessment? There is an intrinsic problem with the assessment results (of the PST) being tied to the teacher quality. 	
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High-School Teacher Empathy Map

Who are we empathising with?

High school teachers with more than 10 years' experience.

They have been working in the Masters of Teaching (Secondary) program from a couple of workshops to 2 years.

Specialisations range from Welfare, English, Literature, Drama, Accounting, Economics, Legal studies, Business management, Psychology, Health and Physical Education.

All have had experience teaching the middle years and VCE.

One male and four females.

What do they need to do?

They need to deliver workshop within the Master of Teaching that are focused on developing the PSTs understandings and experiences in their specialisations in Junior and Senior Secondary education.

They need to prepare 5 hours of hands-on material that show cases the teacher's pedagogic approaches connected to classroom practices in either Junior or Senior Secondary education. Within this time, they need to dedicate 1.5 hours to the development of a unit plan which is Assessment 2. The unit plan has a similar template for the PSTs to follow in both units. In Junior Curriculum & Pedagogy the focus on the unit plan is an Inquiry Unit, and in Senior Curriculum & Pedagogy the focus is a VCE Unit 3 or 4 unit of work. Both units should address differentiation, inclusion, engagement and assessments relevant to the year level. PST students attend two of these workshops in each of their specialisations. In both units PST students can choose which specialisation they submit to be assessed by the workshop teacher. That is, only one of the workshop teacher will mark that student's unit plan.

What do they SEE?

Strategies for reducing the workload for marking assessments:

- In class assessment
- Presenting in class
- Group work assignments

- Peer assessment
- Communication assessment – e.g. Various role plays, PSTs delivering sessions in different teaching strategies
- Strategies that promote attendance and most of the marking occurring in real time
- Provide exemplars for assessors

The most important skills to the teaching profession:

- Relationships with students
- Communication (students, colleagues and parents)
- Teamwork
- Commitment
- Willingness to help (students, colleagues, communities)
- Knowledge of content, curriculum, specialisation requirements –
 - Preparing and delivering lesson plans
 - Keeping up with curriculum innovation
- Organisation
- Reflection –
 - continually appraising how to present information so that students can unpack the important learnings;
 - using appropriate scaffolding;
 - and adjust delivery to improve performance

What do they SAY?

The unit plan assessment was too general and should be designed around the unique requirements of various specialisations.

A school will provide unit plans to graduate teachers when they begin teaching.

Clinical and methodical approach is necessary when designing unit plans.

The unit plan assessment tried to cover too much at once – every aspect of the curriculum framework, education department initiative, content knowledge and inner school workings.

Could the unit plan (or part thereof) be carried out on placement?

What do they DO?

They see the following assessment strategies that they use in their high-school classes being able to be applied in the Higher Education context:

- Self-assessment*
- Peer assessment*
- Make assessment (and marking) more ongoing in nature – smaller and more precise with immediate feedback that may culminate into one larger final assessment.
- Verbal feedback
- Reflections done in-class
- Video recording themselves teaching in class

*Teachers noted that strategies to these methods need to be taught with appropriate guidance and preparation (e.g. pro-forma, 5 Questions to consider)

What do they HEAR?

“I could really see who (the PST) was really there to learn as much as possible, build relationships with their peers and myself, and who was there to satisfy a requirement”

Authentic features of a unit plan assessment?

- Teamwork
- Understanding which teaching strategy/strategies suit your style of teaching
- Content and curriculum knowledge
 - Relate to the content from their own personal experiences.
 - Lesson sequencing against curriculum documents
- Be able to engage and challenge students
- Communication – how difficult it can be even in the same work environment to find time to meet and communicate over email.
- Presentation
 - within this the learning intention
 - assessment for/of/as learning
- Workload – giving PSTs a sense of just how much work is involved in preparing a unit.

What do they THINK and FEEL?

PAINS	GAINS
<ul style="list-style-type: none"> • PST students working in groups on Google Docs makes it difficult to visibly see each individual student input. Weaker students may not be noticed. • Many students had not had placement experience and/or were new to the Australian system. • Difficult to know the standard when assessing only a couple of assessments. • Connection between the workshop and the assessment was not made clear 	<ul style="list-style-type: none"> • Feedback to students should be in line or somehow connected with their placement performance. We need to see if what they are learning is what they are practicing - as a whole theory/practice cycle • More clear and concise rubric

Appendix D. Phase One: Ideation Workshop Activities Agenda

Long term goal:

- To produce an innovative assessment that is engaging and provides a deeper approach to learning, **BUT** does not increase the amount of time it takes to mark.

<u>ZY</u> Introductions and give brief outline of proceedings of workshop. Introduce Long Term Goal	5min
<u>ZY</u> After considering Long-term goal – ask group to add/edit long-term goal considering nuances and answering the following questions: <ul style="list-style-type: none"> - We have our long-term goal – what is your version? - To meet our long-term goal, what has to be true (assumptions)? - What might stop us from reaching our goal? Write the revised goal on the board	15min
Map <u>ZY</u> Show user - journey map to group Group members are part of the user-journey planning and experience, therefore an explanation of the overview was not needed.	5min
Expert Interviews <u>ZY</u> to introduce concept of ‘How Might We’: individual group members can either write HMW on post-its as we go or record key words of issues to write HMW points later. <u>MT</u> to <ul style="list-style-type: none"> - Explain the outcomes from the empathy maps. - Give an overview of the literature surrounding some of the emerging themes Team takes final notes on Post-it notes in terms of ‘ How might we... ’	25min
Sort ‘How Might We’ notes into categories developed by team: <ul style="list-style-type: none"> - Read out and place up on board into categories - Group continues with their HMW post-it if it can be connected some way with the last - Develop category headings that combine HMW post-its - Discuss which categories to focus on in next step of ideation process.	15min
Ideate without discussion <ul style="list-style-type: none"> - On post it notes team to come up with as many possible solutions to the HMW → quantity over quality 	10min
“ Yes...And... ” sorting One group member starts with an explanation of their idea and places it onto the wall/table. Other group members add to that initial idea with a connecting idea from their list by saying, “Yes, and...” with an explanation of their idea following. This process continues until all ideas have been introduced and connected.	6min
Your solution sketch: Each person sketches their best idea aligned with the chosen achievable solution. Sketches need to be self-explanatory on their own and drawn on A4 paper.	8min
Concluding individual reflections: Own their own, team members to reflect on the ideation process by answering questions on reflection workshop: Questions include: Can you tell me about some of your thoughts on the process of today's workshop? What wonderings/questions do you have at the completion of today's workshop? What concerns do you still have at the completion of the workshop? Were there any unexpected experiences/findings for you today?	5min
Melissah to further refine and create assessment and rubric.	

Appendix E. Phase One: Ideation Reflection Questions

Can you tell me about some of your thoughts and feelings on the process of today's workshop?

What wonderings or questions do you have at the completion of today's workshop?

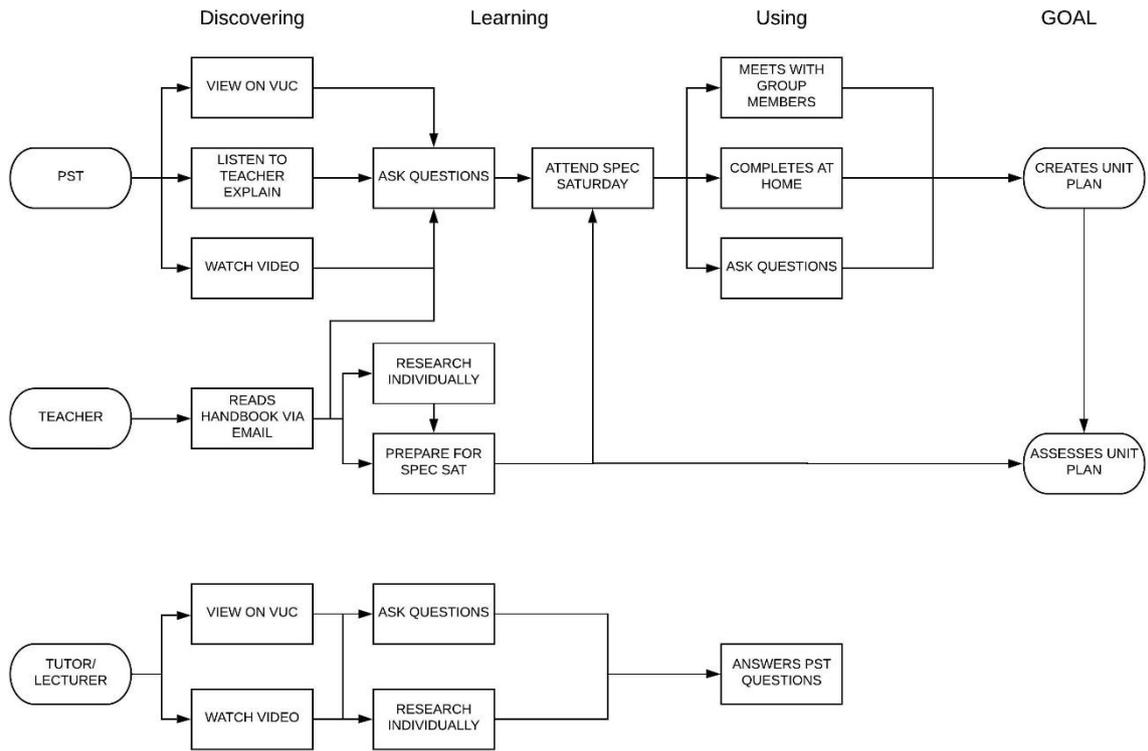
Were there any unexpected experiences/findings for you today?

What did you value, if anything, in today's workshop?

What concerns, if any, do you still have at the completion of the workshop?

Is there anything else you would like to say about today's ideation workshop?

Appendix F. User Journey Map



Appendix G. Phase Two: Participant Information and Consent Forms

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH - Academics

Ethics application ID: HRE19-064

You are invited to participate

You are invited to participate in Phase 2 of a research project entitled 'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course'. This project is being conducted by a student researcher Melissah Thomas as part of a PhD course at Victoria University under the supervision of Dr Zali Yager (College of Education and the Institute for Health and Sport [IHES]) and Dr Helen Widdop-Quinton (College of Education and the Institute for Sustainable Industries & Livable Cities [ISILC]).

Project explanation

In this phase, we will be creating an assessment design framework in the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. The assessment design is looking to promote an increase in student motivation, increased academic performance and deeper approach to learning in the digital remote learning environment. This innovation, while optimising the online learning experience for the student, will aim to not increase the time it takes tutors to mark. We are interested in your thoughts, feelings and experiences of teaching, learning and assessing in the digital remote learning environment and would like your feedback on the design framework prototype that will be created.

What will I be asked to do?

If you agree to participate in this research, we will ask you to participate in 2 one-on-one interviews via Zoom during the Semester at a time convenient to you. The interviews will take no more than 30 minutes each. The researcher will contact you via email to arrange a suitable time for the first interview. The questions in the first interview will relate to your thoughts towards teaching, learning and assessment in the digital remote delivery of ITE. After an assessment design prototype is created by the team of researchers, it will be sent to you via email and you will be contacted to arrange a suitable time for you to give feedback on the created design. Interviews will be conducted via Zoom and voice-recorded with your permission.

What will I gain from participating?

By participating in this research, you may gain an increased awareness of your attitudes and beliefs about assessment practices in digital remote learning in education. You will be involved in important work that aims to improve current assessment practices in ITE in terms of both engagement and depth of learning.

How will the information I give be used?

The information you provide in the interview/s will be confidential and kept private. The information that you provide in the interviews will not be shown to your employer/s or supervisors. We will use the information to do some statistical analyses, create the assessment framework, write a report, and present these findings in a thesis for the Master by Research and/or PhD. We will retain anonymous electronic databases for future potential research.

What are the potential risks of participating in this project?

There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time. If you feel any distress, it is advised that you contact Victoria University Counselling Services (+61 3 9919 5400) or Lifeline (13 11 14).

How will this project be conducted?

The assessment design framework will be created through consultation with the participants of this research. The research project will follow the 5 stages in the design thinking model as proposed by Stanford d.school, with the

input of tutors and students from the university, as well as high-school teachers working in the 'Specialisation Curriculum and Pedagogy' programs. The innovative framework structure will be informed by literature with consideration of the contribution of participants from the interviews.

Who is conducting the study?

Chief Investigator:

Dr Zali Yager
Zali.Yager@vu.edu.au
+61 403011643

Associate Investigator:

Dr Helen Widdop-Quinton
Helen.widdopquinton@vu.edu.au
+61 3 9919 4235

Student Researcher:

Melissah Thomas
Melissah.Thomas@live.vu.edu.au
+61 409018626

Any queries about your participation in this project may be directed to the Chief Investigator listed above. If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

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What will I gain from participating?

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What will I be asked to do?

If you agree to participate in this phase of the research, we will ask you to respond to some questions via Zoom, which on two occasions during the semester. The questions should take about 20 minutes to complete on each occasion. The questions in the first correspondence will relate to your thoughts towards teaching, learning and

assessing in a digital remote learning environment. After an assessment design prototype is created by the team of researchers, it will be sent to you via email and you will be asked for your feedback on the created design. Interviews will be recorded with your permission.

What will I gain from participating?

By participating in this research, you may gain an increased awareness of your attitudes and beliefs about teaching, learning and assessment practices in digital remote learning environments. You will be involved in important work that aims to improve current assessment practices in ITE in terms of both engagement and depth of learning.

How will the information I give be used?

The information you provide in the responses will be confidential and kept private. Any identifying information in the responses will be removed to ensure confidentiality. The information that you provide in the interviews will not be shown to your employer/s or supervisors. We will use the information to do some statistical analyses, create the assessment framework, write a report, and present these findings in a thesis for the PhD. We will retain anonymous electronic databases for future potential research.

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CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH – Academic

INFORMATION TO PARTICIPANTS:

We would like to invite you to be a part of Phase 2 of a study that is developing an innovative assessment design framework in Initial Teacher Education (ITE) within the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. Within this assessment design we are looking to promote an increase in student motivation, increased academic performance and deeper approach to learning in the Covid-19 remote delivery environment. This innovation, while optimising the online learning experience for the student, will aim to address the marking efficiency for the tutor. We are interested in your thoughts, feelings and experiences of teaching,

learning and assessment in the remote delivery of ITE and would like your feedback on the design framework along the way.

If you consent to participate, we will ask you to participate in two one-on-one **online** interviews during the Semester. The interviews will take approximately 30 minutes each. The questions in the first interview will relate to your thoughts towards teaching, learning and assessing in the remote delivery environment. The second interview will ask for your feedback on an assessment design prototype. Interviews will be recorded with your permission. The information you provide in the interviews will be confidential and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

CERTIFICATION BY PARTICIPANT

I, _____(participant full name) of _____(participant suburb)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Melissah Thomas and that I freely consent to participation involving the below mentioned procedures:

Participation in this study involves:

- 1) Online initial interview to understand your thoughts towards assessment in ITE
- 2) Second online interview for feedback on an assessment design prototype

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: _____(participant signature) Date: _____

Any queries about your participation in this project may be directed to the researcher Dr Zali Yager (+61 403011643)

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If you consent to participate, we will ask you to participate in two one-on-one **online** interviews during the Semester. The interviews will take approximately 30 minutes each. The questions in the first interview will relate to your thoughts towards teaching, learning and assessment in ITE. The questions in the second interview will

ask for your feedback on an assessment design prototype. Interviews will be voice recorded with your permission. The information you provide in the interviews will be confidential and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

PARTICIPANT INFORMATION

Gender identity: _____

Domestic / International Student: _____

Number of months into the Master of Teaching course: _____

My two teaching specialisations are: _____ & _____

CERTIFICATION BY PARTICIPANT

I, _____ (*participant full name*) of _____ (*participant suburb*)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

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I have been informed that the information I provide will be kept confidential.

Signed: _____ (*participant signature*) Date: _____

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We would like to invite you to be a part of Phase 2 of a study that is developing an innovative assessment design framework in Initial Teacher Education (ITE) within the Specialisation and Curriculum subjects of the Master of Teaching at Victoria University. Within this assessment design we are looking to promote an increase in student motivation, increased academic performance and deeper approach to learning in the Covid-19 remote delivery environment. This innovation, while optimising the online learning experience for the student, will aim to address the marking efficiency for the tutor. We are interested in your thoughts, feelings, and experiences of teaching, learning and assessment in remote delivery and would like your feedback on the design framework along the way.

If you consent to participate, we will ask you to participate in two one-on-one **online** interviews during the Semester. The interviews will take approximately 20 minutes each. The questions in the first interview will relate to your thoughts on teaching, learning and assessing in remote delivery and the questions in the second interview will ask for your feedback on an assessment design prototype. The information you provide in the interview will be confidential and kept private. There is a small chance that you may feel some discomfort in responding to the questions that ask about your attitudes and beliefs relating to your education experiences. If you feel upset by these questions, you can stop answering them at any time.

CERTIFICATION BY PARTICIPANT

I, _____ (*participant full name*) of _____ (*participant suburb*)

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study:

'Applying design thinking to develop an innovative assessment design framework in an initial teacher education course' being conducted at Victoria University by: Dr Zali Yager

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Melissah Thomas and that I freely consent to participation involving the below mentioned procedures:

Participation in this study involves:

- 1) Online initial interview to understand your thoughts towards assessment in ITE
- 2) Second online interview for feedback on an assessment design prototype

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed: _____ (*participant signature*) Date: _____

Any queries about your participation in this project may be directed to the researcher Dr Zali Yager (+61 403011643)

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix H. Phase Two: Semi-structured Interview Questions

(black represents same questions as Phase One; red represents new question focused on remote learning)

Students – New participants

Gender identity:

Domestic / International Student

Number of months into the Master of Teaching course: _____

What are your two specialisations?

What are your experiences with assessment in higher education?

How has the remote study experience felt for you?

Assessment design

What are your current concerns in terms of assessment in ITE? What would you like to see changed?

Have you noticed a change in assessment design because of remote deliver?

Engagement

What experiences with assessments have you really enjoyed?

How has the self-directed learning been for you?

Level of understanding

What aspects of an assessment determine important aspects of the curriculum? (e.g. knowledge, behavioural competence, values, etc.)

During remote delivery, what did you do when you didn't understand something?

Feedback

What type of feedback is the most valuable for you?

Has remote delivery changed the way you have experienced feedback?

Authentic Assessment

Have you been able to use technology effectively during remote delivery? Have your tutors been able to use technology effectively?

What have you learnt about remote delivery?

Internal Academics – New participants

Gender identity:

Higher Ed Teaching experience (Number of years):

What are your experiences of assessment in ITE?

How has the remote delivery teaching and assessing felt for you?

Assessment design

What are your current concerns in terms of assessment in ITE? What would you like to see changed?

Did you need to change your assessment design because of remote delivery?

If so, what changes needed to be made and why?

If not, what aspects of your assessment allowed it to transfer across both platforms?

Engagement

Have you noticed a change in motivation and engagement of your students in remote learning?

What aspects of assessment do you feel students engage most with during remote learning?

Level of understanding

When do you find students demonstrate deep learning in assessment? I.e. What tasks, situations, conditions, etc.

During remote teaching, have you notice a change in the depth of learning in assessments in your students?

Feedback

Do you think students feel as though they receive enough feedback during remote delivery?

Has feedback changed for you in remote delivery? (either in the way it is received or delivered)

What feedback should we include in the framework?

Academic Workload

Compared to face-to-face delivery, what have you noticed about your assessment workload?

How do you think we can reduce the workload for marking assignments?

Authentic Assessment

Did you feel that the authentic learning experience changed/ remained the same for students during remote delivery?

What aspects of a 'Unit Plan assessment' do you feel are most authentic to the profession?

Internal Academics – Returning participants

How has the remote delivery teaching and assessing felt for you?

Assessment design

Did you need to change your assessment design because of remote delivery?

If so, what changes needed to be made and why?

If not, what aspects of your assessment allowed it to transfer across both platforms?

Engagement

Have you noticed a change in motivation and engagement of your students in remote learning?

What aspects of assessment do you feel students engage most with during remote learning?

Level of understanding

During remote delivery, have you notice a change in the depth of learning in assessments in your students?

Feedback

Do you think students feel as though they receive enough feedback during remote delivery?

Has feedback changed for you in remote delivery? (either in the way it is received or delivered)

Academic Workload

Compared to face-to-face delivery, what have you noticed about your assessment workload?

How do you think we can reduce the workload for marking assignments in an online environment?

Authentic Assessment

Did you feel that the authentic learning experience changed/ remained the same for students during remote delivery?

External Academics – New participants

Gender identity:

Higher Ed Teaching experience (Number of years):

Institution:

What are your experiences of assessment in ITE?

How has the remote delivery teaching and assessing felt for you?

Assessment design

What are your current concerns in terms of assessment in ITE? What would you like to see changed?

Did you need to change your assessment design because of remote delivery?

If so, what changes needed to be made and why?

If not, what aspects of your assessment allowed it to transfer across both platforms?

Engagement

Have you noticed a change in motivation and engagement of your students in remote learning?

What aspects of assessment do you feel students engage most with during remote learning?

Level of understanding

When do you find students demonstrate deep learning in assessment? I.e. What tasks, situations, conditions, etc.

During remote teaching, have you notice a change in the depth of learning in assessments in your students?

Feedback

Do you think students feel as though they receive enough feedback during remote delivery?

Has feedback changed for you in remote delivery? (either in the way it is received or delivered)

What feedback should we include in the framework?

Academic Workload

Compared to face-to-face delivery, what have you noticed about your assessment workload?

How do you think we can reduce the workload for marking assignments?

Authentic Assessment

Did you feel that the authentic learning experience changed/ remained the same for students during remote delivery?

What aspects of a 'Unit Plan assessment' do you feel are most authentic to the profession?

High-school Teachers – returning participants

How has teaching and assessing in remote delivery felt for you?

Engagement

Have you noticed a change in motivation and engagement of your students in remote learning?

Authentic Assessment

Did you feel that the authentic learning experience changed/ remained the same for students during remote delivery?

What advice would you give to PSTs on teaching and assessing in remote delivery in a high school?

Assessment Design

Did you need to change your assessment design because of remote delivery?

If so, what changes needed to be made and why?

If not, what aspects of your assessment allowed it to transfer across both platforms?

Feedback

Has the way you delivered feedback to your students changed for you in remote delivery?

Academic Workload

Has the assessment workload increased for you during remote delivery? If so, in what way?

How do you think we can reduce the workload for marking assignments in an online delivery?

High-school Teachers – new participants

Gender identity:

Teaching experience (Number of Years):

Teaching experience in the Master of Teaching program:

Specialisations/Disciplines:

What are your experiences with assessment in ITE?

How has teaching and assessing in remote delivery felt for you?

Engagement

Have you noticed a change in motivation and engagement of your students in remote learning? (How has this compared to your high school students?)

Authentic Assessment

Did you feel that the authentic learning experience changed/ remained the same for students during remote delivery?

What advice would you give to PSTs on teaching and assessing in remote delivery in a high school?

Assessment Design

Did you need to change your assessment design because of remote delivery?

If so, what changes needed to be made and why?

If not, what aspects of your assessment allowed it to transfer across both platforms?

Feedback

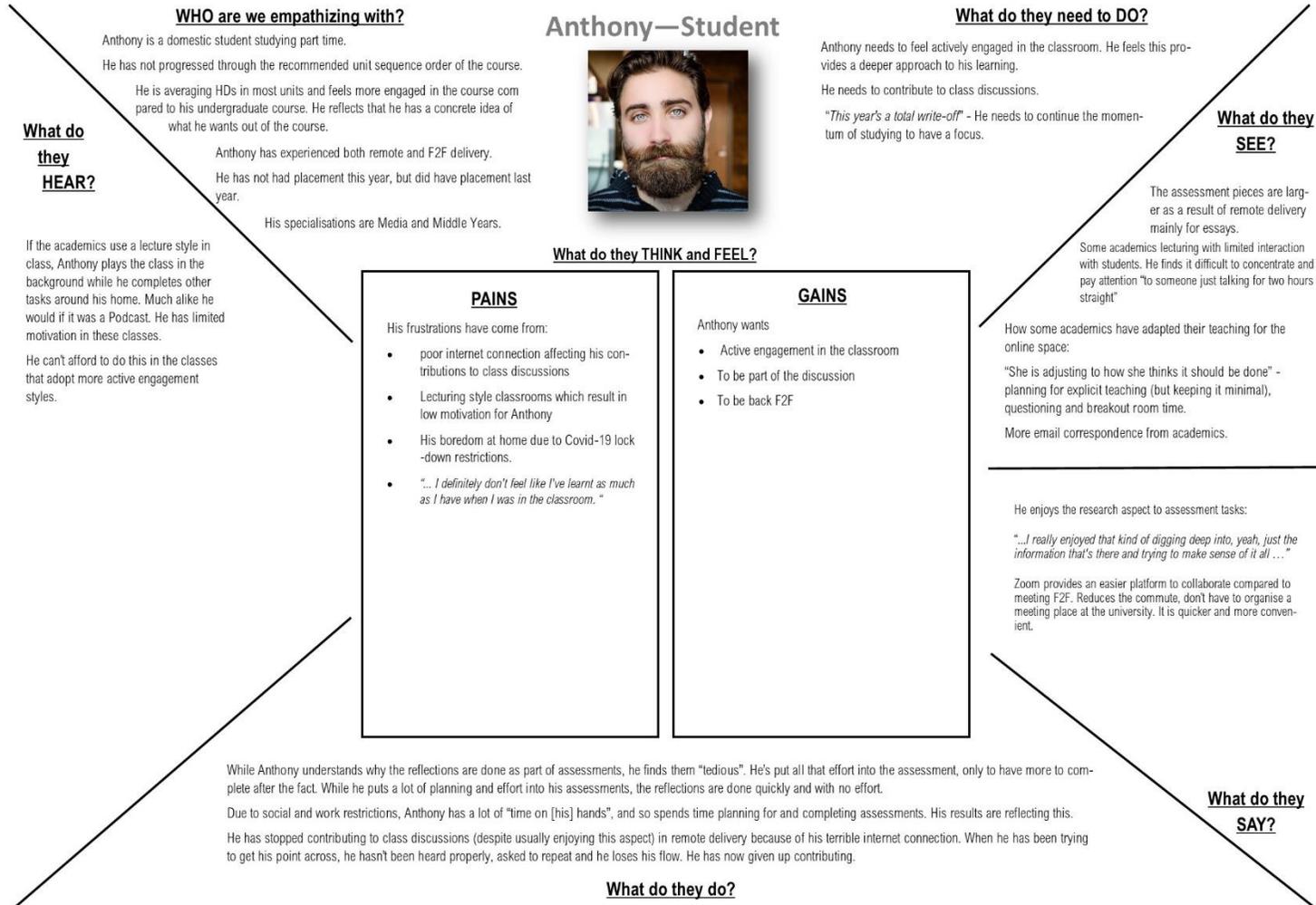
Has the way you delivered feedback to your students changed for you in remote delivery?

Academic Workload

Has the assessment workload increased for you during remote delivery? If so, in what way?

How do you think we can reduce the workload for marking assignments in an online delivery?

Appendix I. Phase Two: Empathy Maps



WHO are we empathizing with?

Dafne is a mature aged domestic student with a background in paediatric nursing. She has three children, one in school with additional needs. She has been on remote placement at a low-socio economic school.

Dafne—Student



What do they need to DO?

Dafne needs see student work and appraise the various different levels of student work.

What do they HEAR?

She hears the culture of school discourse around the hierarchy of subjects from her school and extended community. Humanities is seen as an additional subject that students will drop in year 12. The lack of students asking questions in class. She misses these questions that she may not have considered, and this deepens her understanding of the content or assessment.

Her specialisations are Humanities and English. She is enrolled in ETS5004

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Not being prepared to teach in a classroom. This is mainly due to the lack of placement as a result of Covid-19 restrictions.

Her frustrations have come from:

- Group work. She has been in a group where members pushed her out, she has also experienced being a part of a group with freeloaders, and a group with a dictatorship leader.

GAINS

Dafne wants

- Choice embedded in assessment
- A greater focus on her English specialisation. She feels that she is always focusing on Humanities (including in her placement)
- The F2F informal meetings between classes where she could catch up with other students. This helped her unpack content and assessments.

What do they SEE?

Many students with their cameras off:
"When they've got their videos off you don't know who they are"

She will start with her camera on, but will conform to others' behaviour if everyone has their cameras off.

She can see the value in the research subjects and their assessments, but finds it "arduous going through it all".

There should be more feedback for results lower than a high HD.

What do they SAY?

What do they do?

When provided limited feedback, Dafne analyses the rubric further to help her understand where she "deviated from the rubric". However, if she is working on something else, she moves on and doesn't consider it further.

WHO are we empathizing with?

Eesha is an international student from India who is in her second semester of her ITE course.

Her specialisations are English and Humanities.

She has completed her first block of teaching placement remotely.

She is a mum of a two year old child.

What do they HEAR?

The tutor/lecturers clearly explain the outlines of the assessments. However, "there are some teachers who keep working in different ways".

Eesha—Student



What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Plagiarism and knowing how to reference correctly, which is a new concept to her.
- Overload of assessments on top of placement and her work responsibilities

Her frustrations have come from:

GAINS

Eesha wants

- Feedback to tell her how to "go about addressing that issue".
- Remote delivery because
 - * it is more convenient
 - * She is more comfortable in her own home
 - * She has less distractions and less on her mind (like getting back to home on time, getting dark after class, the and travel home"

What do they need to DO?

Eesha needs to learn the skills of referencing. She needs to understand how Turn-It-In works.

She needs to understand the Australian education system, both university and secondary school system.

She needs to complete the pre-reading and after class tasks, which she is not currently doing.

What do they SEE?

"... teachers are trying their best, their very best to be just as accommodative as ever when compared to being in a physical classroom "

VU providing a vast amount of support through professional, academic and mental wellbeing help.

The assessments are "pretty clear".

Teachers providing different amount of feedback.

Remote collaboration with peers has been successful, however it is easier to get all group members to attend F2F because you can meet after class.

She likes the assessment tasks "because they forced me to think in a way that I would have never thought ever before".

"I'd say I felt very lonely because I didn't have my friends with me to discuss and, you know, to interact about studies as such. But I think with time in the second semester, where things have gotten a little more serious and where I know now what's expected in terms of classroom participation and assessment tasks and all of that, I think it's all right "

Remote delivery is convenient and saves her travel time and expenses

Due to assessment, placement and work commitments, she doesn't complete the pre-reading tasks or the after class tasks. She only focuses on the assessment tasks because "that's what eventually matters". She doesn't feel she is doing justice to her course this semester as a result of this.

She connects to her peers through study Facebook and WhatsApp groups. She has attended some Zoom meetings with friends.

She works closely with a couple of friends to complete assessments at the same time, "so we can clarify each other's doubts through the assessment task".

What do they SAY?

What do they do?

WHO are we empathizing with?

Faye is a domestic student in her first semester of her ITE course.

Her specialisations are media arts and visual arts.

She is studying part time now due to the restrictions due to Covid-19 and has two primary aged children at home who she is schooling due to the closure of schools.

Faye—Student



What do they need to DO?

She needs to juggle study and being a single parent to two primary school aged children who are learning from home due to Covid-19.

What do they HEAR?

The tone of voice not clearly communicated on the Zoom platform, especially in a group setting.

What do they SEE?

Technology distracting for her children

Some tutors/lecturers not connecting with the class on the digital platform—not providing the human connection in the class. Some have the webcam off to the side, and so do not speak to the camera

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Including people into her "private space" in the remote platform environment. *"You're a different person when you're at home"*

Her frustrations have come from:

- The poor use of the breakout rooms: unclear instructions about what task/s is to be done in the breakout room with limited access to the lecturer. They also seem rushed to her
- Pre-class activities not holding a great presence in the classroom activities/ discussion points *"we just skip over it; it's 30 seconds"*.
- Inconsistency in assessment tasks between units. Including the difficulty of a reflection assessment piece that requires a reflection on how to improve, when no prior feedback is given. *"If you did quite well and you didn't really get any feedback, what then?"*

GAINS

Faye wants

- To know when to expect her results from her assessments.
- Feedback from her assessments to be quicker than a 2 week turn around.
- Thorough feedback: encouragement for confidence building, and constructive criticism on where she "fell short" .
- Assessments to be more spread out and not due on the same day.

Peers hesitant to contribute to class discussions.

Everyone's faces looking at her in the class—this is not like a lecture theatre where "you're not facing all of your fellow students".

"I think there's more we can do to bring a humanity into the whole remote learning scenario "

Remote teaching her kids at home and being in lockdown is tough. He studies are a relief for her "to have another focus". However, the juggling of attending class and ethical dilemma of having her children on screens for that time has been hard for Faye. Despite this, she remains motivated in her studies.

Faye contributes to class discussions, but has found herself holding back. She doesn't want to dominate the class: *"I'm not going to be the annoying kid"*.

What do they SAY?

What do they do?

WHO are we empathizing with?

Gira is an international student from India who has been in Australia just over 1 year. Due to Covid-19 restrictions, she has had limited exposure to Australia or the Australian education system.

As a result of this, she was regretting her decision to study a Masters of Teaching with limited understanding of the culture or education system. However, in her second semester, she enjoys it more as she learns more.

She has not had placement experience.

Her specialisations are Business and EAL.

Most of her ITE experience has been remote delivery

Gira—Student



What do they THINK and FEEL?

PAINS

Her frustrations come from:

- Not having placement. Her anxiety is exemplified by academics asking questions relating to placement where she cannot contribute. She compares herself to peers that have placement and are, therefore better situated in class discussions.
- Peer evaluations and feedback on assessment presentations. She has experienced peers providing her with the same feedback and evaluation that she provided to this peer earlier

GAINS

Gira wants

- The assessment to be explained clearly and ideally as soon as possible, in one session.
- Remote teaching and learning—she cannot see any negatives to remote delivery
- Peer evaluation to be fair, equitable and valid

What do they need to DO?

She needs to understand the Australian school system and have experiences that would occur on placement so that she is able to contextualise the school system and connect theory to practice.

What do they SEE?

The sharing of content occurs between students in breakout rooms, where the teacher is mostly absent.

Academics providing valuable written feedback post evaluation—actionable feedback

Academics with good ICT skills thriving—providing engaging classes

Academics good at their craft using formative assessment in classes.

She values assessment as a demonstration of knowledge.

She doesn't feel confident using ICT (although she notes she is improving with use). And this was noted as a barrier to communicate via online platforms with peers.

She enjoys designing lesson plans—she sees them as the basis for forming her teacher identity and way of teaching and very practical for the profession.

She enjoys remote learning/teaching as she is learning about technology and saves a significant amount of time travelling

What do they SAY?

Gira uses the internet to gain resources to help her contextualise the Australian School system and what an Australian classroom ecology is like.

The basic discourse and metalanguage of the educational or research concepts are needing to be learnt before the more complex material—this is difficult to do in the time frame and placing her behind

Seeks clarity of concepts and assessments in class through the "chat" function in Zoom, email the academic. She notes the teachers are very supportive.

What do they do?

What do they HEAR?

Her peers use a 'WhatsApp' group to discuss thoughts about assessment, both before submission and after evaluation.

She deliberates differences in evaluations with her peers and sometimes contacts the academics for clarification.

Gulsheen—Student



WHO are we empathizing with?

Gulsheen is a mature aged, domestic student.
She has experienced placement remotely.
Gulsheen is an autonomous learner.

Her specialisations are humanities and middle years.
She is studying ETS5004

What do they HEAR?

When in breakout rooms with other younger students, they talk about everything but the task at hand. They discuss assessments, and their difficulties, but not the task set by the teacher.

In these breakout rooms she feels manipulated by some of the younger students. She has experienced racism here as a result of her accent.

Other students finding tasks, including assessment tasks, confusing and not knowing what to do—both international and domestic students.

What do they need to DO?

Gulsheen needs to be able to understand the more complex discourse around assessment instructions, both written and verbal.

What do they SEE?

The most effective teaching academics as the ones that have a lecture style with PowerPoints and summarise discussions writing dot points on a whiteboard

What do they THINK and FEEL?

PAINS

Her frustrations come from:

- How some academics use the breakout room feature on Zoom: being left in the room for 45 minutes with limited teacher interactions
- ICT platforms: she has issues navigating Google Docs and Padlet sometimes.
- Complicated assessment and complicated wording in instructions

GAINS

Gulsheen wants

- A lecture style Zoom session. She wants the academic to "play the main role"
- Zoom breakout groups to be 5-10 minutes
- Zoom Specialisation workshop sessions to be short (1 hour); she doesn't see the need or value for a longer experience
- Clear instructions, using simple words — she feels passionately about this as an EAL student.
- To be shown the required government policy and curriculum documents with explanations of "what you want us to apply", and she will adapt this and apply in her own time.
- Feedback targeted to "what was wrong with my assessment"
- Less teaching theories and more applications of government policy

Academics copy and paste feedback comments.

She only experiences feedback after the evaluation of the assessment task.

Does not feel there is a problem with assessment practices.

Does not agree with a constructivist way of teaching in ITE.

She is not very good at technology and recognises she needs to improve.

First semester was particular difficult in the remote delivery, but she is feeling more confident using ICT.

She misses the informal clarifying questions post-class.

Gulsheen engages in classes where she really likes the teaching style of the academic, however doesn't engage as actively and energetically with teaching styles that she doesn't like, including constructivist teaching.

What do they SAY?

What do they do?

WHO are we empathizing with?

Mike is in his first semester of his ITE course. He is a domestic student. He has undertaken much study via online platforms. His specialisations are Business/Commerce and Humanities.

Mike—Student



What do they need to DO?

Mike needs connection through communication, however he notes this can be achieved online. He needs to teach to overcome anxiety and uncertainty of placement—he is not sure what to expect.

What do they HEAR?

In breakout rooms, peers are talking about assessments.
"There's a big emphasis on [peer feedback] with the remote learning... I'm not sure if it would have been like that in a classroom setting"
The expertise of international students that have been teaching for a while.

What do they SEE?

The students at VU engaging in the Zoom tutorials much more than in his previous online courses. His tutors/lecturers all use the breakout room function on Zoom for small group work, however his peers are inconsistent in their contributions in these rooms.

What do they THINK and FEEL?

PAINS

- His anxieties come from:
- The "uncertainty of placement". He is nervous about going into a classroom for the first time, and wants to ease these through experience.
- His frustrations have come from:
- In past units (in another course) he was assessed through discussion pages where he responded to a prompt and then had to reply to someone else's response on a weekly basis. His frustration came from everyone submitting in the last couple of hours, so you couldn't formulate a response early.
 - The word count when the exemplar shown is four times the amount they were able to use.
 - Tutors/lecturers that cannot easily manage the online platforms. He moved class due to his lecturer not being able to navigate Zoom and VUC easily.

GAINS

- Mike wants
- Breakout group work. He doesn't want to listen to the lecturer the whole time. And he sees the breakout rooms as a place to get to know people in his class.
 - Relevant, worthwhile assessment that allows him to "gauge how well I'm doing"
 - More feedback. Mike appreciated one of his lecturers providing a lot of written feedback. It is interesting to note that Mike describes feedback that justifies the mark given.
 - Peers to contribute to the online learning classes:
"online learning is a lot more enjoyable when people are contributing"

No differences in assessments due to remote delivery.
"Online learning definitely is not for everybody. It's depending on your course content and kind of what subjects you're doing. It can be very hard to like motivate yourself. Me personally, it's not too bad because I'm actually I really enjoy all this content like all this is new stuff to me, it's like what I actually want to do in my career."

In-class assessment: *"I'm not really sure what the purpose of the class is. If you can already, like, complete the assignment outside, of class. I'm not really sure what the 2 hours is gonna be spent doing"*

While Mike enjoys the course and is motivated to learn the content and skills, he reflects that it is difficult to motivate himself during lock-down in response to Covid-19. To motivate himself recently he has been setting small goals to achieve everyday. When he doesn't understand something he will send an email to his tutor/lecturer. He also posts questions to the discussion page.

What do they SAY?

What do they do?

WHO are we empathizing with?

Madeline is an international student from France. She has been in Australia for 3 years.

She teaches kindergarten and primary school LOTE classes.

She is in her second semester of her ITE course.

Her undergraduate course was completed in France.

Her specialisations are LOTE and EAL.

What do they HEAR?

Madeline receives feedback via a Facebook group of her peers in the course. Her second option for clarification is to email the tutor/lecturer.

In a F2F setting she would ask a question in class, or email.

Madeline—Student



What do they need to DO?

Madeline needs a connection to people, but needs to use her time effectively when working collaboratively.

What do they SEE?

VU made the transition to remote delivery "very quickly and very well".

Little difference in the F2F and remote lessons

Students with internet issues: "it's annoying because you keep trying to connect and it doesn't work and you waste time "

Remote teaching is possible, but "it requires adaptability" and "you need to be more creative".

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Vague assessment instructions

Her frustrations have come from:

- Not being able to see people.
- The Specialisation workshops being disorganised and a lack of communication of requirements.

GAINS

Madeline wants

- Remote delivery:
 - * It is more convenient for her because she doesn't have to travel 4 hours per day to the University.
 - * She saves money not paying for petrol
- To be teaching F2F, "because it's different at this level you need to build a relationship and so you need to be with them physically to really build a relationship "
- Clear assessment instructions
- Consistency of expectations between tutors/lecturers. This is not related to the marking (as the criteria is the same) but the open mindedness of the tutor to allow for more freedom to interpret the instructions.
- More specific feedback on what she performed well in and what she could have improved (could be F2F or written)

Although she prefers remote delivery, she misses people. She would like to be able to catch up with friends on the weekend, however this is not possible because of lock-down due to Covid-19.

She enjoys assessments where she could reflect on her own teaching methods:

"I like to be asked actually to reflect on my way of teaching and how I would see myself as a teacher and what I want to achieve as a teacher "

"I wish that after Covid, when we go back to normal, we will be still able to deliver online lessons for students who would be maybe away for different reasons and that would be good actually to have also this option to say to parents, well, if your child cannot attend school for whatever reason, you can access the lesson or the materials on that website "

Madeline works more efficiently individually. She gets distracted by other people around her.

She notes the differences between assessment practices in France and the assessment she is currently completing. In France, she was required to sit at a desk with no resources and write essays for 6 hours straight. Here, she takes time to research and write, bounce ideas of peers, and even collaborate with peers.

What do they do?

What do they

WHO are we empathizing with?

Padmini is an international student from India. She is enrolled in ETS5004, but has completed her course unit sequence out of order. She is in her third semester.

She has not had placement experience.

Her specialisations are Maths and Business.

Padmini is a determined and strong woman who is studying in Australia with limited support. She has a young daughter and is driven to make change in her daughter's life because in India there are "so many options for the boys".

She has already completed two Master's studying before this MTeach course. She enjoys studying.

Padmini—Student



What do they need to DO?

Padmini needs to understand the Australian education system and the context of secondary schools. The relationship between the teacher and student in India is very different to Australia. She finds Australia has a greater emphasis on openness and building relationships.

She needs to understand "how the students are going to be like, how they react".

What do they SEE?

She cannot see the connections to the three sequential assessment tasks in ETS5004.

Her tutors/lecturers providing general feedback. She compares this to her Masters of Business she was provided targeted, specific feedback within the submitted document.

What do they HEAR?

A lack of F2F conversations has meant that:

"We are not really sure what we are supposed to do in our assessments and why do they have designed in that way"

The students that have context of the Australian school system understand the features of assessments. For example, they know the students who they need to plan for, they know what a SAC task is. In the limited time frame, it is difficult for her to catch up to be on the same "bar".

The lack of F2F conversations with her tutor/lecturers are impacting the way she experiences feedback. She feels she cannot ask a quick clarification question or sit down with her tutor/lecturer after an assessment to seek further feedback, which is what she would do pre-Covid-19.

What do they THINK and FEEL?

PAINS	GAINS
<p>Her anxieties come from:</p> <ul style="list-style-type: none"> Not having enough time to put in to learn the basics of what comes natural to students familiar with the school system. <p>Her frustrations have come from:</p> <ul style="list-style-type: none"> Feedback that is not specific or targeted to where, how and why she needs to improve. However, it is interesting to note here, that she mostly referred to examples of mark justification feedback. The absence of F2F connections with class members: <p><i>"We can figure out that this student understands the assessment task very well... so, we directly approach to them, "Hey, hi, how are you?"</i></p> <p>The remote delivery removes that aspect of directly approaching individuals</p>	<p>Padmini wants</p> <ul style="list-style-type: none"> <i>"We need more exposure". We need more resources"</i> <p>(To help her understand the nuances of the Australian school system.</p> <ul style="list-style-type: none"> Multiple opportunities to develop lesson plans (as much as possible), to familiarise herself with the structure of lessons and resources specific to her specialisation. Despite her noted limitations to remote delivery, she would like to remain studying remotely.

"most of the times we are having assessments where we just need to showcase our ability to understand the resources"

"Remote learning is fine because I can, you know, connect with my daughter and I don't need to send her [to] the family day-care."

Padmini also notes remote delivery is financially better for her too (no travel, childcare costs) and convenient as she doesn't have to travel around 3 hours per day.

"Women just need support. They just need a support, a little support from the family, from the society and from the community so that they can build it."

For the assessments that Padmini doesn't understand why they have been designed, she just completes them as a requirement.

She looks closely at the assessment and rubric criteria when completing her assessments.

If she doesn't understand something, her friends are the first resource, however she notes that they have "constrained information" and she holds the tutor/lecturer in higher regard; "they have proper information". She is a member of a Facebook study group with other students.

What do they SAY?

What do they do?

WHO are we empathizing with?

Pru is a domestic student in the first semester of her ITE course.

She is really enjoying her course so far.

She has not had a placement experience. However, she teaches individual instrumental music, so has experience teaching one-on-one.

Pru—Student



What do they need to DO?

She likes the social aspect of conversations, but she is not that interested in making friends. She wants to “get my degree and get qualified so I can teach”.

She needs the placement experience to connect theory to practice.

What do they SEE?

The vast amount of information on VUC.

The practical relevance of some assessments, including the inquiry unit plan assessment.

What do they HEAR?

Her specialisation workshop teacher had said “one day you could actually teach this to your real class”, in reference to her groups’ inquiry unit plan.

Her peers feeling nervous to go back face to face. They are used to this mode of delivery.

Her specialisations are Music and Middle Years

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Class discussions and the unnatural conversation in Zoom

“...you can't tell when someone's about to speak like in real life. So suddenly, like five people speak. And then I've literally given up trying to speak in class because of that, because I'm just like it's not worth the stress...”

- Assessments that are directly based on placement. She doesn't see how you can analyse the concepts deeply when she is not on placement. She doesn't feel these assessments are relevant to her situation.

“It feels like a real stretch “

Her frustrations have come from:

- Her peers that are not tech savvy. Doing the simple things like opening a link can waste a lot of class time.

GAINS

Pru wants

- Relevant and useful assessment
- Smaller breakout room discussions, but feels more comfortable if she has a rapport with the group members.
- To start teaching.

She is with random breakout groups of people each class and feels as though some initial rapport building needs to happen before the task.

The positives of remote delivery. She saves time not having to travel and get organised to go on campus. And is more productive in between classes.

Her tutors/lecturers using technology “quite smoothly”.

Her tutors/lecturers teaching in ways and with resources that she can implement into her own teaching.

She likes the assessments so far. She particularly likes the assessments that allow her to reflect from the first person perspective and indicate her “preferences” and “personal experience”. This is making it relevant to her and not just theoretical.

It is more difficult to communicate with her peers. They have a WhatsApp group, but the group is too large and becomes flooded with messages and overwhelming, so she doesn't check it.

In F2F discussions the conversation flows more naturally and you can sense when someone is going to speak

Through remote delivery, she has been exposed to many ICT resources that are applicable to her own teaching.

What do they SAY?

Pru spends time at home learning through reading and researching:

“I think a lot of the learning is from the readings and from other resources. The class time itself, I feel like, is a lot of discussing things with a teacher. But most of the content that I learn, I feel like, is from the readings “

She draws on her instrumental music teaching and high school experience (graduated 6 years ago) to connect theory to practice.

When she doesn't understand something, she firstly uses the resources provided by the teacher, then she will ask her small group of peers, then she will ask/email the teacher.

What do they do?

WHO are we empathizing with?

Tanah is a high achieving domestic student. She is Malaysian and has only studied overseas.

She is in her first semester of her ITE course.

Her specialisations are Psychology and Middle Years.

She has experience teaching overseas.

She hasn't experienced placement.

What do they HEAR?

Individuals in class who have their cameras off only contributing if the teacher calls on them directly using their name.

"I enjoy not having to sit and listen to lecture. I appreciate that that the design of the course does not involve watching videos of a lecture"

Her peers struggling to navigate the VUC space and to understand what pre-work is required.

Her peers struggling with academic writing and referencing. Due to her psychology course, she is familiar with writing in that style, and so, she doesn't value the time in class that is spent teaching others how to do this.

A cross over of content between units, however they are not aligned in their timings to be able to apply them in assessments.

She appreciated receiving a voice recording feedback from a teacher, *"Wow, you've actually broken the digital barrier, because this feels like you're talking to me and it just humanises the experience a lot more"*.

Tanah—Student



What do they THINK and FEEL?

PAINS

Her frustrations have come from:

- Remote group work:
 - * It's hard to ask for help when you're in a group situation
 - * The teacher's physical presence in a F2F classroom makes members more accountable
 - * Breakout rooms isolate the group from the teacher
- The class being dominated by simple questions. *"Either they're not doing their homework or it's just an easy tech issue"*.
- Feedback that had no context, *"...the feedback was pretty, very direct... and there's no human behind [the feedback], it just feels cruel"*.
- Assessments connected to submitting evidence from placement

GAINS

Tanah wants

- Individual assessment tasks.
- New strategies for asking questions so the class time is not spent dominated by the one question asking simple questions.
- To ask questions in class. She doesn't feel as though she can be heard unless she is "very aggressive" and "very loud".
- Assessments that are based on experiences of placement and actual teaching:

"I want to finish the course feeling like I'm prepared to enter the classroom"

What do they need to DO?

Understand the government documents and how to apply them in teaching and planning. She is overwhelmed with the amount that she needed to apply in one of her first assessment tasks.

She needs to be prepared to teach in a classroom.

She needs to understand the context of the Victorian school system and how the curriculum, policy and theories apply to that context.

What do they SEE?

Peers not contributing in breakout groups.

At the start of the semester her teachers *"were spending more time managing tech issues than needs to be"*.

The Zoom screen is limited to how many people you can see and what you can see. *"There's just so much to read for body language when you're in a real-life space"*

A group work activity does not translate easily to a remote breakout room. *"There's a lot more dynamics to the whole arrangement that might be missed"*.

The breakout rooms disappear quickly and you can't get your group back together as easily compared to F2F. You need email addresses, phone numbers to come back together to finish the work.

The technology has added an extra fear on top of what would be experienced F2F. *"And I don't feel like a lot of the teachers are understanding there's a lot of assumptions made in the instructions. We are virtual people who have not been on campus and navigated the ways of the university, which can be quite culturally different. Like I know, like, it took me about two, three weeks to just get a sense of what, OK, this is how Vic Uni works, this is how Uni works in Australia, right?"*

She is very happy with the feedback she is provided. It is personalised and detailed, which she didn't experience in her undergraduate degree.

"...there's just too many barriers for equitable access" in remote delivery.

What do they SAY?

"I'm already the driver in real life but online space I'm spending more energy trying to drive the conversation. And I'm like, aren't we all here because we want to be teachers, like, come on!"

In a F2F setting, Tanah would approach an Australian student to ask questions about the context of Australian schools, but notes she cannot do that in this remote setting.

What do they do?

WHO are we empathizing with?

Seann is a domestic student who is in the first semester of his ITE course. He has only experienced remote delivery.

His specialisations are Psychology and Mathematics.

He is tech savvy and can use multiple platforms and devices simultaneously with ease.

Seann—Student



What do they need to DO?

Seann needs to feel comfortable to ask questions in the remote setting.

What do they HEAR?

The social aspect of being in a class is different for Seann. He feels "... *getting involved is a bit different because sometimes you can just sit back and do nothing and let other people talk*". So he doesn't contribute to class discussions.

"sometimes like because there's that delay. And then you'll have someone talk over someone else. And the people are just apologising to each other"

What do they SEE?

The tutors/lecturers giving very succinct feedback.

The feedback hasn't changed, "just the medium it's coming across in"

His peers asking and answering questions about assessments via the WhatsApp group.

Some tutors/lecturers are more tech savvy than others:

"...you can kind of tell it takes a bit longer to work their way around it"

What do they THINK and FEEL?

PAINS

His anxieties come from:

- Asking questions in class:

"Usually I cross my fingers and hope someone asks because I don't really ... I don't want the attention"

"I think it's the idea of, like, having everyone looking at my face"

His frustrations have come from:

- Being in lock-down in response to Covid-19.

GAINS

Seann wants

- The verbal feedback from his peers in class because, "it's very much immediate".
- Feedback that identifies where he went wrong, and in what part of his writing.
- To be learning in the F2F setting to help motivation levels:

"I like going into class, having that interaction, that human interaction, and being around people."

The assessments have felt the same in remote delivery as most have been written assessments. He has presented a lesson plan where he had to teach a small group of his peers, which he felt was different compared to if he taught F2F. The only aspect missing is the "discussion with other people".

The "tricky part" of group work is "not having that time to work on it together as much". His group had a couple of Zoom sessions, but he would like to work more closely with his group, rather than complete sections individually.

"[Remote delivery] doesn't make much of a disruption, I think, we've got all the resources that we can use to do it."

Seann doesn't ask questions in class and very rarely on the WhatsApp group. Instead he looks through the assessment instructions, criteria and rubric and he reads the questions asked and answered on the Whatsapp group.

What do they SAY?

What do they do?

WHO are we empathizing with?

Tam is an international student from Vietnam. She is in her second semester of her ITE course.

She has been in Australia for four years.

Due to the current pandemic, she is very home sick and missing her parents.

She has digitally supported remote delivery placement in a high school.

What do they HEAR?

She uses the WhatsApp and Facebook student study groups as a support. It was initiated in Semester 1 and continues into Semester 2.

Tam—Student



What do they need to DO?

Tam is gaining experience and increasing her knowledge about teaching with technology, however she needs more experience teaching in a F2F setting.

"I think it's going to be a shock for me later on when I have to [teach] face-2-face"

What do they SEE?

The outcome of the assessments in MTeach are more practical than her MBus.

She mostly receives detailed feedback; sometimes it is more general and she would like more.

Her tutors are not tech savvy, but she is okay with this as she recognises her tech limitations and appreciates the "baby steps".

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Group work where she doesn't have a "personal bond" with the members. She finds this personal bond difficult to form through a screen and only seeing the person's face.

Her frustrations have come from:

- The delay in email responses of her teachers—not getting the answer immediately (this is not a reflection on the tutor but the remote delivery space).

GAINS

Tam wants

- "Honest" feedback
- The feeling of teaching in front of a group of students. She doesn't get the same feeling in the remote delivery and to a small group of students.
- To overcome her nervousness to teach in front of teachers. She wants to do this through experience.

Tam enjoys working remotely because she doesn't have the distractions of the people around her. She also enjoys not having to get ready to go on campus.

However, it is difficult to communicate with others after class.

Tam puts effort into a subject that she enjoys and this is usually due to the lecturer. If she doesn't enjoy the subject, she does the "assignment just for the sake of it".

She asks questions about the assessment in class, but also sends her tutor/lecturer emails for clarification if she wants more detailed, personal answers.

She attends class with her camera on so she is motivated to stay on task in tutorials—she is made accountable for focusing.

What do they SAY?

What do they do?

WHO are we empathizing with?

Achara is an international student from Bhutan in her second semester.
She has been in Australia for 1 year.
Her specialisations are Science and EAL.
She has been placed at a school and is completing it remotely.

Achara—Student



What do they need to DO?

Achara needs support from others and needs to support others.
She needs to improve in her technology skills.

What do they HEAR?

Some of her friends say remote delivery is "just like watching a television, so we can't really get [much] from it"

What do they SEE?

She can see how the assessments are connected to the practical course content.
She doesn't see formative assessment that assesses her participation in the class and leading class discussions.

What do they THINK and FEEL?

<u>PAINS</u>	<u>GAINS</u>
<p>Her anxieties come from:</p> <ul style="list-style-type: none"> Lack of training for academic writing and plagiarism. <p>Her frustrations have come from:</p> <ul style="list-style-type: none"> Technical glitches of working and learning online. When her internet drops out she needs to be placed into breakout rooms again, and this takes time. So she misses portions of the group discussion. 	<p>Achara wants</p> <ul style="list-style-type: none"> More formative assessment. She thinks it would be an additional motivator to attend classes more often. Choice and "freedom" embedded in assessment Workshops with the specialisation workshop teacher to be F2F. Specific and targeted feedback that is written along each line of her assessments (identification of where she went wrong)

Poor attendance compared to if it was F2F.
Remote delivery "has made us technologically advanced"

She likes the experience of learning from the Specialisation Workshop teacher because they are teaching through their own experience and what they do.

"Remote learning is tough when it comes to the presentation"

"[the teachers] had been very kind and generous enough to providing all kind of support so that we get grasp of all what is expected from our unit"

Achara uses multiple online platforms to collaborate: Google Docs, meetings through Zoom, communicating via WhatsApp.
She emails her tutors when she is confused about an assessment task.
She keeps her camera on for accountability in class and to keep herself motivated in class.

What do they SAY?

What do they do?

WHO are we empathizing with?

Yara is an international student from India. She recognises the differences between her own schooling in India and the Australian school system.

She has been in Australia since 2016.

She has studied a MBA in Australia.

She is in her first semester of her ITE course.

Her specialisations are Business and EAL.

She has not been placed in a school.

Yara—Student



What do they need to DO?

She needs to "know what teaching actually feels like. We've just been reading about different things like behaviour management and stuff, but we don't know how to actually apply it"

What do they HEAR?

International students for whom this is their first semester are going through a difficult time.

Feedback from a tutor via voice recording. Yara was surprised and thankful for this type of detailed and personal feedback.

What do they SEE?

The classroom is very collaborative.

She received more peer support when she completed her MBA because a group of peers would meet in the library regularly after class.

What do they THINK and FEEL?

PAINS

Her anxieties come from:

- Juggling full time work and full time study. Remote delivery contributes a small percentage to that anxiety.
- Workload when four assessments are due in the same week.

Her frustrations have come from:

- Workshop teachers not knowing about the assessment
- Inconsistencies of marking between tutors/lecturers (this is exemplified through the WhatsApp group)
- Peer evaluations focusing on the small interpretations and not the bigger picture of the assessment.

GAINS

Yara wants

- Good friends in the University whom she could freely talk to. She feels that remote delivery does not allow for a formation of friendships.
- F2F presentations to be able to practice the skill of public speaking
- Live recordings of the class so she can hear the discussion points if she is unable to attend class.

A large emphasis on collaborative learning in the course.

"At VU everyone's pretty welcoming"

"I have learnt not to try multitasking [working and participating in tutorials], no matter how much I'm tempted"

She uses support networks like the WhatsApp group to help her understand the assessment tasks. However, the larger WhatsApp group can become overwhelming with 100+ messages daily, so she has built a relationship with a couple of peers with whom she contacts.

Despite not the type of person to talk a lot, she does in a F2F classroom because "I know I'm supposed to be". However, in the remote setting, she doesn't ask questions in class or contact the tutor via email.

What do they SAY?

What do they do?

Internal Academics Empathy Map

Who are we empathising with?

Tutors and Lectures of varied experience from 3 years to 20+ years of higher ed experience. 6 Males and 4 females.

All come from an education background, teaching in schools – secondary and primary.

Varied roles from the College of Arts and Education with varied levelled positions. Most teach, assess and mark.

Varied experience teaching online, from novice to experienced. However, those who are not necessarily experienced in remote delivery have adjusted very quickly.

Most have experienced Block model – dichotomy between the controlling factor of time (or lack thereof) and quality assessment and feedback. This is unchanged from Phase 1.

Many assert the complexities of assessment come from the Block Model and not necessarily the remote delivery. Those that note the constraints of remote delivery have a great focus on in-class experiential assessment in their programs.

What do they need to do?

Despite the current educational system being in remote delivery, the end goals still remain the same. They need to:

- assess student work and produce quality and timely feedback
- prepare PSTs for the vocational outcomes
- design assessment that aligns with the learning intentions of the unit
- support students who may have little concept of the Australian school system

An additional need is the support and experience that comes from placement. This is a result of many PSTs not being placed in a school for their practicum. Therefore, the academics note that this leaves a large gap in knowledge and they feel they need to fill this gap in student knowledge and experience. The link between theory and practice seems to be absent for many PSTs.

One academic noted the additional support needed for mental health issues, as a duty of care, due to the challenges of remote learning and social isolation due to government restrictions.

What do they SEE?

They notice the teaching strategies that translate easily into the remote delivery, and conversely those that do not.

Strategies that translate easily:

- Many of the class activities used pre-Covid-19
- The structure of usual lesson planning (pedagogical planning, gradual release of responsibility, etc)
- Question and answer class discussion
- White board use (feature on Zoom)
- Using student names to call on everyone to contribute (names are listed on Zoom)
- placing students into mixed groups of set number

Some of the simple strategies that they have relied upon in the past cannot be used in the remote delivery. The breakout rooms have addressed the small table group activities; however they have removed the teacher presence from the room.

Going in and out of groups is awkward for the academic compared to just freely moving in between groups face-to-face.

Additionally, when students are in breakout rooms, the teacher cannot quickly address common misconceptions groups or individuals are having by stopping the whole class. To challenge this, more diagnostic assessment is being adopted.

The immediate observational assessment of the classroom dynamics or environment is missing:

- For those who you can see, there is only a face. Therefore, a lack of body language.
- Most students in the class have black screens – difficult to assess motivation with limited observational cues

The teaching experience these academics have, which is usually intuitively relied upon in the face-to-face setting, is not always translating to the online environment. For example, the way in which academics form the relationship connection with students has needed to change.

And so, academics reflect that it is more difficult to engage students remotely.

Aspects of group work are difficult in the remote setting:

- It is difficult to see each group member's contribution. In face-to-face setting, the teacher has strategies to evaluate contribution (e.g. walking around room, peripheral scanning).

Some academics have removed the group work aspect to assessments so students only complete individual assessment requirements. In doing this, they feel students lack:

- the opportunity to collaborate and cooperate
- communicate in a face-to-face environment: removing the opportunity to engage in critical dialogue
- unpacking of the assessment requirements together

Student results have improved in remote delivery. Suggested reasons:

- students are seen to have more time. They are not commuting and during lockdown they are not working/ about to go out socialising
- One academic noted an increase in depth of understanding of policy documents. Due to students unable to draw upon classroom anecdotal evidence to analyse and justify thinking, they turned to government legislation and policy.
- Attendance has increased

However, some tutors suggest that the depth of learning is not as deep-seated compared to face-to-face, which has affected the quality of some assessment submissions.

Many students cannot draw on placement experience (not many students placed in a school).

- students not critiquing their own placement schools
- limited school experience (can only reflect upon videos, own school experience, interviews with friends/family)

- students are not making connections to the modelling approaches of academics and the approaches that teachers are using in schools

What do they SAY?

Remote delivery has magnified the need for a particular skill set in teaching: agility, flexibility, adaptability.

“...you need to be flexible normally, and here even more flexible.”

The first semester of remote delivery was hard:

- Workload increased: They needed to learn all of the Zoom techniques; increased administration; redesigning programs that relied on face-to-face delivery.
- It was new to most. They hadn't had a run through of teaching online before. The mechanics of remote teaching needed to be learnt: the timing of teaching, the shifting in between tasks, when to change tasks, using a virtual whiteboard, etc
“Getting my head around how I was going to operate it, working out what I was going to do each session make it as close to what I would do in a face to face class as possible. That that took me a while to get my head around all those different aspects.”

Remote teaching is straining on their bodies:

- sitting down for long periods of time when they are used to moving around the classroom and between classes.
- not having regular breaks

In the second semester, teaching and assessment practices are more established compared to first semester. However, many academics are still reflecting that the workload has increased compared to pre-Covid-19. There are more

- emails from students
- extensions
- special considerations
- additional support provided to students who are struggling

The classroom setting is the most natural environment for ITE. There are aspects of the classroom ecology that are missing in the Zoom platform. However, they reflect that this may just be a feeling of unfamiliarity due to experiencing something different.

- The relational aspect of teaching is different:
 - o the reception from students
 - o the teaching persona or teaching style

They recognise the clarity of communication as an important aspect to teaching in the remote environment and how it is depended on the medium that is being used.

They also recognise the method of communicating doesn't feel as natural to them:

- they can see themselves speak and what they look like doing certain things:

“I think that actually has a big impact on how you present what you present, because you can always see yourself and you can see everybody other, others faces and everybody's always looking at you”
- they can see every student's face (that has the camera on) at the same time

While cameras off is not considered a big issue for academics, they note that students must feel disconnected in some way:

“I think when you're disconnected in some way, it makes you feel like you're an observer rather than being in the experience”

And again as seen in Phase 2, academics reflect that knowledge is “an ever evolving thing that’s not static” and as a result of this, learning is difficult to assess.

What do they DO?

The remote environment has forced them to try different teaching tools that they would ordinarily use. Thus, enriching the learning experience moving forward.

“it also allowed us to experiment with some different approaches that perhaps we wouldn't have used when we were face to face. And I actually think it's improved our methods of assessment 'as learning' in that higher education space, which we wouldn't have done previously”

They are using variations of trial and error and problem solving to see if tasks/ approaches work in remote delivery. And when something didn’t work, they continue to problem solve strategies to address the barriers. This is not necessarily focussed on the overall unit design intent but filling a need or a substitution in the short-term to cater for the remote delivery environment – which is an adaptation to the original unit model design.

They are trying to think around teaching strategies that don’t translate remotely. For example,

- group accountability using coloured text for each group members
- explaining what would be done rather than modelling it
- using artefacts to replace lack of placement (videos, interviews with friend/family teachers, AITSL resources, coaching experiences, academics as mentors)

They are using this to upskill and refine skills:

- attending remote teaching/learning skills workshops

“in some ways it advanced my teaching and it opened new opportunities that I didn't have to deal with before”

Assessments did not change significantly

- they are still using the same feedback processes and strategies
- they are still using the same strategies to save time marking (e.g. comment banks, experience teaching/assessing the same task it becomes quicker, 5min video presentations)
- some still spend their days off marking.
- some academics remotored aspects of group work

Rubrics did not change.

Feedback processes did not change in most cases

- In some cases, the academic provides most of the feedback for the first two assessments, where the student can act and improve on the feedback. The importance of making students “aware of the issue” early was noted.
- it was noted by one academic that ongoing feedback is seen to be a priority for students in remote delivery

What do they HEAR?

An absence of “authentic discussions”, where students are unable to reflect on placements/classrooms firsthand.

Students having issues as a result of remote learning:

- technology issues
 - o dropping in and out of class because of bandwidth
- access issues
 - o having to share a space with others (both multiple people needing the space/technology and or no privacy)
- they hear some students not enjoying this mode of learning, and not feeling comfortable in this space, preferring the face-to-face environment. However, they also hear other students really engaging in the online environment and thriving with self-motivated learning.
- home environment issues
 - o exacerbated the difficulties to learn because of an unstable home life.
- mental health issues
 - o being physically isolated as a result of Covid-19 restrictions plays a role in mental health and negatively impacts learning.
- VISA issues
 - o Some international students who couldn't find placement needed to extend their VISAs to complete the course. Initially there was confusion around VISA extensions and excessive costs involved, which provided these students with significant stress.

There are barriers for students to ask questions about assessments in Zoom sessions. The academics emphasize that the questions in class have reduced, however the need for the students to ask questions is still there – there is still confusion, in some cases. Despite giving student opportunities to ask questions in class, they don't, which is replaced by students asking question via email. The quick and quiet classroom clarifying questions have been removed in the online setting.

Additionally, international students (in particular) are reluctant to ask questions in the remote setting and don't ask questions via email. These student stick strictly to the rubric to the extent that the deep learning is curtailed. They are not thinking through the assessment or the process but what they need to get an HD. The remote setting “*doesn't allow them to engage in a conversation where they broaden the opportunities to do more than just what the rubric requires*”.

One academic's strategy to address this absence of the informal, quick assessment conversations is to workshop the assessment in class.

Students are providing the academic with more feedback in remote delivery.

In some cases, great feedback from students recognising the efforts they are putting in. It was also reflected that students have been very responsive and understanding despite the current restrictions and stress that many are facing.

PAINS	GAINS
<ul style="list-style-type: none"> - The absence of placement has meant limited authentic discussions and reflexivity as connected to the tutorial content. - The instinctive mechanics of teaching sometimes doesn't translate to remote delivery (e.g. use of whiteboard, engagement, forming student relationships) - Teaching has become a "marking exercise rather than one where you can engage in a formative process". There are limited opportunities to have a deep dialogue with students. - <i>"all we're doing is producing content, delivering content and making content"</i> - Restrictions in timetables. Having back to back classes prevents the academic from a dialogue after class, making it difficult for the student to get decent feedback. 	<ul style="list-style-type: none"> - save time with no commute - remote delivery can be quick and convenient - Creativity in an assessment submission to be awarded within the assessment criteria and evaluations. - Assessment must be aligned with the Learning Outcomes - Assessment must be equitable. (And they note that assessment now needs to be evaluated with consistent teacher judgements. - The process of learning should hold a greater focus in the overall assessment method - <i>"We want to promote intrinsic motivational assessments rather than extrinsically motivated assessments"</i> and we can do this by creating an assessment where the student product can be used.

High-school Teachers

The following contains reflections from both the higher education and high school perspectives of these end-users. Whilst the interview questions were related to their work in the higher-education setting, participants naturally compared their work at VU with their work in schools.

Who are we empathising with?

High-school teachers with a minimum of 5 years' experience.

Specialisations range from Physical Education, History, VET, English, Art Business/Commerce, EAL, Humanities, LOTE, Mathematics, Media, Music, Science, Drama, Literacy

They have been working in the Master of Teaching (Secondary) program from 1.5 - 3 years. All have taught face-to-face and remote, ether creating content and/or taking the 1-hour Q&A Zoom sessions.

All have had experience teaching the middle years and VCE.

Six female and two males.

What do they need to do?

They role had changed during remote delivery. In Semester 1, they designed and developed online content for their specialisation, including informational videos and online activities, where the PST would go through the module and complete the set tasks. There was no real time interaction between the workshop teachers and the PSTs. In Semester 2, the online content was used with two additional one hour Zoom meetings with the Specialisation teacher, where the PST could ask questions relating to the content/assessment.

They assess Assessment Task 2 for Junior Secondary Curriculum and Pedagogy and Senior Secondary Curriculum and Pedagogy, which has a focus of developing skills for a unit plan (7-10 inquiry unit and VCE/VCAL unit respectively).

What do they SEE?

They see very little formative assessment in the higher education program.

They see the motivation of some of the PSTs to be reduced compared to when they took face-to-face sessions. This is similar to their high-school students:

- autonomous learners are thriving
- students that require “hand-holding” are struggling

On teacher reflected on an interesting point about motivation and engagement in the online space:

“how much creating that intrinsic motivation and connection to learning is so important from them[students] to then actually log on and fully engage within that space... I mean, even in in schools with younger students, too.... I think if this was something that was going to continue to be on offer for students to learn in this way, I think that there's a lot of thinking to be done about how you build that connectedness to what students are going to learn so that they are fully able to engage in remote learning.”

Challenges in the online setting include:

- collaboration and connection with students at the same level as face-to-face
- level of participation
- not being able to watch the interactions of students (to gain formative information about them)
- not being able to listen to the conversations
- not getting the constant input and immediate feedback about students' understanding/ prior knowledge

There was a strong discussion on the decline of high-school student engagement, motivation as connected to wellbeing in the second lock down compared to the first lockdown. And one teacher who teaches disadvantaged students, reflected that their students are dis-engaged, some to the point of not attending classes and not doing work.

More emails seeking clarification of the assessment task.

However, they note that the quality of work and the depth of answers is comparable to in the face-to-face setting.

The Zoom platform (and the breakout room function) allows for the PSTs to collaborate. They don't feel there is an issue with collaborating in this way, as this is the way that schools were working together in teams. However, PSTs need to be taught collaborative skills:

“we make the assumption that people know how to collaborate... I've been teaching long enough to know that many of the old models about the way that teachers get together is flawed. And we need to we need to shift that, and we need to teach to it. So in other words, teaching our PSTs how to collaborate, how to how to get organised, how to be on task together, how to increase levels of accountability with each other, how to how to hold each other to account, how to distribute work. All of those strategies”

The technology available in 2020 supports teaching, learning, and collaborating online.

What do they SAY?

Remote teaching in Higher Ed contains different dynamics to what they are accustomed to:

- seeing all students
- picking up on the quiet conversations and comments
- seeing themselves as they talk

They share some of the challenges:

- measuring the “temperature of the room”
- working directly with students
- gauging where students are at
- cannot re-engaging students with their usual tools
- providing target and specific feedback and encouragement
- providing continuous formative feedback
- they find themselves lecturing more than they would like

Additionally, these challenges faced in teaching remotely in higher ed applied to their high school teaching. Other challenges were discussed in relation to their high school remote teaching:

- Chalk-and-talk is used as a teaching method which provides tension with their pedagogy
- Class discussions are difficult
 - o unnatural
 - o not everyone can speak at the same time
 - o there is a delay in speech and conversations
 - o students hesitant to contribute

They note that their students (probably much alike their PSTs) “miss the physical environment of the classroom” and so they try to replicate that artificially in the remote classroom and using digital tools. As well as position their teaching persona into the online content they are creating “to create a sense of energy in a digital environment”.

Their workload for assessment and feedback in higher ed has not changed, however the workload associated with their high-school employment has increased significantly. This is a result of:

- pastoral concerns (of both students and parents)
- contacting families
- providing additional feedback (written, video, meetings)
- administration

Also, there is unease about going back to school:

- Firstly, about the expectation to uphold the current workload, and
- Secondly, about the processes, policies and ethical dilemmas that are associated with the virus.

What do they DO?

Many insist on PSTs having their cameras on. They maintain the level of engagement, accountability and motivation is higher with cameras on, with less distractions and more accountability.

They cannot rely upon previous diagnostic or formative assessment of their PSTs and so they try and very quickly learn about their students by relying upon “ whatever pedagogical strategies that you have as a teacher to do that”. This is not noted as a necessarily negative but reflected that it could be more difficult for larger cohorts.

Some simple strategies put forward include:

- polls tool
- thumbs up feature in zoom
- breakout grouping use

They assert they have had to be creative in their online classes. They have adopted various approaches to engage their high-school students and make them accountable in their online classes:

- strategic sporadic questioning to individuals and whole class
- simplifying instruction, both written and verbal
- scaffold and chunk information together
- exploring new platforms and applications

"I've discovered that I need to be a presence within that digital classroom just as much as I am in a physical way"

They have modified their assessments for their high-school students:

- simplified instructions
- succinct, clear, and targeted rubrics
- in some cases, assessments have been broken down into smaller, simplified, achievable steps
- they have replaced experiential assessments with application type assessment tasks, where the student needs to apply the learning to a novel or new scenario

The mode and delivery of feedback remains the same for their High Ed classes. However, they reflect this is different for their high-school students. The mode of feedback delivery has changed as a result of not having the face-to-face conversations in class. They use individual and group Zoom sessions to provide targeted feedback, and written feedback.

What do they HEAR?

In the first lockdown, parents of their high schools provided feedback that the schools were providing too much work: *"Kids felt like they were drowning"*. As a result, expectations and volume was reduced (not expectations around learning).

"I think we forget there's only so much they can do in the online space when they're actually online"

They do not hear the collaborative conversations that the PSTs are having in their groups. The teachers have confidence that the rich conversations are still occurring:

"...because they are training teachers; we have a natural thing of wanting to discover learning and to sculpt, discover meaning"

"I did have a lot of students email me or want to speak to me privately in a breakout room about their level of motivation, and, you know, struggle with everything that was going on. And, you know, a number of them apologised for their lack of participation and motivation and the quality of their assessments because, yeah, of everything that's been happening"

What do they THINK and FEEL?

PAINS	GAINS
<ul style="list-style-type: none"> - The PSTs (much alike their high-school students) are missing out on that “hands on” experience because of remote delivery. - The teachers also miss the face-to-face “hands-on” teaching in their ITE workshops. - Clarity of assessment tasks: <i>“sometimes it looks like the students haven’t fully understood the task”</i>. This is deemed even more important for these teachers as they have no prior formative assessment information. - PSTs have limited understandings of how theory connects to practice in the school setting 	<p>They want:</p> <ul style="list-style-type: none"> - authentic assessment experiences - assessment to be valid - assessment to include collaboration: <i>“groups of teachers working collaboratively together to design tasks and to assess tasks”</i>. - PSTs to be taught collaborative skills - PSTs to have more contextualized scenarios (to replace the absence of placement) - assessment that “actually mirrors what happens in an actual school” - an emphasis on data - PSTs to understand the structure of a lesson as well as its various parts and their roles (e.g. independent consolidation; sense of inquiry within the lesson) - to <i>“create opportunities for students to feel safe to have those conversations with me”</i> (deep, rigorous, reflective conversations with PSTs)

Appendix J. Phase Two: Ideation Workshop Activities Agenda

Long term goal:

- to produce an innovative assessment that is engaging, provides a deeper approach to learning for the **remote delivery environment** BUT does not increase the amount of time it takes to mark

Welcome and Thanks - design sprint principles and ground rules	5 mins
Introductions and give brief outline of proceedings of workshop. Introduce Long Term Goal	5min
After considering Long-term goal – ask group to add/edit long-term goal considering nuances and answering the following questions: - We have our long-term goal – what is your version? - To meet our long-term goal, what has to be true (assumptions)? - What might stop us from reaching our goal? Write the revised goal on the board	15min
Map Show user - journey map to group Group members are part of the user-journey planning and experience; therefore, an explanation of the overview was not needed.	5min
Empathy Interviews Remind concept of 'How Might We': individual group members can either write HMW on post-its as we go or record key words of issues to write HMW points later. - Hand out hard copy of empathy maps to each participant - Explain the outcomes from the empathy maps. ** Pause after each end-user for Team to takes final notes of 'How might we...'	35min
Sort 'How Might We' notes into categories developed by team: - Read out and place up on board into categories - Group continues with their HMW post-it if it can be connected some way with the last - Develop category headings that combine HMW post-its Discuss which categories to focus on in next step of ideation process. OR Vote	10min
Ideate without discussion - On post it notes team to come up with as many possible solutions to the HMW → quantity over quality	6min
"Yes...And..." sorting One group member starts with an explanation of their idea and places it onto the wall/table. Other group members add to that initial idea with a connecting idea from their list by saying, "Yes, and..." with an explanation of their idea following. This process continues until all ideas have been introduced and connected.	
Your solution sketch: Each person sketches their best idea aligned with the chosen achievable solution. Sketches need to be self-explanatory on their own and drawn on A4 paper.	8min
Concluding individual reflections: Own their own, team members to reflect on the ideation process by answering questions on reflection workshop: Questions include: Can you tell me about some of your thoughts on the process of today's workshop? What wonderings/questions do you have at the completion of today's workshop? What concerns do you still have at the completion of the workshop? Were there any unexpected experiences/findings for you today?	5min
Melissah to further refine and create assessment.	

Appendix K. Phase Two Ideation Reflection Questions

Please tell me about some of your thoughts and feelings on the process of today's workshop.

Were there any unexpected experiences/findings for you today?

What did you value, if anything, in today's workshop?

What concerns, if any, do you still have at the completion of the workshop?

Is there anything else you would like to say about today's ideation workshop?

Appendix L. Phase One: Participants' Ideation Sketches

Participant 1:

5 hours (4.5 hours) workshop spec.
2 hours?

Task 1 Concept map

- Take one standard
- What are the concepts
- What do these look like from 7-10 (and beyond)
- What are the pre Year 7 concepts
- How can this be used for differentiation
- What is the impact of misconceptions

Task 2 Simulation – give context/ scenario e.g. school located... access to.... Snapshot of cohort...

DuFour's 4 Qs:

Use previous task – What do we want students to know?

Assessment practices required – How will we know they've learned it?

Differentiation practices

- What will we do if they already know it?
- What will we do if they're not getting it?

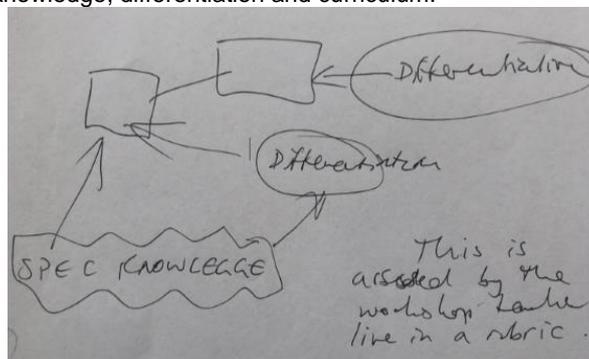
Participant 2:

- Develop images/ videos/ visuals of what the stages of a learning outcome look like
- Use to assess another group's members
- Teach that group and demonstrate improvement/ progression/ learning – very fine grained
- Do iteratively?

Participant 3:

5003 Part 1.

Concept web of curriculum, spec knowledge, differentiation and curriculum.



(This is assessed by the workshop teacher live in a rubric.)

Part 2.

Design scope and sequence of series of conceptual planning

a) Yr. 7→8→9

OR

b) Scope and sequence over set number of weeks

5004

Students evaluate a VCE unit plan from a school and have to annotate evidence of examiner's notes, advice for teachers, exam prep.

Id. Where

- : the learning is
- : content/ spec.

Connect it to the VCE scenarios – evaluate is it doable? Why?

5003

Teachers bring in an inquiry-based unit and students develop it more/ fill the gaps

Participant 4:

PSTs are given a real-life (best practice or flawed) unit plan in the workshop that has gaps in it – i.e. a concluding activity or a warm up

Students:

1. Annotate the unit plan fill in the gaps or the activity
2. Talk about why they have made those changes

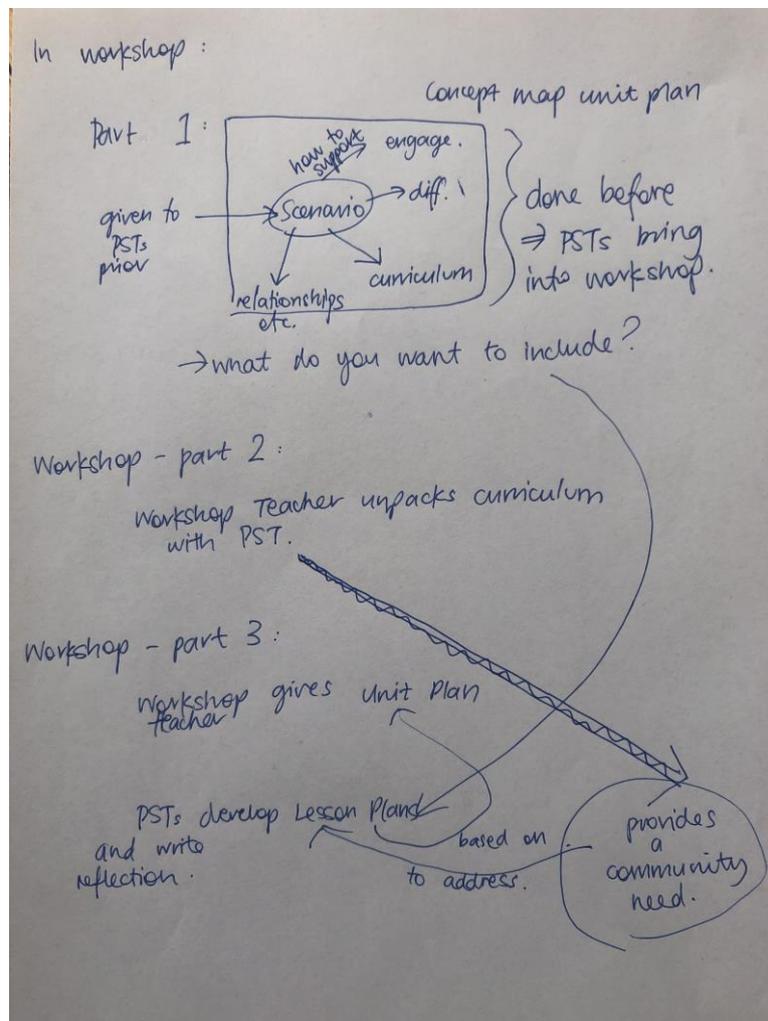
PSTs are given real life units of work and formulate a real-life collaborative planning session to create a sequence of lessons that will go back to that school.

- They are graded on their annotation or why they have done things rather than from what lessons they come up with
- Everyone is allocated a different focus (project based; inquiry based) and then go around the group to share

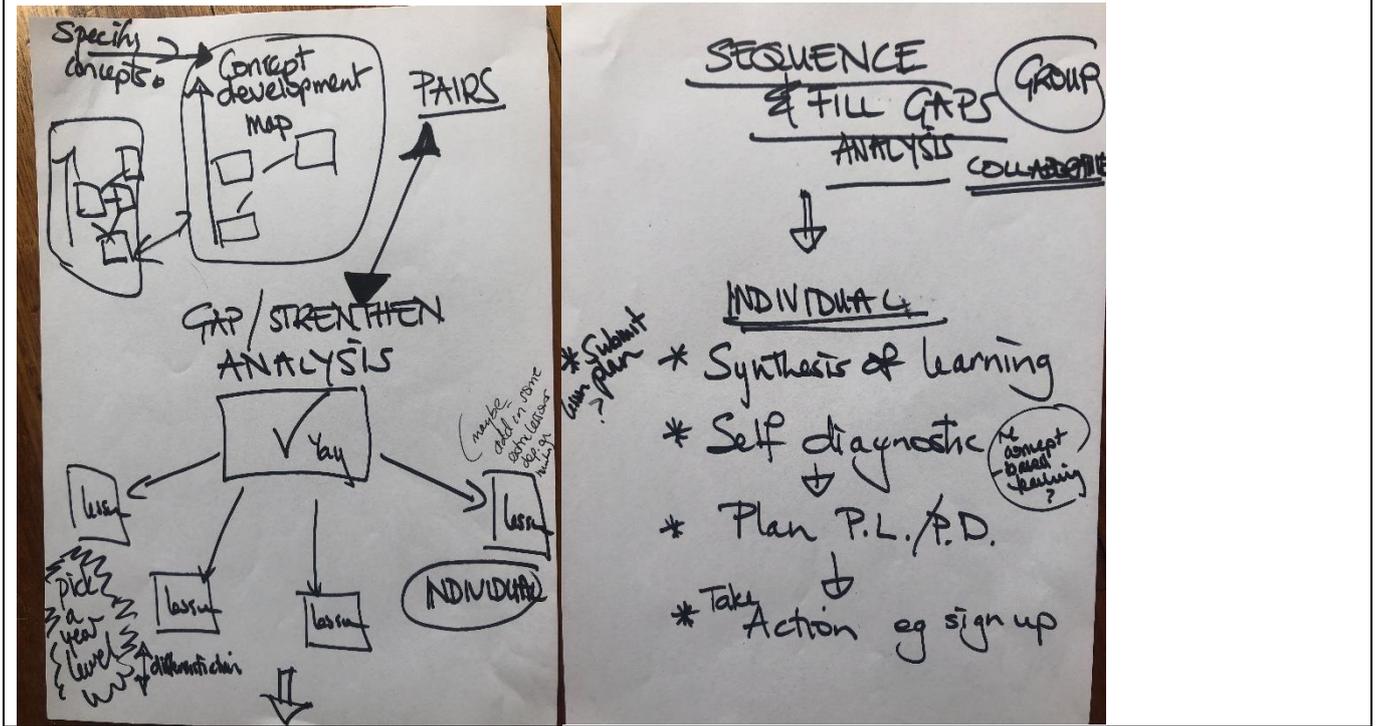
5003?

PSTs identify what they don't know and create a sequence of learning to fill the gaps of their content knowledge and skills (identify strengths and weaknesses) → complete with evidence throughout the whole course.

Participant 5:



Participant 6:



[\[Click here to return to Chapter 5: Ideation Workshop Findings\]](#)

Appendix M. Phase One: Prototype Version 1

Junior Secondary Curriculum and Pedagogy

Pedagogical purpose:

Professional Learning Communities (PLCs) are at the heart of educational change. They provide teachers and schools a foundation for strategic and ongoing reflection and planning for improvement. PLCs are characterised by collaboration of teachers and leadership through shared vision and practice. PLCs are shared responsibility of all involved and ensure student learning and progression is at the centre of purpose. This assessment has been designed to reproduce aspects of the implementation of FISO, using The PLC Guide: Implementing FISO with Precision, Collaboration and Inquiry (DET, 2019). This will immerse PSTs in experiences that simulate collaborative planning practices that are currently undertaken at schools. These experiences will also expose them to common language and structures that schools are implementing for a focus on student improvement.

Overview:

PSTs will complete this assessment task in the specialisation workshop in collaborative groups to simulate a PLC planning session at a school. A video with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide a 7-10 unit in their respective specialisations. High-school teachers will facilitate the assessment and evaluate each group.

Length:

Academic equivalent 1500 words

Due Date:

At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:

Before Specialisation Assessment Workshop – goal setting:

In tutorials prior, PSTs learn about the features of inquiry-based learning and DET policy (including the pedagogical model) to be able to apply to this assessment.

PSTs prepare answers to the goal setting questions to bring into the workshops:

- Discuss aspects of teaching you admire.
- What positive memories of your of education do you have? (that you would like to bring into your professional career)
- What strengths (character, professional, skills, etc) do you currently hold?
- What areas do you think you need to work on (weaknesses/ opportunities for improvement)?

Part 1 – evaluate and diagnose:

In small groups (3 or 4), PSTs will briefly share their professional learning goals, strengths and weaknesses (2 mins each).

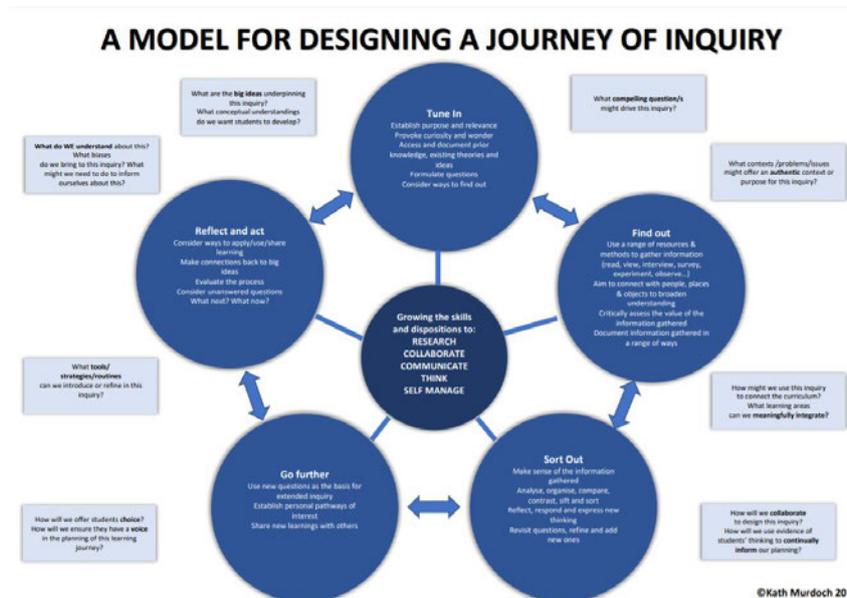
Teachers will provide PSTs with a unit that they have created or used in practice (that is not an example of an inquiry unit). Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups.

Using the teacher’s unit plan, PSTs will brainstorm the answers to the following high-impact questions. PSTs may wish to highlight and annotate the unit plan to aide in the brainstorm.

- What is it we want our students to learn?
- How will we know if our students are learning?
- How will we respond when students don’t learn?
- How will we enrich and extend the learning for students who are proficient?

Part 2 – develop and plan:

Considering the above, PSTs will conceptualise this teacher’s unit into an inquiry-based unit using the mapping framework provided:



Murdoch (2019) (used with permission)

On the framework PSTs will demonstrate their understandings by highlighting and annotating on how they are addressing:

- Inclusion: ensuring that every student has access to meaningful learning experiences accessible through multiple entry points and differentiation;
- Curriculum: knowledge of learning progressions in respective areas of specialisation and essential capabilities;
- Engagement: designing student-driven authentic learning experiences that empower students to take control of and responsibility for their learning;
- Assessment: incorporate ongoing formative assessment processes that enable students to self-assess and collect evidence of progress

Part 3 – professional reflection:

PSTs will write a short professional reflection evaluating their conceptualised inquiry-unit.

Collaboratively:

- What curriculum content, learning experiences and teaching approaches have we included that will allow students to achieve their learning goals?
- What have we learnt and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards in this process?

Individually:

- What do I need to learn?
- What learning goals will I now set for myself?
- What strategies will I put in place to achieve these goals?

References:

Department of Education and Training (2019), The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

Murdoch inquiry framework accessed from <https://static1.squarespace.com/static/55c7efeae4b0f5d2463be2d1/t/5dcb82551bdcf03f365b0a6f/1573618265386/A+MODEL+FOR+DESIGNING+A+JOURNEY+OF+INQUIRY.pdf> on 18/11/2019

Rubric

Part 1: <ul style="list-style-type: none"> • PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Thorough and accurate evaluation using the Victorian Curriculum to determine learning outcomes.</p> <p>Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning.</p> <p>Comprehensive consideration given to different student learning styles and abilities.</p>				
Part 2: <ul style="list-style-type: none"> • PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage 7-10 students to develop a conceptual inquiry unit. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement.</p> <p>Highly appropriate inquiry-based questions are included and detailed application and understanding of the inquiry process demonstrated.</p>				
Part 3: <ul style="list-style-type: none"> • PSTs can reflect deeply on the teaching and learning in their specialisation 				

Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>In-depth knowledge of the learning progressions in the specialisation and appropriate authentic learning experiences to empower students to take control and responsibility for their learning.</p> <p>Deep and critical reflection on own practice, learning and achievement of AITSL standards.</p>				
<p>Overall:</p> <ul style="list-style-type: none"> PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment.</p> <p>Share and discuss emerging research and evidence.</p>				

Senior Secondary Curriculum and Pedagogy

Pedagogical purpose:

This assessment task extends upon ETS5003 to further develop PSTs understanding of the nature of planning within the profession within the context of VCE. The FISO model has been used to conceptualise and structure this assessment workshop (<http://www.education.vic.gov.au/fiso>). The assessment is designed around teacher participation in Professional Learning Communities (PLCs) to allow PSTs to foster skills around teacher collaboration and shared practice and responsibility. PLCs are focused on continual improvement of teacher practice and student learning and often involve evaluating the efficacy of unit plans and sharing these findings. This has been included as a feature in this assessment task.

Overview:

PSTs will complete this assessment task in the specialisation workshop in collaborative groups to simulate a PLC planning session at a school. A video with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide PSTs with a Unit 4 unit in their respective specialisations that is flawed, i.e. the teacher has omitted or removed some features throughout the unit. High-school teachers will facilitate the assessment and evaluate each group.

Length:

1500 words or academic equivalent

Due Date:

At the completion of the Specialisation Assessment Workshop PSTs will upload all materials, including any photographs of written annotations.

Details:

Before Specialisation Assessment Workshop – goal setting:

In tutorials prior, PSTs learn about the features of curriculum documents in their respective specialisations to be able to apply knowledge to this assessment.

PSTs complete a SWOT analysis of their own teaching to bring into the workshops:

Reflecting on your own teaching experience and skills/knowledge gained so far in your MTeach course, report on your performance to complete a SWOT analysis (derived from AITSL):

Strengths <ul style="list-style-type: none">• What are you really good at as a teacher?• What attributes of teaching do other people recognise in you?• What do you do better than most people you work with?• What do you get recognised or rewarded for? • What about your teaching are you most proud of or satisfied with?• What experiences, resources or connections do you have access to that others don't?	Weaknesses <ul style="list-style-type: none">• What do you try to do that you just can't seem to master in your teaching?• What do you do only because you have to in order to satisfy job requirements?• Are there one or two aspects of your personality that hold you back as a teacher?• What do other people most often identify as a weakness for you?• Where are you vulnerable as a teacher?• Where do you lack experience, resources, or connections?
Opportunities <ul style="list-style-type: none">• What opportunities are available to you in your current role?• What future roles interest you?• What new technology is available to you that may enable you to be more effective?• Are there any networks in existence that might support you to improve your teaching practice?• What current trends might impact your role as a teacher?• What external to education presents an interesting opportunity for you to improve your teaching?	Threats <ul style="list-style-type: none">• Do you have weaknesses as a teacher that need to be addressed before you can move forward?• What problems could your weaknesses cause if left unchecked?• What setbacks might you face?• What other obstacles have you seen other people overcome when they're trying to improve their teaching effectiveness?

Part 1 – evaluate and diagnose:

In small groups (3 or 4), PSTs will briefly share their professional learning goals reflecting on their SWOT analysis (2 mins each).

Teachers will provide PSTs with the topic (Outcome) of the unit plan example (which will be given to PSTs in Part 3). PSTs brainstorm answers to the high impact questions:

- a. What is it we want our students to learn?
- b. How will we know if our students are learning?
- c. How will we respond when students don't learn?
- d. How will we enrich and extend the learning for students who are proficient?

Part 2 – evaluate and diagnose:

Teachers will provide PSTs with a Unit 3 or 4 unit that they have created or used in practice that has gaps where the teacher has removed aspects to create a flawed VCE unit. The

teacher may wish to take out activities, assessment, goals, learning intentions or a combination of the above. Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups. PSTs will be in the same groups as Part 2.

Using the teacher's flawed unit plan in addition to considering the planning in Part 2, PSTs will annotate the unit plan to illustrate:

- Evidence of good practice with an explanation of why they consider that good practice
- Make changes to the unit and annotate why these decisions made
- How the unit plan has / has not considered engagement/ differentiation/ inclusion
- Where is the evidence of examiner's reports, advice for teachers, and exam preparation and what should be included in the unit (that is missing) to address these documents?
- Show how the specialisation content progresses

Part 3 – professional reflection

PSTs will write a short professional reflection evaluating their annotated and modified unit plan.

Completed collaboratively:

With consideration of one student (either one they have taught or from the VCE scenarios),

- what curriculum content, learning experiences and teaching approaches have we included that will allow this student to achieve their learning goals?
- How will we provide targeted support or extension for this student?
- What have we learnt through this planning experience and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards in this process?

Completed individually:

- What do I need to learn?
- What learning goals will I now set for myself?
- What strategies will I put in place to achieve these goals?

Rubric

Part 1: <ul style="list-style-type: none"> • PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Thorough and accurate evaluation using the VCE Curriculum to determine learning outcomes. Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning.				

Comprehensive consideration given to different student learning styles and abilities.				
Part 2: <ul style="list-style-type: none"> PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage VCE students. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement.</p> <p>Through and detailed identification and consideration of relevant curriculum documents.</p>				
Part 3: <ul style="list-style-type: none"> PSTs can reflect deeply on the teaching and learning in their specialisation 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>In-depth knowledge of the learning progressions in the specialisation and appropriate innovative learning experiences to empower students to take control and responsibility for their learning.</p> <p>Deep and critical reflection on own practice, learning and achievement of AITSL standards.</p>				
Overall: <ul style="list-style-type: none"> PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
<p>Challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment.</p> <p>Share and discuss emerging research and evidence.</p>				

[Click here to return to [Chapter 5: Phase One Prototype Development Findings](#)]

Appendix N. Phase One: Prototype Version 7 (Final Version)

Junior Secondary Curriculum and Pedagogy

Pedagogical purpose:

Professional Learning Communities (PLCs) are at the heart of educational change. They provide teachers and schools with a foundation for strategic and ongoing reflection and planning for improvement. PLCs are characterised by the collaboration of teachers and leaders through shared vision and practice. PLCs are the shared responsibility of all involved and ensure student learning and progression is at the centre of purpose. This assessment has been designed to reproduce aspects of the implementation of FISO, using *The PLC Guide: Implementing FISO with Precision, Collaboration and Inquiry* (DET, 2019). This will immerse PSTs in experiences that simulate collaborative planning practices that are currently undertaken at schools. These experiences will also expose them to common language and structures that schools are implementing for a focus on student improvement.

Overview:

PSTs will complete this task in both specialisation workshops in collaborative groups (3 or 4) to simulate a PLC planning session at a school. The mark from the second workshop will contribute to the PSTs mark for AT2 in this subject. The first workshop will provide formative feedback to the PST. A video with an explanation of Part 2, 3 and 4 will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide a 7-10 unit in their respective specialisations. High-school teachers will facilitate the assessment and evaluate each group.

Length:

Academic equivalent 2000 words

Due Date:

At the end of the 5-hour workshop PSTs will upload all materials, including any photographs of written annotations.

Details:

Before Specialisation Assessment Workshop – goal setting (200 - 300 words):

In tutorials prior, PSTs learn about the features of inquiry-based learning and DET policy (including the pedagogical model) to be able to apply to this assessment.

PSTs prepare answers to the goal setting prompts below, to bring into both workshops:

- Discuss aspects of teaching you admire (e.g. qualities/ characteristics).
- What positive memories of your education do you have that you would like to bring into your professional career?
- What strengths (character, professional, skills, etc) do you currently hold for teaching?
- What areas do you think you need to work on (weaknesses/ opportunities for improvement) for teaching in each of your specialisations?

Part 1 – evaluate and diagnose (document our thinking) - 40 mins:

Irks and Quirks Protocol² warm up:

In small groups (3 or 4), PSTs will write

1. **one** pet peeve they have regarding working in groups or at teacher meetings. They begin their pet peeve with the phrase It burns my butt when . . . (e.g., “It burns my butt when people are interrupted during discussions,” or “It burns my butt when one person does all the talking.”) (2 mins)
2. **one** trait about themselves that everyone in the group should know to best work with them in a group setting. They begin their trait with the phrase One thing you all should know about me is . . . (e.g., “One thing you all should know about me is that my silence is not due to disinterest; I just need processing time,” or “One thing you all should know about me is I get excited during discussions, and sometimes people are put off by my enthusiasm”.

Then share in the small groups:

3. PSTs share both statements in volunteer order without discussion (or elaborating on the card) and share one of their professional learning goals from their goal setting homework (Q4). (2 mins each).

Teachers will provide PSTs with a unit that they have created or used in practice (that is not an example of an inquiry unit).

Using the teacher’s unit plan, PSTs will write a response to the following high-impact questions in the table format below. PSTs may wish to highlight and annotate the unit plan to aide in their response (use of dot points is acceptable).

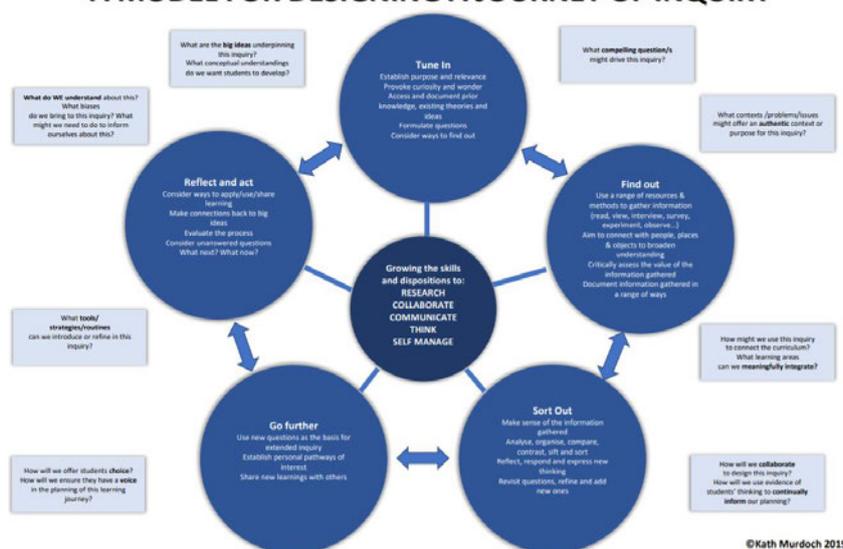
1. What is it we want our students to learn? (Curriculum)	2. How will we know if our students are learning? (Assessment)
3. How will we respond when students do not learn? (Differentiation)	4. How will we enrich and extend the learning for students who are proficient? (Differentiation)

Part 2 – develop and plan :

Considering the above, PSTs will conceptualise this teacher’s unit into an inquiry-based unit using the mapping framework provided:

² Irks and Quirks is a pre-activity for setting up norms in teacher groups developed by Daniel R. Venables. From D. Venables, The Practice of Authentic PLCs: A Guide to Effective Teacher Teams, Corwin, 2011.

A MODEL FOR DESIGNING A JOURNEY OF INQUIRY



Murdoch (2019, used with permission)

On the framework PSTs will demonstrate their understandings by highlighting and annotating on how they are addressing:

- Inclusion: ensuring that every student has access to meaningful learning experiences accessible through multiple entry points and differentiation;
- Curriculum: knowledge of learning progressions in respective areas of specialisation and essential capabilities;
- Engagement: designing student-driven authentic learning experiences that empower students to take control of and responsibility for their learning;
- Assessment: incorporate ongoing formative assessment processes that enable students to self-assess and collect evidence of progress

Part 3 – professional reflection – 40 mins:

PSTs will write a short professional reflection evaluating their conceptualised inquiry-unit.

Collaboratively (300 words):

- What curriculum content, learning experiences and teaching approaches have we included that will allow students to demonstrate their achievement of learning goals?
- What have we learnt and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards (Choose from 2.2, 1.5, 2.1, 2.2, 3.3, 3.4, 4.1) in this process?

Individually (300 words):

- What do I need to learn? (refer back to your pre session learning goals – what has been achieved; what do you still need to work on?)
- What learning goals will I now set for myself? Connect these goals to AITSL standards.
- What strategies will I put in place to achieve these goals?

References

Department of Education and Training (2019), The PLC Guide: Implementing FISO with precision, collaboration and inquiry. Accessed from <https://www.education.vic.gov.au/Documents/school/teachers/management/improvement/plcguide.pdf>.

Murdoch inquiry framework accessed from

<https://static1.squarespace.com/static/55c7efeae4b0f5d2463be2d1/t/5dcb82551bdcf03f365b0a6f/1573618265386/A+MODEL+FOR+DESIGNING+A+JOURNEY+OF+INQUIRY.pdf> on 18/11/2019

Rubric:

Part 1: <ul style="list-style-type: none"> • PSTs can collaboratively and effectively contribute and communicate the intended learning outcomes from the Victorian Curriculum for students by articulating an understanding of key content and concepts in their respective specialisation. <ul style="list-style-type: none"> ○ Thorough and accurate determination of learning outcomes, justified and explained with reference to the Victorian Curriculum (question 1) ○ Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning (question 2) ○ Comprehensive consideration given to different student learning styles and abilities (questions 3 and 4) 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Part 2: <ul style="list-style-type: none"> • PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage 7-10 students to develop a conceptual inquiry unit. <ul style="list-style-type: none"> ○ Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement. ○ Detailed application and understanding of the inquiry process demonstrated as particular to respective specialisation. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Part 3: <ul style="list-style-type: none"> • PSTs can reflect deeply on the teaching and learning in their specialisation <ul style="list-style-type: none"> ○ In-depth knowledge of the learning progressions in the specialisation and appropriate authentic learning experiences to empower students to take control and responsibility for their learning in a Junior Secondary Setting. ○ Deep and critical reflection on own practice, learning and achievement of AITSL standards. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown
Overall: <ul style="list-style-type: none"> • PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices. <ul style="list-style-type: none"> ○ Constructively challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment giving clear justification to support and explain ideas. ○ Share and discuss emerging research and evidence to substantiate claims. ○ Pre goal setting contains specific and challenging goals. They are engaged in targeted development focused on priority areas for improvement. 				
Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Senior Secondary Curriculum and Pedagogy

Pedagogical purpose:

This assessment task extends upon Junior Secondary Specialisation Curriculum and Pedagogy to further develop PSTs understanding of the nature of planning within the profession within the context of VCE. The FISO model has been used to conceptualise and structure this assessment workshop (<http://www.education.vic.gov.au/fiso>). The assessment is designed around teacher participation in Professional Learning Communities (PLCs) to allow PSTs to foster skills around teacher collaboration and shared practice and responsibility. PLCs are focused on continual improvement of teacher practice and student learning and often involve evaluating the efficacy of unit plans and sharing these findings. This has been included as a feature in this assessment task.

Overview:

PSTs will complete this assessment task in the specialisation workshop in collaborative groups (3 or 4) to simulate a PLC planning session at a school. Videos with an explanation of each part will be provided to teachers to show to PSTs for consistency of instruction. Teachers will provide PSTs with a Unit 3 or 4 unit in their respective specialisations that is flawed, i.e. the teacher has omitted or removed some features throughout the unit. High-school teachers will facilitate the assessment and evaluate each group.

PSTs in the Middle Years specialisation will focus on a VCAL curriculum component.

Due Date:

At the completion of the Specialisation Assessment Workshop PSTs will upload all materials, including any photographs of written annotations.

Details:

Before Specialisation Assessment Workshop – goal setting (250-350 words):

In tutorials prior, PSTs learn about the features of curriculum documents in their respective specialisations to be able to apply knowledge to this assessment.

PSTs complete a SWOT analysis of their own teaching to bring into the workshops:

Reflecting on your own teaching experience and skills/knowledge gained so far in your teaching course, report on your performance to complete a SWOT analysis (derived from AITSL):

<p>Strengths</p> <ul style="list-style-type: none"> • What are you really good at as a teacher? • What attributes of teaching do other people recognise in you? • What do you do better than most people you work with? • What do you get recognised or rewarded for? • What about your teaching are you most proud of or satisfied with? • What experiences, resources or connections do you have access to that others don't? 	<p>Weaknesses</p> <ul style="list-style-type: none"> • What do you try to do that you just can't seem to master in your teaching? • What do you do only because you have to in order to satisfy job requirements? • Are there one or two aspects of your personality that hold you back as a teacher? • What do other people most often identify as a weakness for you? • Where are you vulnerable as a teacher? • Where do you lack experience, resources, or connections?
<p>Opportunities</p> <ul style="list-style-type: none"> • What opportunities are available to you in your current role? • What future roles interest you? • What new technology is available to you that may enable you to be more effective? • Are there any networks in existence that might support you to improve your teaching practice? • What current trends might impact your role as a teacher? • What external to education presents an interesting opportunity for you to improve your teaching? 	<p>Threats</p> <ul style="list-style-type: none"> • Do you have weaknesses as a teacher that need to be addressed before you can move forward? • What problems could your weaknesses cause if left unchecked? • What setbacks might you face? • What other obstacles have you seen other people overcome when they're trying to improve their teaching effectiveness?

Part 1 – evaluate and diagnose (documenting our thinking) (40 mins):

Irks and Quirks Protocol³ warm up:

In small groups (3 or 4), PSTs will write

4. **one** pet peeve they have regarding working in groups or at teacher meetings. They begin their pet peeve with the phrase It burns my butt when (e.g., “It burns my butt when people are interrupted during discussions,” or “It burns my butt when one person does all the talking.”) (2 mins)
5. **one** trait about themselves that everyone in the group should know to best work with them in a group setting. They begin their trait with the phrase One thing you all should know about me is (e.g., “One thing you all should know about me is that my silence is not due to disinterest; I just need processing time,” or “One thing you all should know about me is I get excited during discussions, and sometimes people are put off by my enthusiasm”.

Then share in the small groups:

6. PSTs share both statements in volunteer order without discussion (or elaborating on the card) and share one of their professional learning goals from their SWOT analysis. (2 mins each).

Teachers will provide PSTs with the topic (Outcome) of the unit plan example (which will be given to PSTs in Part 3). PSTs brainstorm answers to these high impact questions:

³ Irks and Quirks is a pre-activity for setting up norms in teacher groups developed by Daniel R. Venables. From D. Venables, The Practice of Authentic PLCs: A Guide to Effective Teacher Teams, Corwin, 2011. Copyright 2011 by Corwin

1. What is it we want our students to learn? (curriculum)
 - i. Looking also at VCE study guides, VCAL curriculum, advice for teachers, examiner's report
2. How will we know if our students are learning? (assessment)
 - i. Looking also at VCAA Assessment Principles
3. How will we respond when students do not learn? (differentiation)
4. How will we enrich and extend the learning for students who are proficient? (differentiation)

Part 2 – evaluate and diagnose:

Teachers will provide PSTs with a Unit 3 or 4 unit that they have created or used in practice that has gaps where the teacher has removed aspects to create a flawed VCE unit. The teacher may wish to take out activities, assessment, goals, learning intentions or a combination of the above. It is recommended to remove a number of 'activities' (either within a lesson or a series of lessons) to allow the PSTs to understand the timing of lessons and activities (i.e. how long an activity takes within the lesson).

Teachers may wish to give the same unit (i.e. same year level and content) to each group or provide different units for the different groups. PSTs will be in the same groups as Part 2.

Using the teacher's flawed unit plan in addition to considering the planning in Part 2, PSTs will annotate the unit plan to illustrate:

- Evidence of good practice with an explanation and justification of why they consider that good practice (substantiate from pedagogical literature, HITS, e5, etc)
- Make changes to the unit and annotate why these decisions have been made
- How the unit plan has / has not considered engagement/ differentiation/ inclusion
- Identify the evidence of examiner's reports, advice for teachers, and exam preparation and what should be included in the unit (that is missing) to address these documents?
- Show how the specialisation content progresses by mapping the progression of student cumulative learning by mapping a unit summary:
 - o How is the content progressing and developing? (Highlighting content and complexity of activities)
 - o How is the assessment is linked?
 - o You could use a design board to show the progression (example below) or a concept map.

Sequence of learning 1 (Content / overall learning outcomes)				Sequence of learning 2		Sequence of learning 3, etc	
Main activity 1		Main activity 2					
Diagnostic assessment	Formative assessment 1		Formative assessment 3			Assessment 4	

Part 3 – professional reflection – 40 mins:

PSTs will write a short professional reflection evaluating their annotated and modified unit plan.

Completed individually (500 words):

With consideration of one student each (either one they have taught or from the VCE scenarios),

- what curriculum content, learning experiences and teaching approaches have we included that will allow this student to achieve their learning goals?
- How will we provide targeted support or extension for this student?
- What have I learnt through this planning experience and how will this inform our instruction and/or planning in the future?
- What is the progress made with achieving AITSL standards in this process?

Rubric:

Part 1:

- PSTs can collaboratively effectively contribute and communicate the intended learning outcomes for students by articulating an understanding of key content and concepts in their respective specialisation.
 - Thorough and accurate evaluation and justification using the VCE/VCAL Curriculum to determine learning outcomes. (question 1)
 - Rigorous processes of evaluation identified; including a rich variety of evidence of assessment as, of and for learning. (Question 2)
 - Comprehensive consideration given to different student learning styles and abilities. (Question 3 & 4)

Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Part 2:

- PSTs can analyse and critique a range of pedagogical approaches, instructional strategies and resources that engage VCE students.
 - Thorough use of a range of instructional strategies and teaching practices to ensure very high levels of student engagement.
 - Thorough and detailed identification and consideration of relevant curriculum documents.

Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Part 3:

- PSTs can reflect deeply on the teaching and learning in their specialisation
 - In-depth knowledge of the learning progressions in the specialisation and appropriate innovative learning experiences to empower students to take control and responsibility for their learning in a Senior Secondary setting.
 - Deep and critical reflection on own practice, learning and achievement of AITSL standards.

Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Overall:

- PSTs can collaboratively share a culture of trust that demonstrates ownership for planning responsibilities, respectful challenging of mindset's, knowledge and practices.
 - Constructively challenge and stretch each other in knowledge and understanding of curriculum, pedagogy and assessment by giving clear justification to support and explain ideas.
 - Share and discuss emerging research and evidence to substantiate claims.
 - Pre goal setting contains specific and challenging goals. They are engaged in targeted development focused on priority areas for improvement.

Highly Accomplished	Generally Consistent	Inconsistent evidence of practice and skills	Limited evidence of understandings	Not shown

Appendix O. Phase Two: Participants' Ideation Sketches

Participant 1:

Solution Sketch

8 minute Video that can be embedded across units/courses/universities...

- gives rationale behind focus on collaboration
- demonstrates good/not so good collaboration
- talks through how to get your teacher to come to your breakout group when you need help
- introduces framework for self assessment of collaboration
 - overview of rubric

AND- ask Zoom to add new features!

Participant 2:

Solution Sketch

SOLUTION SKETCH
Collaboration Learning Progression Points (LPPs) development and monitoring

Using Learning Outcomes and assessment tasks,

- students map in groups LPPs. these are shared and as a group vote and edit to agree on which to adopt. - using Miro?
- at agreed progression points students self and peer assess progress - part of this could include a brief reflexive personal development plan that could be assessed for unit assessment. these plans also form part of the next LPP self and peer assessment session
- various elements of this process contribute to the overall assessment marking

Participant 3:

Solution Sketch

Learning progressions explicit, delivery and skill development of a variety of collaboration skills including verbal and written

Student led learning/contribution in this work, creating an epistemic value around engagement and collaboration in remote learning- what does it look like, how does it function, what are we looking for to know we are doing it and learning from it, students identify what their gaps are in learning this way, opportunities for reflexivity- eg FISO

Participant 4:

Solution Sketch

Scoping doc of skills and how to implement and monitor these

e.g.

	Week 1	Week 2	Week 3	Week 4	
Collaborative focus					
Collaborative strategies <u>e.g.</u> zoom feature to use, online tool					
Student assessment – self/peer/tutor					
Further resources for academics					

[Click here to return to [Chapter 8: Ideation workshop findings](#)]

[Click here to return to [Chapter 8: Ideation workshop discussion](#)]

Appendix P. Phase Two: Prototype Version 1

Develop relationships to enable collaboration

Trust needs to be built:

- Factors influencing trust in collaboration include benevolence, honesty, openness, reliability, and competence, noting, however, that this can take time (Tschannen-Moran, 2011)
- Individuals should be "kind and patient with other team members and reliable in fulfilling their responsibilities build trust and eventually lead to increased collaboration" in PLC teams (Hallan et al., 2015, p.211)

Use protocols to develop shared norms:

- Barkley et al. (2014) suggests applications for establishing group ground rules (p. 67)

Develop a 'team' culture:

- Provide rationale behind the focus on collaboration.
- Individuals made aware of accountability.
- Barkley et al. (2014) suggested individual accountability can be advocated by "stimulate interdependence for group members to work together and success is dependent on the group as a whole and not individual students" (p. 56).

Build group expectations with a focus on collaboration: can be done with proforma with roles.

Barkley et al. (2014) suggest how group roles may be adapted for online environments, especially for asynchronous collaborations (p89).

Facilitate and monitor collaboration

Stimulate interdependence for group members to work together where success is dependent on the group as a whole and not individual students (Barkley et al., 2014)

Build-in self-assessment

- as a mode of feedback
- for students to identify what their learning gaps are to build in reflexivity.
- that is cyclic to be able to come back and revise these.

Academic to present "authentic and real-world problems and projects that demonstrate their relevance" (Robinson, 2017, p.38)

Allow for a combination of asynchronous and synchronous learning opportunities:

asynchronous for spontaneous discussions and synchronous for further and potentially deeper cognitive reflections (Yamagata-Lynch, 2014)

Teach collaboration explicitly

Explicitly teach group goals and individual accountability

PSTs need to see a direct link between the skills they need to develop and their own teacher development practice.

Learning progressions taught explicitly, either determined by the teacher or student-led development.

Include a variety of collaboration skills, both verbal and written.

Demonstrate and model good and not-so-good collaboration.

Provide explicit modelling to draw attention to specific teaching strategies (Boyd, 2014; Loughran & Berry, 2005), with increased scaffolding to overcome the challenge of the physical distance between students during collaboration (Robinson et al., 2017)

Provide skills training for new technology platforms (Barkley et al., 2014).

Critical thinking and reflection through the use of questions:

How do we question each other? What are the different types of questions we ask, and how do we use that to stretch ourselves?

Assess collaboration

Formative or summative assessment of collaborative skills

Self and peer assessment:

- not contributing to the final score as to increase accuracy and consistency of evaluation (Sridharan et al., 2019), or
- contributing to a small proportion of the final score where students are aware if their contributions will be evaluated.

Collaborative skills embedded into learning outcomes and subsequent rubric.

Individual or group evaluative assessment dependent on the task/s and whether individual contributions can be isolated:

- It is best if the assessment of the team's performance is triangulated (Salas et al., 2017)

An example of a collaborative assessment is presented as the MVP below.

- Boyd, P. (2014). Using 'modelling' to improve the coherence of initial teacher education. In P. Boyd, A. Szplit & Z. Zbrog (Eds.), *Teacher educators and teachers as learners: international perspectives*. Wydawnictwo Libron, Kraków, Poland (pp51-73). <https://doi.org/10.13140/2.1.3059.6167>
- Barkley, E. F., Cross, K. P., & Major, C. H. (2014). *Collaborative learning techniques: A handbook for college faculty*. John Wiley & Sons.
- Hallam, P. R., Smith, H. R., Hite, J. M., Hite, S. J. & Wilcox, B. R. 2015. Trust and collaboration in PLC teams: Teacher relationships, principal support, and collaborative benefits. *NASSP bulletin*, 99, 193-216. <https://doi.org/10.1177/0192636515602330>
- Loughran, J. & Berry, A. (2005). Modelling by teacher educators. *Teaching and Teacher Education*, 21, 193-203. <https://doi.org/10.1016/j.tate.2004.12.005>
- Robinson, H.A., Kilgore, W. & Warren, S. J. (2017). Care, communication, learner support: Designing meaningful online collaborative learning. *Online Learning*, 21(4), 29-51. <https://doi.org/10.24059/olj.v21i4.1240>
- Salas, E., Reyes, D. L., & Woods, A. L. (2017). The assessment of team performance: Observations and needs. In *Innovative assessment of collaboration* (pp. 21-36). Springer, Cham. https://doi.org/10.1007/978-3-319-33261-1_2
- Sridharan, B., Tai, J. & Boud, D. Does the use of summative peer assessment in collaborative group work inhibit good judgement?. *High Educ* 77, 853–870 (2019). <https://doi.org/10.1007/s10734-018-0305-7>
- Tschannen-Moran, M. (2011). In search of trust: Contributing to the understanding of a taken-for-granted construct. In M.F. DiPaola & P.B. Forsyth (Eds.), *Leading research in educational administration: A Festschrift for Wayne K. Hoy* (pp. 1-16), Information Age Publishing.
- Yamagata-Lynch, L. C. (2014). Blending online asynchronous and synchronous learning. *International Review of Research in Open and Distributed Learning*, 15(2), 189-212. <https://doi.org/10.19173/irrodl.v15i2.1778>

Overview	The purpose of this task is to build upon your theoretical knowledge of skills, attributes, and processes of effective collaboration in Professional Learning Communities (PLCs). Additionally, this task allows you to practice breaking down proficiency scales into smaller progressions in a purposeful way connected to how you will be required to do when planning and assessing your students.
Details	This task could be coupled with a task focused on collaboration or stand alone. As a group, you will plan for effective collaboration to improve outcomes
Instructions	<ol style="list-style-type: none"> 1. Determine the Learning Outcome (teacher or student chosen). 2. In your group, develop a sequential list of learning progression (LP) points to achieve the Learning Outcome through effective collaboration in your PLC. 3. Decide on how you will facilitate and monitor your LP points. For example, when and how will you check your progress? How will this inform your progress? Will you include self/peer assessment? 4. Develop a reflexive professional development plan (based on "Guided Teacher Self-Reflection Activities," DET, 2018) to assess and plan for improvement in collaboration: <ul style="list-style-type: none"> • record your strengths with an assessment of where you are now, • opportunities for improvement and specific professional development goals, • evidence that will be gathered to inform if you have accomplished your goals, • measure your performance, • reflect on your progress and next steps that need to take place
Assessment Criteria	Your submission will be assessed on: <ol style="list-style-type: none"> 1. Analysis of LPs to achieve effective collaboration. 2. Analysis and assessment of facilitation/monitoring of collaboration 3. Reflexive professional development plan 4. Post-self reflection

Department of Education and Training (DET), 2018, *Practice Principles for Excellence in Teaching and Learning*, <https://www.education.vic.gov.au/Documents/school/teachers/support/practiceprinreflection.pdf>

[Click here to return to [Chapter 8: Phase Two Prototype Development Findings](#)]

Appendix Q. Phase Two: Prototype Version 8 (Final Version)

Develop relationships to enable collaboration

Trust needs to be built:

- Factors influencing trust in collaboration include benevolence, honesty, openness, reliability, and competence, noting, however, that this can take time (Tschannen-Moran, 2011)
- Individuals should be "kind and patient with other team members and reliable in fulfilling their responsibilities build trust and eventually lead to increased collaboration" in PLC teams (Hallan et al., 2015, p.211)

Use protocols to develop shared norms:

- Barkley et al. (2014) suggests applications for establishing group ground rules (p. 67)

Develop a 'team' culture:

- Provide rationale behind the focus on collaboration.
- Individuals made aware of accountability.
- Barkley et al. (2014) suggested individual accountability can be advocated by "stimulate interdependence for group members to work together and success is dependent on the group as a whole and not individual students" (p. 56).

Build group expectations with a focus on collaboration: can be done with proforma with roles. Barkley et al. (2014) suggest how group roles may be adapted for online environments, especially for asynchronous collaborations (p89).

Facilitate and monitor collaboration

Stimulate interdependence for group members to work together where success is dependent on the group as a whole and not individual students (Barkley et al., 2014)

Build-in self-assessment

- as a mode of feedback
- for students to identify what their learning gaps are to build in reflexivity.
- that is cyclic to be able to come back and revise these.

Academic to present "authentic and real-world problems and projects that demonstrate their relevance" (Robinson, 2017, p.38)

Allow for a combination of asynchronous and synchronous learning opportunities: asynchronous for spontaneous discussions and synchronous for further and potentially deeper cognitive reflections (Yamagata-Lynch, 2014)

Teach collaboration explicitly

Explicitly teach group goals and individual accountability

PSTs need to see a direct link between the skills they need to develop and their own teacher development practice.

Learning progressions taught explicitly, either determined by the teacher or student-led development.

Include a variety of collaboration skills, both verbal and written.

Demonstrate and model good and not-so-good collaboration.

Provide explicit modelling to draw attention to specific teaching strategies (Boyd, 2014; Loughran & Berry, 2005), with increased scaffolding to overcome the challenge of the physical distance between students during collaboration (Robinson et al., 2017)

Provide skills training for new technology platforms (Barkley et al., 2014).

Critical thinking and reflection through the use of questions:

How do we question each other? What are the different types of questions we ask, and how do we use that to stretch ourselves?

Assess collaboration

Formative or summative assessment of collaborative skills

Self and peer assessment:

- not contributing to the final score as to increase accuracy and consistency of evaluation (Sridharan et al., 2019), or
- contributing to a small proportion of the final score where students are aware if their contributions will be evaluated.

Collaborative skills embedded into learning outcomes and subsequent rubric.

Individual or group evaluative assessment dependent on the task/s and whether individual contributions can be isolated:

- It is best if the assessment of the team's performance is triangulated (Salas et al., 2017)

An example of a collaborative assessment is presented as the MVP below.

- Boyd, P. (2014). Using 'modelling' to improve the coherence of initial teacher education. In P. Boyd, A. Szplit & Z. Zbrog (Eds.), *Teacher educators and teachers as learners: international perspectives*. Wydawnictwo Libron, Kraków, Poland (pp51-73). <https://doi.org/10.13140/2.1.3059.6167>
- Barkley, E. F., Cross, K. P., & Major, C. H. (2014). *Collaborative learning techniques: A handbook for college faculty*. John Wiley & Sons.
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- Robinson, H.A., Kilgore, W. & Warren, S. J. (2017). Care, communication, learner support: Designing meaningful online collaborative learning. *Online Learning*, 21(4), 29-51. <https://doi.org/10.24059/olj.v21i4.1240>
- Salas, E., Reyes, D. L., & Woods, A. L. (2017). The assessment of team performance: Observations and needs. In *Innovative assessment of collaboration* (pp. 21-36). Springer, Cham. https://doi.org/10.1007/978-3-319-33261-1_2
- Sridharan, B., Tai, J. & Boud, D. Does the use of summative peer assessment in collaborative group work inhibit good judgement?. *High Educ* 77, 853–870 (2019). <https://doi.org/10.1007/s10734-018-0305-7>
- Tschannen-Moran, M. (2011). In search of trust: Contributing to the understanding of a taken-for-granted construct. In M.F. DiPaola & P.B. Forsyth (Eds.), *Leading research in educational administration: A Festschrift for Wayne K. Hoy* (pp. 1-16), Information Age Publishing.
- Yamagata-Lynch, L. C. (2014). Blending online asynchronous and synchronous learning. *International Review of Research in Open and Distributed Learning*, 15(2), 189-212. <https://doi.org/10.19173/irrodl.v15i2.1778>

Overview	<p>The purpose of this task is to build upon your theoretical knowledge of skills, attributes, and processes of effective collaboration in Professional Learning Communities (PLCs). Additionally, this task allows you to practice breaking down proficiency scales into smaller progressions in a purposeful way connected to how you will be required to do when planning and assessing your students. In pairs, you will plan for effective collaboration to improve outcomes.</p>
Details for academics	<p>This task could be coupled with a task focused on collaboration or stand alone. For example, if the task is stand alone, the Learning Outcome (LO) could be ‘effective collaboration with peers/PLC.’ If the task is coupled with another, the LO could be ‘collaborate with peers to facilitate the development of a product or to solve a problem’, in which the product or problem is determined by the unit curriculum.</p> <p>The task could be facilitated in several different ways for the PST to experience multiple exposures. One suggestion is included below.</p> <p>Another example of its use could have an additional group member as an observer who watches the conversation and collaboration of the pair (or group) and uses a checklist as a feedback tool. The observer then provides feedback based on the determined criteria (Step 4) about what they observed or did not observe. This process could be embedded across the unit multiple times (where collaboration is used) where the observer swaps each time to provide feedback to the group.</p> <p>It is recommended students work on a collaborative document, for example a Google Doc.</p>
Instructions to students	<ol style="list-style-type: none"> 1. Determine the LO (teacher or student chosen). 2. Together in your pair, develop a sequential, cumulative list of learning progression (LP) points to achieve the Learning Outcome through effective collaboration in your PLC. <ul style="list-style-type: none"> For example, ask yourselves: What key knowledge and/or skills is needed to achieve the LO? Which is simpler, that may come first? Which is more complex? How do the knowledge/skills build upon each other? Are there multiple pathways to achieve the LO? 3. Decide on how you will facilitate and monitor your LP points. <ul style="list-style-type: none"> For example, ask yourselves: How are you going to plan for purpose? Which learning theory/theories and pedagogy/pedagogies are you connecting your learning to? How is this informing your planning? What will you look for as evidence of learning? How will you know what you are looking for? What data will you collect? Will you include self/peer assessment? When and how will you check your progress? How will this inform your future planning and progress?

	<p>4. Develop a reflexive professional development plan (based on "Guided Teacher Self-Reflection Activities," DET, 2018) to assess and plan for improvement in collaboration:</p> <ul style="list-style-type: none"> • record your strengths with an assessment of where you are now, • opportunities for improvement and specific professional development goals, • evidence that will be gathered to inform if you have accomplished your goals, <p>5. Complete a post-self reflection to measure your performance, reflect on your progress, and next steps that need to take place in your learning.</p>
Assessment Criteria	<p>Your submission will be assessed on:</p> <ol style="list-style-type: none"> 1. Analysis of LPs to achieve effective collaboration. 2. Analysis and assessment of facilitation/monitoring of collaboration 3. Group collaboration through shared culture of trust, ownership of planning responsibilities, respectful challenging of mindset's, knowledge and practices. 4. Reflexive professional development plan

Department of Education and Training (DET), 2018, *Practice Principles for Excellence in Teaching and Learning*, <https://www.education.vic.gov.au/Documents/school/teachers/support/practiceprinreflection.pdf>

Example of Task Proforma for PSTs

Step 1 – Determine the Learning Outcome (LO):

(e.g.: "effective collaboration with peers/PLC in a remote setting")

Step 2 – Brainstorm all of the points of learning progressions (LP) that need to occur to achieve the LO.

For example, ask yourselves:

What key knowledge and/or skills is needed to achieve the LO? How will you recognise progression of the LO? What support is needed to enable the LO success? How can you stretch your own thinking and the thinking of others in achieving the LO?

Step 3 – From your list in Step 2, develop a sequential, cumulative list of the LP points to achieve the LO.

For example, ask yourselves:

Which LP is simpler, that may come first? Which LP is more complex? How do the knowledge/skills build upon each other? What are the sequential steps to achieve the LO? Are there multiple pathways to achieve the LO?

Step 4 – Decide on how you will facilitate and monitor your LP points

For example, ask yourselves:

How are you going to plan for purpose? Which learning theory/theories and pedagogy/pedagogies are you connecting your learning to? How is this informing your planning?

What will you look for as evidence of learning? How will you know what you are looking for? What data will you collect? Will you include self/peer assessment?

When and how will you check your progress? How will this inform your future planning and progress?

Step 5 – Develop a reflexive professional development plan below to assess and plan for improvement in the LO.

<p>Strengths <i>record your strengths with an assessment of where you are now</i></p>	<p>Opportunities for improvement <i>record your areas of practice in need of improvement</i></p>
<p>Evidence <i>Record the evidence that will be gathered to inform if you have accomplished your goals (from above)</i></p>	
<p>Post – self reflection <i>Measure your performance in achieving the LO on the following scale:</i></p> <p style="text-align: center;"> Comfort Zone Stretch Zone </p> 	
<p>Provide an explanation your self-evaluation, linking back to your LP points in Step 3 and the evidence you collected:</p>	

What are the next steps that need to take place in your learning? How are you planning to achieve this?

In your answer, provide a connection to applicable AITSL standards.

Where to go for help in developing LP:

Alonzo (2011) considers how LP can inform your formative assessment in the context of your classroom. The literature provides explanations of how LP are built upon and landmark the students' learning journey:

Alonzo (2011) Learning Progressions That Support Formative Assessment Practices, Measurement: Interdisciplinary Research and Perspectives, 9:2-3, 124-129, DOI: [10.1080/15366367.2011.599629](https://doi.org/10.1080/15366367.2011.599629)

Black, Wilson and Yao (2011) outline how LP can inform assessment purposes:

Black, Wilson & Yao (2011) Road Maps for Learning: A Guide to the Navigation of Learning Progressions, Measurement: Interdisciplinary Research and Perspectives, 9:2-3, 71-123, DOI: [10.1080/15366367.2011.591654](https://doi.org/10.1080/15366367.2011.591654)

VCAA provide curriculum planning documents to assist in planning the sequencing of key knowledge and skill across and within year levels:

<https://curriculumplanning.vcaa.vic.edu.au/home>

Learning Intentions (LI) can be descriptions of LP as points to provide feedback and evaluation for the learning as progression towards the LO. AITSL provides practical suggestions on how to write effective LI and success criteria:

https://www.aitsl.edu.au/docs/default-source/feedback/aitsl-learning-intentions-and-success-criteria-strategy.pdf?sfvrsn=382dec3c_2

Wiggins and McTighe (2005) provide extensive pedagogical perspectives of curriculum and assessment planning using backwards design. The design process considers the specific learning goals to understand the learning sequence involved in achieving those goals, similar to breaking down LO into LP:

Wiggins, G.P., & McTighe, J. (2005). Understanding by design (2nd ed.). Hawker Brownlow Education.

See also McTighe's website: <https://jaymctighe.com/resources/>

[Click here to return to [Chapter 8: Phase Two Prototype Development Findings](#)]