An Evaluation of the Cultural Usability of Australian eGovernment

By

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Abstract

The Australian Disability Discrimination Act 1992 mandates that government agencies provide accessible, non-discriminatory information and services. This study focuses on the cultural usability of Australian eGovernment services, particularly for Mainland Chinese and Indian immigrants, who are among the largest non-English speaking groups in Australia. It explores how language attributes and cultural web design elements can enhance eGovernment service usability for immigrants, potentially aiding their integration into the Australian labour market. Key aspects studied include English readability, use of jargon and unusual words, and visual elements like images, icons, and colour.

This research empirically examines Jobsearch.gov.au, an Australian eGovernment website, assessing its cultural usability for Chinese and Indian immigrants. The study acknowledges the significant economic and social contributions of these groups to Australia and the importance of adapting eGovernment services to their distinct linguistic and cultural needs. The Jobsearch service is critical for immigrant integration, impacting economic stability and social well-being. Cultural and linguistic barriers in eGovernment services could hinder job search efforts and integration.

The study employs quantitative methods to analyse data from 200 respondents, including Chinese and Indian nationals, focusing on language and cultural modifications in eGovernment services. Findings suggest that culturally adapted services increase usability, satisfaction, and ease of use, highlighting the need for cultural considerations in eGovernment design. This research contributes to cultural usability theory and can guide the Australian Government in enhancing eGovernment services for immigrants.

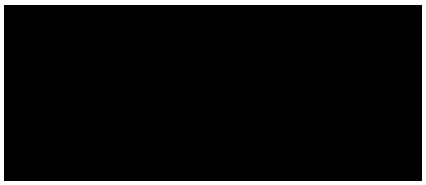
Student Declaration

Doctor of Philosophy Declaration “I, Scott Logie, declare that the PhD thesis entitled, An Evaluation of the Cultural Usability of Australian eGovernment, is no more than 100,000 words in length, including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material 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 work”.

Ethics Declaration

All research procedures reported in the thesis were approved by the Victoria University Human Research Ethics Committee and HRE17-036.

Signature



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Contents

Glossary

Cultural Elements: These refer to aspects of a service or product that the culture of the intended users can influence. This might include the choice of images, colours, symbols, and the overall aesthetic of the interface. Cultural elements can significantly impact user perception and satisfaction, particularly for users from diverse cultural backgrounds.

Cultural Usability: Refers to the degree to which a product or service's design and function align with its intended user base's cultural norms, values, and expectations. It considers aspects like language, colour symbolism, imagery, and other culturally specific elements to ensure the user interface is accessible and intuitive for users from various cultural backgrounds.

eGovernment: This term refers to the use of information and communication technologies, particularly the Internet, by government agencies for the provision of public services, disseminating information, and facilitating various forms of interactions with citizens, businesses, and other arms of the government.

eGovernment Service: The government provides a specific service through digital platforms, often designed to streamline and simplify interactions between the government and citizens or businesses. Examples include online tax filing systems, digital employment, and health services.

Language Attributes: These are the language characteristics used in a service or product, such as vocabulary, sentence structure, and reading level. For users whose first language is not the language of the interface, these attributes can significantly affect their ability to understand and use the service effectively.

Usability: In digital services, usability refers to how effectively, efficiently, and satisfactorily a user can interact with a user interface. It generally involves ease of learning, use efficiency, memorability, error frequency and severity, and user satisfaction.

Chapter 1 Introduction

Background

In an increasingly interconnected world, governments are transitioning towards digital platforms to better serve their citizens and other residents. These eGovernment services offer many benefits, including improved efficiency, cost-effectiveness, and accessibility. However, the effectiveness of these services greatly depends on their usability by the target populations, who are often highly diverse in terms of culture, language, and technological literacy.

One of the critical challenges with eGovernment services is ensuring effective communication with users from diverse linguistic and cultural backgrounds. This issue is especially pronounced for migrants whose first language is not English in English-speaking countries like Australia. Language barriers and cultural differences can lead to miscommunication, misunderstandings, and ultimately, reduced uptake and efficacy of eGovernment services among these populations.

Past research has indicated that culture, encompassing shared beliefs, values, customs, behaviours, and artifacts, significantly influences how people perceive and interact with technology (Turkle, 2011). For instance, researchers such as Boas (1911), Mead (1928), Geertz (1973), and Gellner (2008) have explored topics such as cultural transmission, change, and evolution. Their work emphasises the dynamic nature of culture, which aligns well with the notion of designing adaptable and culturally-relevant eGovernment services.

Prominent theorists such as Hall (1959), Kluckhohn & Strodtbeck (1961), Markus (1991), Hofstede (2001), Kohls (2011), and Trompenaars (2011) have examined cultural differences, contributing to a greater understanding of cultural dimensions, variations in communication and values, and cultural psychology. However, cultural studies have faced

criticism due to coherence, relativism, essentialism, empirical rigour, and potential political bias (Barker, 2002).

Furthermore, the intricacies of cultures like Chinese and Indian culture, with their rich and diverse traditions, present a unique challenge in designing eGovernment services. The complexity of these cultures, coupled with the stark cultural differences between Western and Eastern societies, necessitates a deep understanding and appreciation of these cultural differences for effective communication and interaction.

These factors underscore the pressing need for eGovernment services to enhance their language attributes and incorporate elements of cultural understanding. By doing so, they can improve their communication with migrants from non-English speaking backgrounds, thereby maximising the potential of eGovernment services (Mohammad, 2013). This thesis aims to address this need and explore ways to improve the usability of eGovernment services for such populations.

Statement of the Problem

As the world transitions into an increasingly digital era, eGovernment services have become essential to public service provision. These online platforms promise to revolutionise service delivery by enhancing efficiency, reducing costs, and increasing accessibility. However, while eGovernment services have great potential, their effectiveness largely depends on their usability, especially among diverse user groups.

One significant issue is serving migrants whose first language is not English in English-speaking countries such as Australia. Due to language differences and cultural variances, this group faces considerable barriers when interacting with eGovernment services. Communication breakdown, misunderstanding of service offerings, and difficulty navigating these services hinder these migrants' effective utilisation of eGovernment platforms.

The complexity of culture and its impact on human cognition, emotion, and behaviour, as identified by researchers like Boas (1911), Mead (1928), Geertz (1973), and Gellner (2008), adds another layer to this problem. These elements affect how migrants from different cultural backgrounds perceive, understand, and interact with technology, including eGovernment services. For instance, migrants from China and India, countries with rich and diverse cultural traditions, may have perceptions and expectations significantly different from those embedded in the design of Australian eGovernment services.

Theorists, including Hall (1959), Kluckhohn & Strodtbeck (1961), Markus (1991), Hofstede (2001), Kohls (2011), and Trompenaars (2011), have provided frameworks to understand cultural differences. Still, applying these theories to the design of eGovernment services remains limited. Criticisms of cultural studies, such as issues of coherence, relativism, essentialism, empirical rigour, and potential political bias, further complicate the task of effectively incorporating cultural understanding into eGovernment service design.

This thesis investigates the critical need for enhancing Australian eGovernment services to better serve migrants whose first language is not English, a need that has been highlighted by studies such as those by Rubaii-Barrett & Wise (2006) and Mohammad & Lan (2013). These studies pinpoint a significant gap between the current design and operation of eGovernment services and the linguistic and cultural needs of this demographic. By focusing on the integration of web design language attributes, such as multilingual interfaces and culturally relevant symbols, along with user-friendly web design elements, this research aims to bridge this gap. It posits that the appropriate inclusion of these design aspects can greatly improve a migrant's understanding and usability of these services. This approach is grounded in evidence suggesting that language and cultural considerations are pivotal for effective eGovernment communication and service delivery, as supported by the works of Akman et al. (2005) and Torres et al. (2005). By adapting eGovernment services to meet these needs, the research addresses the broader goals of social inclusion and equality,

demonstrating how tailored web design can significantly enhance the accessibility and effectiveness of government services for Australia's diverse migrant population.

Rationale and Significance

This thesis aims to investigate the potential impact of including web design language attributes and web design artifacts on the usability and understanding of Australian eGovernment services by migrants whose first language is not English. This research is significant as it addresses the issue of migrant integration, which has significant economic and social implications for both the migrants and the host community (Van Tubergen, Maas & Flap, 2004; Penninx, 2005; Snel, Engbersen & Leerkes, 2006). The research aims to contribute to the existing body of knowledge on eGovernment by extending current theories to include language attributes and cultural artifacts that will enhance the usability of eGovernment services for migrants. Despite the Australian Disability Discrimination Act 1992, which requires government agencies to provide non-discriminatory and accessible services, little is known about the cultural usability of Australian eGovernment services for migrants from non-English speaking countries. This research aims to fill this knowledge gap and provide recommendations for the Australian government to improve the usability and cultural appropriateness of their eGovernment services for migrants.

The justification for conducting further research into the fields of eGovernment, migrant integration, usability, eGovernment usability, culture and cultural differences, understandable and readable language, icons, colour, representation, and diversity, is that, if applied, the appropriate inclusion of web design language attributes and web design elements could improve a migrant's understanding and use of an Australian eGovernment service. Improving migrant use of an eGovernment service may significantly impact their ability to successfully integrate into the host community.

The significance of this thesis is that research into eGovernment would benefit both the migrant and the host community. Successful migrant integration would result in them

contributing more quickly to the host country's economy, providing more significant employment and wage outcomes, and increasing their overall economic mobility. This thesis would also benefit social and cultural integration, including language proficiency and intercultural communication issues. The thesis asserts the potential of optimised eGovernment services to significantly contribute to the social and cultural integration of migrants in Australia. By enhancing these platforms to be more linguistically inclusive and culturally sensitive, the thesis recognises eGovernment services as a pivotal touchpoint for migrants in navigating their new environment. It posits that such improvements in eGovernment design can play a key role in fostering language proficiency among migrants. Providing information and services in a usable and understandable languages not only aids in immediate comprehension but also serves as a practical tool for language learning, thereby easing the language acquisition process. Furthermore, incorporating elements that reflect cultural diversity into these digital services can greatly enhance intercultural communication. This approach promotes a deeper understanding and respect for diverse cultural backgrounds, facilitating smoother integration into Australian society. The thesis draws upon empirical evidence from global precedents, demonstrating the efficacy of these approaches in other contexts. It underlines the far-reaching implications of this enhanced accessibility, which extend beyond individual migrants to the broader fabric of Australian society, ultimately leading to more cohesive and inclusive communities. This perspective positions the thesis as not only a study in technical enhancement but also as a catalyst for societal benefits, reinforcing the importance of culturally and linguistically sensitive approaches in public digital interfaces.

Despite the Australian Disability Discrimination Act 1992, which states that Australian Government agencies are required to ensure that information and services are to be provided in a non-discriminatory and accessible manner, little is known about the cultural usability of Australian eGovernment by migrants from countries where English is not their

first language. The two largest migrant groups within Australia whose first language is not English are Mainland Chinese and Indian Nationals.

The Australian Government claims that their eGovernment services meet the Australian Government standard established regarding this requirement. The Australian Government also claims their eGovernment services comply with Level AA of the Web content accessibility guidelines version 2.1 (WCAG 2.1) (Services Australia, 2023). WCAG is a technical standard developed under the Web Accessibility Initiative of the World Wide Web Consortium (W3C) and the current version of WCAG is 2.2. The Australian Government has not kept up to date with the newer guidelines.

The Australian government only provides their jobactive employment service in English. WCAG 2.2, in Section 3 of their guidelines, offers several recommendations for making Web content more understandable. By applying the recommendations in Section 3, web designers can make content more accessible to a ‘wider range of people’. Their definition of a ‘wider range of people’ includes “people with disabilities, including accommodations for blindness and low vision, deafness and hearing loss, limited movement, speech disabilities, photosensitivity, and combinations of these, and some accommodation for learning disabilities and cognitive limitations” (WCAG 2.2, 2022). There are no recommendations for web designers within WCAG 2.2 for providing web content to migrants whose first language is not English, nor are there any recommendations for providing a culturally appropriate service to such people.

Migrants who receive an Australian government unemployment benefit must use the jobactive service to seek employment to continue receiving the benefit (Department of Social Services, 2023). Once a user of the jobactive service has logged in with their credentials, their activities on the service are recorded. This includes all their job search applications and responses from employers. An unemployed person will have a minimum number of job applications that they must make per month to continue receiving unemployment benefits.

Migrants whose first language is not English must use a system that is only provided in English and a system that does not cater for their cultural differences.

The Australian government uses icons and symbols in their eGovernment services. The WCAG 2.2 guidelines do not recommend using icons or symbols on a webpage. Still, in Section 1.1, ‘Text Alternatives’, text alternatives such as symbols ought to be provided to make content more perceivable (WCAG 2.2, 2022). Australian eGovernment services use national icons and symbols of their services, but the symbols used may not facilitate understanding of the content in which they are presented. Not all icons and symbols are clear and easy to understand (Horton, 1996).

Australia's national symbols that have been officially chosen (via vote, legislation, or proclamation) to represent Australia and its states and territories include the Australian National Flag, the Commonwealth Coat of Arms, a floral emblem (the golden wattle), the celebratory national colours of green and gold, a vibrant gemstone (the Australian opal) and the Australian National Anthem. These national icons and national symbols are currently included in Australian eGovernment services. Migrants from non-European backgrounds may find it challenging to understand the Australian meanings behind the use of these icons and symbols on an eGovernment service. The provision of such icons and symbols may create barriers of language and culture when encountered by a migrant from a non-European background.

The Australian government uses colours in their eGovernment services. The WCAG 2.2 guidelines in Section 1.4.1, ‘Use of Color,’ only consider the use of colour to “ensure that all sighted users can access information conveyed by colour differences” (WCAG 2.2, 2022). The emphasis on the use of colour by Australian eGovernment services is to ensure that users who cannot see colour can still perceive the information provided. WCAG 2.2 states, "Color is an important asset in the design of web content, enhancing its aesthetic appeal, usability, and accessibility. However, some users have difficulty perceiving colour. People with partial sight often experience limited colour vision, and many older users do not see

colour well." The WCAG 2.2 guidelines acknowledge the difficulties that users may experience and have created recommendations to overcome them; WCAG 2.2, however, does not recognise in their guidelines the difficulties that migrants from a different culture may experience with the Australian government's use of colour.

The Australian government uses images of people in their eGovernment services. The images are in the form of photographs. The photographs of people on Australian eGovernment services focus on individuals from an Anglo-Celtic background. While Anglo-Celtic Australians do not form an official ethnic grouping in the ABS's Australian Standard Classification of Cultural and Ethnic Groups due to the long historical dominance and intermixture of Australians with ancestries from the British Isles, it is commonly used as an informal ethnic identifier.

The WCAG 2.2 guidelines do not offer any advice for web designers regarding the appropriate use of providing photographs of people on digital services. The Australian Government claims their eGovernment services comply with Level A of the WCAG 2.2 and the Australian Disability Discrimination Act 1992. Yet, they have no guidelines for providing images of people on an eGovernment service. The appearance of an individual from a non-European background on an Australian eGovernment service appears to be included in an ad hoc way.

It is important to recognise that while the focus of this thesis is on Australia, the findings and discussions are not solely applicable to the Australian context. Similar challenges and dynamics are present in other countries where a single language predominates, especially in English-speaking nations. This commonality arises due to similar societal structures, educational systems, and historical backgrounds that shape language use and linguistic policies. Therefore, insights gained from the Australian case can provide valuable understanding and implications for other countries with a dominant language, reflecting broader global trends in linguistic and cultural dynamics.

Research Question

A crucial component of this research is understanding the factors contributing to user trust and motivation to use eGovernment services. By applying insights from the World Wide Web Consortium (WCAG 2.2) regarding readable language, iconography, colour usage, and representation of diversity, we hope to propose enhancements that respect cultural differences and foster an intuitive and inclusive user experience.

This research seeks to answer the question: 'How can language attributes and cultural elements be enhanced in an Australian eGovernment service to improve communication for migrant users whose first language is not English?' To approach this question, we first examined the current experiences and challenges of migrants whose first language is not English, focusing specifically on Chinese and Indian communities in Melbourne. By studying language barriers and cultural challenges, we can identify critical areas of potential improvement in the eGovernment interface. The research question has been drawn from extant cultural frameworks by renowned researchers such as Hofstede (2011), Hall (1976), and Trompenaars & Hampden-Turner (2011) to understand cultural differences and their impact on usability.

Research Aim and Objectives

Australia is a multicultural society with a significant migrant population. EGovernment services' practical and efficient delivery to this diverse population is critical. Notably, migrants from China and India represent a substantial portion of Australia's migrant demographics, particularly in Melbourne. However, language and cultural differences pose unique challenges for these migrants whose first language is not English when accessing and using eGovernment services. These barriers may limit the full utilisation of these

services, potentially affecting their satisfaction, integration, and trust in the Australian government.

This study's primary aim is to evaluate the cultural usability of Australian eGovernment services by focusing on Chinese and Indian migrants in Melbourne. We focus on these groups because of their significant presence and the potential for improving their experience with eGovernment services.

Group A and B's objectives are focused on 'Language Attributes.' Language attributes such as unusual words and reading levels are crucial determinants of an individual's ability to understand and efficiently navigate eGovernment services. By identifying needed changes in these areas, the study aims to enhance the overall communicability and understandability of these services for non-native English speakers.

Group C's objectives pertain to 'Cultural Elements.' Icons, colours, and images of people can significantly make a digital service more relatable and intuitive for users from different cultural backgrounds. By making these elements culturally appropriate, we can potentially enhance a migrant's satisfaction with using an eGovernment service.

Group D's objective addresses 'User Trust.' Trust in an eGovernment service is crucial to its adoption and use. Enhancing language attributes and cultural elements in line with user needs and preferences can significantly improve their trust in the eGovernment service.

Objectives Group A - Language Attributes – Unusual Words

1. To determine what changes to language attributes (unusual words) are required to make the text currently used on an Australian eGovernment service more **communicable** to a migrant whose first language is not English.
2. To determine what changes to language attributes (unusual words) are required to make the text currently used on an Australian eGovernment service more **understandable** to a migrant whose first language is not English.

3. To determine what changes to language attributes (unusual words) are required to improve a migrant's **satisfaction** with using an eGovernment service.

Objectives Group B - Language Attributes – Reading Level

4. To determine what changes to language attributes (reading level) are required to make the text currently used on an Australian eGovernment service more **understandable** to a migrant whose first language is not English.
5. To determine what language attributes (reading level) changes are required to improve a migrant's **reading efficiency** with text on an Australian eGovernment service.
6. To determine what language attributes (reading level) changes are required to improve a migrant's **satisfaction** with using an eGovernment service.

Objectives Group C - Cultural Elements - Icons, Colour, Images of People

7. To determine what changes to cultural elements (icons, colour, images of people) are required to make an Australian eGovernment service more **relatable** to a migrant whose first language is not English.
8. To determine what changes to cultural elements (icons, colour, images of people) are required to improve a migrant's **satisfaction** with using an Australian eGovernment service.

Objectives Group D – User Trust of eGovernment Service

9. To determine what changes to language attributes and cultural elements are required to improve a migrant's **trust** in an Australian eGovernment service.

Research Scope

This study evaluates the cultural usability of Australian eGovernment services provided to Chinese and Indian migrants aged 18-30 in Melbourne, Australia, for several reasons. These two migrant groups constitute a substantial portion of the immigrant population in Australia, contributing significantly to its cultural and linguistic diversity (Australian Human Rights Commission, 2023). Their age range is associated with high internet usage and high potential for workforce participation (Meltwater, 2023). Furthermore, Melbourne, a major city, is a common destination for many immigrants. By focusing on this demographic, the study aims to show how effectively eGovernment services cater to the diverse cultural and linguistic needs of its young, digitally active, and economically essential migrant population.

The research objectives are to determine the usability of language attributes, specifically unusual words and reading levels, and cultural elements such as icons, colours, and images of people provided by an Australian employment eGovernment service. The reason for this approach is multifaceted. First, language and cultural attributes significantly influence how users interact with and understand digital platforms. For migrants, particularly those with English as a second language, usability can be hindered by complex language or culturally unfamiliar symbols. Second, the study acknowledges that eGovernment services are functional tools and cultural artefacts that reflect and shape societal norms and values. By examining these elements, the research can provide insights into whether the current design of the eGovernment service is inclusive, catering to the diversity of its users, and potentially guiding future improvements in eGovernment services.

The study will be limited to Chinese and Indian migrant participants residing in Melbourne, Australia, who use the Australian eGovernment employment service, Jobactive. The time frame for the study will be the past 12 months. The study will employ a quantitative survey design, and data will be collected through a mobile digital survey platform that targets respondents actively seeking employment. All respondents will be surveyed outside

employment centres in the Melbourne metropolitan area. The study will not include participants who are under 18 years of age.

Conceptual Framework

An innovative framework (Figure 1) was designed to address the unique challenges of enhancing eGovernment usability among migrants whose first language is not English. It targets language attributes (unusual words, reading level) and cultural elements (icons, colour, images of people), recognising their critical role in user communication, understanding, and satisfaction.

The framework integrates the cultural dimensions identified by scholars like Hall (1959), Hofstede (2001), and Trompenaars (2011) and applies them innovatively to eGovernment usability. This cross-disciplinary approach represents a novel contribution to the field.

The framework logically links cultural and language factors to usability, satisfaction, and trust in eGovernment services. It posits that modifications in these areas, based on cultural sensitivity and language appropriateness, will enhance overall usability and user satisfaction.

The framework's constructs are designed to be empirically tested. User satisfaction, readability of language, relatability of cultural elements, and trust can all be measured, for example, via user surveys, task completion rates, or usability tests.

This framework serves as a roadmap for the study, guiding data collection and analysis. It helps researchers focus on critical aspects like language, cultural elements, user trust, and their relationship to eGovernment usability.

This framework innovates by applying established cultural frameworks to the relatively new field of eGovernment services. It acknowledges the cultural diversity among users and

brings a culturally nuanced perspective to eGovernment usability, an area often dominated by technical considerations.

The framework ensures the representation and consideration of diverse cultural and linguistic backgrounds, promoting inclusivity and respecting user diversity.

This innovative conceptual framework could lead to valuable insights not only for improving eGovernment services for the Chinese and Indian migrant communities in Melbourne but also for other culturally diverse user groups around the world.

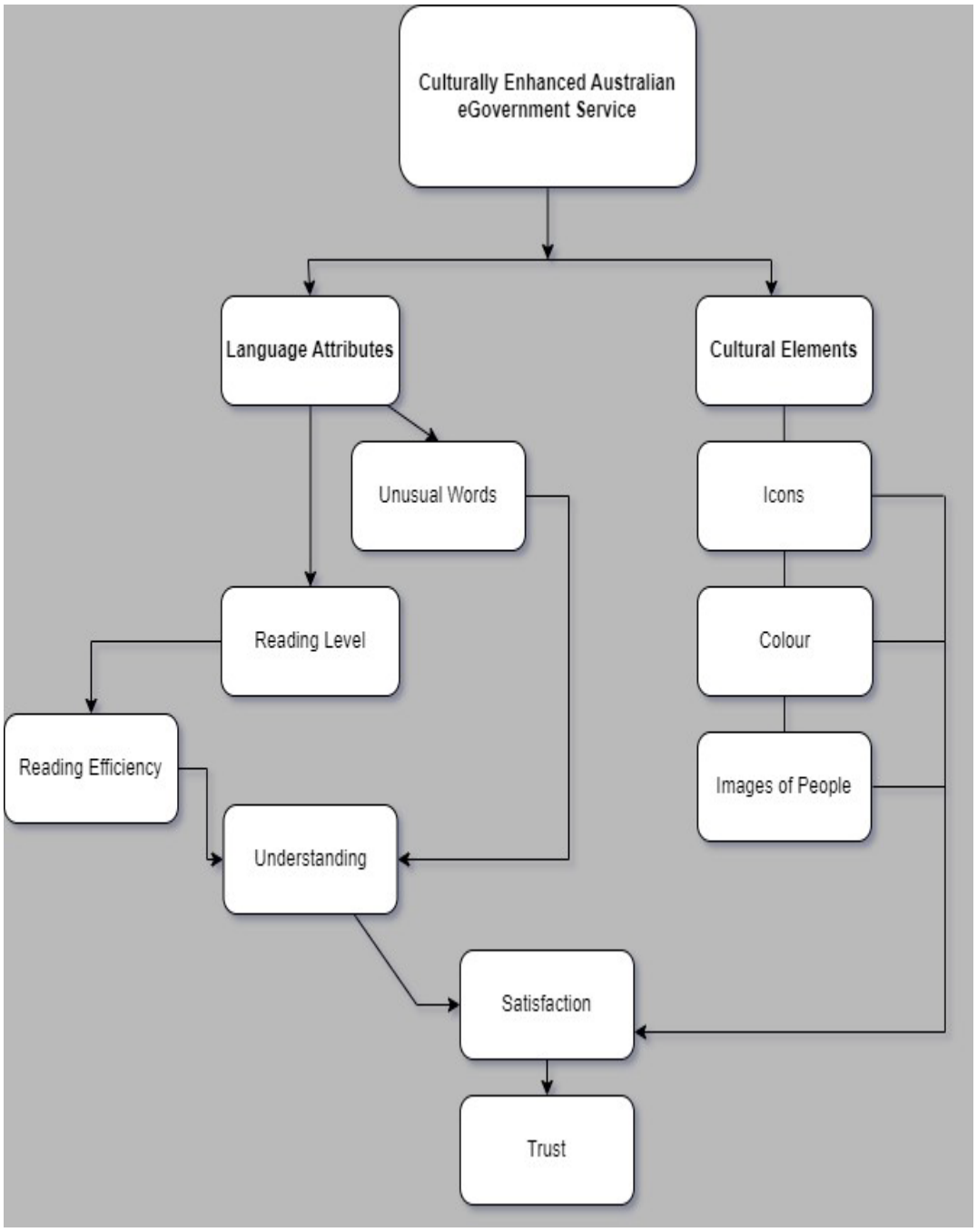

Figure 1 Conceptual Framework

Significance of the Study

The significance of this study lies in its potential to transform the design, functionality, and delivery of eGovernment services to better cater to the diverse needs of migrants whose first language is not English. By addressing the specific barriers these groups face when interacting with eGovernment services, this research aims to explore the accessibility, usability, and the effectiveness of eGovernment communication.

This study will offer valuable insights to multiple stakeholders. First, it will directly benefit migrants, mainly migrants whose first language is not English, by addressing the linguistic and cultural obstacles they encounter when accessing and navigating eGovernment services. By enhancing these platforms' cultural sensitivity and linguistic appropriateness, migrants' ability to comprehend, interact with, and benefit from eGovernment services will be significantly improved.

Second, the study will benefit government agencies and policymakers by providing an evidence-based framework to design and implement eGovernment services that are inclusive and responsive to the needs of a diverse population. It will provide a roadmap for integrating cultural and linguistic considerations into the design process, which will ultimately lead to services that are more accessible, efficient, and user-friendly.

Third, the research will significantly contribute to the academic fields of digital government, intercultural communication, and human-computer interaction. While numerous studies have explored cultural influences on human behaviour and cognition, few have applied these insights to the design and delivery of eGovernment services. This research bridges this gap, pushing the boundaries of interdisciplinary research and fostering a more nuanced understanding of culture's role in technology use.

Finally, this study is significant because it addresses criticisms of cultural studies' lack of coherence, relativism, essentialism, and potential political bias. Acknowledging these issues

and applying rigorous empirical methods, the research aims to enrich cultural studies with robust, nuanced, and culturally sensitive findings.

In essence, this research contributes to a more inclusive and equitable digital future, where eGovernment services are designed with a deep understanding of their users' diverse cultural and linguistic backgrounds. Doing so underscores the importance of culture and language in digital government research and practice and promotes the vision of a truly global digital society.

Outline of the Thesis

This thesis is structured as follows:

Chapter 1: Introduction

The first chapter lays the foundation of the thesis by presenting the background information on eGovernment services and migrants whose first language is not English, mainly focusing on Chinese and Indian migrants in Australia. It elucidates the language barriers and cultural challenges these migrants encounter while accessing eGovernment services. The chapter also sets out the motivation for the study, establishes the research question, aim, objectives, and scope, and introduces the conceptual framework of the research.

Chapter 2: Literature Review

The second chapter presents an exhaustive review of literature related to eGovernment services, usability, cultural differences, and established frameworks. It also examines the Web Content Accessibility Guidelines (WCAG) 2.2 in the context of language and cultural considerations for designing inclusive eGovernment services. This chapter identifies the limitations of the previous research and sets the groundwork for the current study.

Chapter 3: Methodology

Chapter 3 describes the research design and methodology used in the study. It details the sample selection, data collection methods, and analysis techniques. The chapter also addresses the research process's validity, reliability, ethical considerations, and limitations.

Chapter 4: Results

This chapter presents the results derived from the data analysis. It includes descriptive and inferential statistics, discussing the key findings concerning the research question and objectives.

Chapter 5: Discussion

Chapter 5 discusses the results in the context of the broader literature and conceptual framework. It examines the implications of the findings concerning eGovernment service usability, cultural differences, and the experiences of migrants whose first language is not English.

Chapter 6: Conclusion

The final chapter concludes the thesis by summarizing the key findings, contributions to knowledge, study limitations, and possibilities for further research. It also provides practical recommendations for enhancing the accessibility and usability of eGovernment services for migrants whose first language is not English.

The thesis also includes several appendices with further information about the study, consent forms, translations of various materials, and a detailed analysis of specific content. The appendices also include treatments and descriptive analysis related to the research process.

Chapter 2 Literature Review

Chapter 2 aims to build a strong foundation for this research by exploring pertinent literature on eGovernment, usability, and culture and integrating these elements in enhancing user experience. The literature review is structured into several sub-themes, each designed to add depth and context to our understanding of the complexities surrounding the cultural usability of eGovernment services for Chinese and Indian migrants in Melbourne, Australia.

We will first delve into the concept of eGovernment, followed by usability, to grasp the essence of eGovernment usability. This is crucial as the primary objective of this research is to enhance the usability of Australian eGovernment services for migrant populations.

Next, we will examine culture and its differences, focusing mainly on Chinese and Indian cultures as they pertain to our research demographic. We will address differences between Western and Eastern cultures, explicitly focusing on variations between Western, Chinese, and Indian cultures to illuminate the potential barriers and facilitators to eGovernment usability for our target group.

Following this, we will examine several established frameworks by renowned scholars like Hall (1959), Kluckhohn & Strodtbeck (1961), Markus (1991), Hofstede (2001), Kohls (2011), and Trompenaars (2011), which provide critical insights into cultural dimensions and values. Their work has informed much of the cross-cultural research and will underpin our understanding of cultural differences impacting eGovernment usability.

The following sections focus on applying these frameworks to enhance eGovernment communication, including a deep dive into cultural usability evaluation for eGovernment services. The existing literature's insights can provide better strategies to incorporate cultural usability findings into eGovernment services.

Our literature review then transitions into a technical but critical aspect of eGovernment usability: language. Leveraging the guidelines of WCAG 2.2, we will investigate how making language understandable and readable can significantly enhance the user experience. The literature review will present studies on this theme and discuss tools and methods for measuring readability, such as Flesch Reading Ease Score and Dale-Chall Readability Formula.

Finally, we'll explore the role of visual elements like icons and colours, delving into cultural associations and how these aspects could impact the user experience. We will consider how representation and diversity, explicitly using images of people, can play a crucial role in eGovernment usability.

As trust forms the cornerstone of any interaction, the final part of the literature review will consider the literature on 'User Trust', discussing how language attributes and cultural elements could influence a user's trust in an eGovernment service.

This comprehensive review of existing literature will inform the development of our research framework and serve as a theoretical grounding for the subsequent data collection, analysis, and discussion.

Digital Government

EGovernment is the short-term for electronic government. It is also known as e-gov, Internet governance, online government, or connected government. Palvia & Sharma (2016) defined eGovernment as government operations supported by websites and those that involve information technology, particularly the Internet, to enable communication between the government and its citizens.

Australian Federal, State, and Local governments offer eGovernment services spanning benefits and payments, business and industry, health, culture and arts, education and training, environment, family and community, immigration, and visas. They utilise these information and communication services to reform traditional government structures, operations, and cultures (Beynon-Davies & Williams, 2003). Local authorities are instrumental in advancing and implementing e-service delivery (Kuk, 2003).

However, a noticeable gap persists in making these services accessible and usable for migrants unfamiliar with English. There is a deficiency in understanding how web design language attributes and cultural elements impact the usability and comprehension of Australian eGovernment services by such users. Research must address this to enhance accessibility and usability for all citizens, irrespective of their backgrounds or language proficiency.

Current literature underscores three key research areas in eGovernment: the adoption of eGovernment by governments and citizens, its technical evaluation, and citizen-centric perspectives of eGovernment services. While these areas provide valuable insights, there is a lack of studies illustrating the benefits of delivering a culturally friendly eGovernment service to migrant citizens within host countries.

EGovernment does provide 24/7 accessibility, improved service delivery quality, and enhanced engagement opportunities (West, 2004; Carter & Belanger, 2004; Singh et al. 2008; Phippen & Lacohée, 2006; Joseph, 2015; Siddiquee, 2016; Bearfield & Bowman, 2017). Yet, these studies neglect to consider crucial factors such as successful eGovernment usage by migrants.

EGovernment's shortcomings, such as the digital divide (Becker et al. 2008), security concerns (Alsmadi & Abu-Shanab, 2016), technological unfamiliarity (Welch & Hinnant, 2003), reliance on technology (Al-Khouri, 2012), and lack of personal interaction (Wirtz, Piehler & Daiser, 2015), have been adequately addressed in the existing literature.

However, the unique challenges migrant populations face while utilising eGovernment services are not adequately represented.

Migrants may grapple with various hurdles while accessing eGovernment services in a new country, such as language barriers, low digital literacy, lack of technological access, insufficient documentation, cultural differences, and a dearth of knowledge about eGovernment services (Kluzer, Hache & Codagnone, 2008; Rojas & Palma, 2014; Safarov, 2020; Andersson, 2021; Safarov, 2021). Addressing these issues requires a more concentrated research focus on the migrant experience with eGovernment services.

While eGovernment holds significant potential and brings numerous benefits, it also presents considerable challenges, particularly regarding migrants whose first language is not English. A knowledge gap exists, underscoring the need for more extensive research into the intersection of eGovernment services and migrant usability. By doing so, we can ensure the accessibility, usability, and effectiveness of eGovernment services for all users, irrespective of their background or language proficiency.

One advantage of eGovernment communication is providing direct and convenient access to government digital services by its citizens. Interactions with the government digital services are described as being ‘citizen to government’ (C2G), ‘government to government’ (G2G), ‘government to citizen’ (G2C), ‘government to employees’ (G2E) and ‘government to business’ (G2B). This thesis is primarily concerned with G2C interactions. There are several interactions that citizens may have with a government. These interactions are fourfold. Brown (2003) identified the four interactions as; pushing information over the Internet, two-way communication between the government and the citizen, conducting transactions and informing citizens (i.e., representing citizens, encouraging citizens to vote, consulting citizens, and involving citizens).

This thesis focuses on using information and communication technology (ICT) in the form of computers and digital services used by immigrants with English as a Second Language.

Still, it is not the focus of either the Australian Government or their digital service design contractors who built the current eGovernment services. Brabham & Guth (2017) argued that there is embedded within the eGovernment philosophies of technology a management belief that computerisation will automatically enhance effectiveness and efficiency and enable social transformation. Wyatt (2008) sought to understand how website designers interpreted technologically deterministic rhetoric from government clients when contracted to design a new website. Wyatt (2008) observed that website designers were contracted to design a website that would serve specific goals and create outcomes for multiple stakeholders. The design of the Australian eGovernment service, Jobsearch, may have been created to allow many users to achieve outcomes but omits including one group of shareholders. The missing shareholders are immigrants, and English is their Second Language. There is no evidence that the Australian Government instructs designers to include cultural attributes in Australian eGovernment services to enhance service usability by migrants. There are several disadvantages to the use of eGovernment services. Amongst those disadvantages is a lack of equality in public access to computers and the Internet. Inaccessibility of eGovernment services by those who live in regional/rural areas, those who are homebound, those who have low literacy levels, or those who exist on poverty incomes may not have fair access to eGovernment services (Becker, 2009). A further disadvantage to using eGovernment services occurs when immigrants with English as their Second Language must use an eGovernment service only provided in English.

Australian eGovernment Services

Australian Government services are services intended to serve all citizens of Australia. Australian eGovernment services can be accessed at the Services Australia website. This eGovernment service gives citizens information about raising children, living arrangements, ageing, health, education, and work.

The ‘Raising Children’ eGovernment service details the payments and related services

available to citizens for raising a child. Information such as childcare and child support is additionally offered (Services Australia, 2023). The 'living arrangements' eGovernment service focuses on information about citizens moving house, relationship changes and migrating to Australia (Services Australia, 2023). Further information is given to citizens affected by natural disasters or domestic violence (Services Australia, 2023). The 'ageing' eGovernment service details the payments for citizens who intend to retire or wish to access aged care facilities (Services Australia, 2023). Additional information is given to those citizens who care for retired Australians. The 'health' eGovernment service focuses on information for citizens who wish to access Medicare (Services Australia, 2023). Medicare is a universal health insurance scheme (Services Australia, 2023). Medicare guarantees all Australians access to health and hospital services at low or no cost. Additional 'health' services are offered that assist citizens with a disability. The 'education' eGovernment service details payments for citizens who wish to study, retrain, or complete an apprenticeship (Services Australia, 2023). The 'work' eGovernment service is known as Jobactive (jobactive.gov.au) and focuses on giving information to citizens who have recently become unemployed or are seeking a new job (Services Australia, 2023).

Unemployment payments and job seeker information are offered to both Australian citizens and migrants to Australia. The Jobactive eGovernment service is managed by the Australian Government's Department of Employment and Workplace Relations (Australian Government's Department of Employment and Workplace Relations, 2023). Within the Jobactive website is the Australian Government's employment service, Jobsearch (jobsearch.com.au). The jobsearch website and all promotional material refer to 'jobsearch' (with a lowercase J). This thesis will continue to use the lowercase 'jobsearch'. The jobsearch eGovernment employment service was chosen from the many Australian eGovernment services for evaluation. The cultural usability of the jobactive service by immigrants where English is a Second Language is the focus of this thesis for two main reasons. The first reason is that to succeed in a new job market, immigrants with English as

a Second Language must learn English, adapt to demanding labour conditions, learn new skills, learn new labour laws, and learn to exist as a social minority (Garcia –Ramirez, 2005). The second reason is that any recently arrived migrant in the country for at least two years can receive Australian Government payments to assist them with their job search activities. To receive these payments, a job seeker must use the jobsearch service. The job seekers 'user account' on the jobsearch service records all applications made to employers. To ensure that those receiving payments use the jobsearch service, a job service provider is appointed to manage each recipient's job search effort. The job search provider ensures that recipients of a job seeker payment meet the Government's minimum job search requirements. If recipients do not meet their monthly job application requirements, their payments may be cancelled. The job-seeking payment is named Newstart. Recipients of Newstart would find it difficult to purchase food and accommodation if the payment were taken from them due to not being able to use the jobsearch service. A recently arrived migrant to Australia whose first language is not English may find it challenging to use an Australian eGovernment service only offered in one language, English. In addition to language barriers, further Australian eGovernment design attributes such as icons, colours, and images of people that are not representative of a migrant's own culture may be an additional barrier to successfully using jobsearch.

Summary

EGovernment, using digital technologies for government service delivery, brings numerous benefits like enhanced efficiency, transparency, and accessibility. In Australia, eGovernment services span various sectors and are provided at the Federal, State, and Local levels. Despite these benefits, challenges persist, particularly for migrants whose first language is not English. A notable knowledge gap exists in understanding how web design language affects these users' comprehension and usability of eGovernment services. Current research mainly focuses on eGovernment adoption, technical evaluation, and citizen perspectives,

often overlooking the unique needs of migrant populations. Challenges like language barriers, digital literacy, technology access, documentation, cultural differences, and knowledge about eGovernment services are shared among migrants. This highlights the urgent need for focused research on migrants' experiences with eGovernment services to enhance accessibility and usability for all users, regardless of background or language proficiency.

Usability

The field of Human-Computer Interaction (HCI) has extensively addressed the concept of usability, referring to how efficiently and effectively users can interact with digital services (Rosson & Carroll, 2002). Broadly, usability focuses on learnability, efficiency, memorability, error reduction, and user satisfaction (Rogers, Sharp & Preece, 2023). These factors directly impact a system's user-friendliness and user acceptance. Despite a comprehensive focus on usability in the HCI field, a significant research gap exists concerning usability in eGovernment services for migrant citizens in a host country.

Usability is a vital attribute of any product or system within HCI, predominantly affecting its success and user satisfaction (Hornbæk, 2006). Definitions vary, with Shackel (1991) regarding it as the ease and effectiveness of a system and Bevan (1995) considering it as the quality in use. ISO's definition highlights effectiveness, efficiency, and satisfaction in a specific environment by certain users.

Many research questions in HCI focus on usability. For example, how to predict and mitigate usability issues, enhance system usability, develop methodologies to evaluate system usability, and cultural usability evaluation (Lewis, 1982; Smith & Mosier, 1986; Molich & Nielsen, 1990; Wharton et al. 1994; Nielsen & Levy, 1994; Clemmensen et al. 2009;

Frøkjær et al. 2000). These inquiries are crucial to designing user-friendly systems and making digital services more accessible.

HCI usability studies often focus on usability testing, evaluation, and engineering. However, literature is scant regarding usability improvement for eGovernment services aimed explicitly at migrant citizens.

Good HCI design can significantly enhance usability, leading to user loyalty and efficient and effective use, thereby reducing errors (Kujala & Miron-Shatz, 2013; Frøkjær, Hertzum & Hornbæk, 2000). However, usability testing also has its downsides, such as increased costs, challenges in quantifying benefits, potential design compromises, and possible limited impacts (Donahue, Weinschenk & Nowicki, 1999; Au et al. 2008; Türkyilmaz et al. 2015; Longford, 2002).

Critics argue that usability studies may suffer from sampling bias, unrepresentative testing environments, specific task focus, lack of context, limited external validity, and subjectivity (Thovtrup & Nielsen, 1991; Rochat, 2022; Holzinger, 2005; Coursaris & Kim, 2011; Hornbæk & Law, 2007). Thus, caution is needed in interpreting results and designing studies.

The identified gap in the literature regarding the usability of eGovernment services for migrants, especially for those whose first language is not English, is central to the argument of this thesis. Some studies have touched upon various facets of this issue (Sabucedo et al., 2009; Clemmensen, 2010; Buie & Murray, 2012; Youngblood & Mackiewicz, 2012; De Roiste, 2013; Huang & Benyoucef, 2014). However, they have yet to delve deeply into the nuances and requirements of users for whom English is not their first language.

This thesis asserts the importance of considering language barriers and cultural factors influence when assessing eGovernment services' usability. As indicated by previous studies (Huang & Benyoucef, 2014), there is a need to explore further how these challenges

uniquely affect migrant citizens. Still, the impact of language attributes and cultural elements on eGovernment service usability must be explored.

For instance, the cultural appropriateness of icons, colours, and images of people on a digital service is a significant aspect often overlooked in existing literature (De Roiste, 2013). Furthermore, the research to date has not adequately delved into the understanding and incorporation of culturally specific idioms, jargon, and colloquialisms that non-English speakers frequently use (Youngblood & Mackiewicz, 2012).

User trust in eGovernment services is another dimension that requires further exploration. Clemmensen (2010) and Sabucedo et al. (2009) made initial strides in studying trust in the context of eGovernment services. Still, more research is needed to understand how language and cultural considerations influence migrant users' trust.

This thesis aims to fill this significant gap by comprehensively evaluating the cultural usability of Australian eGovernment services for migrants. By building on the work of previous studies (Sabucedo et al., 2009; Clemmensen, 2010; Buie & Murray, 2012; Youngblood & Mackiewicz, 2012; De Roiste, 2013; Huang & Benyoucef, 2014); this research seeks to contribute significantly to the literature on eGovernment usability and provide actionable recommendations to enhance communication for migrants whose first language is not English.

Summary

Human-Computer Interaction (HCI) extensively explores usability, a key factor affecting user satisfaction and acceptance of a system. However, there is a noticeable gap in research concerning the usability of eGovernment services tailored for migrant citizens. Definitions and research interests in usability vary, but they generally revolve around efficiency,

effectiveness, and user satisfaction in specific contexts. Despite the importance of usability, its testing comes with drawbacks, such as cost, difficulty quantifying benefits, and potential design compromises. Critics highlight limitations like sampling bias and lack of context in usability studies, which call for careful interpretation of results. Despite a vast body of literature on HCI usability, a significant gap exists in addressing eGovernment services aimed at migrants, especially those whose first language isn't English. This thesis aims to fill this gap by improving HCI usability for these services, making them more accessible and efficient for migrant users and enhancing their integration into the host country.

eGovernment Usability

The progressive digitalisation of government services has indisputably facilitated easier online access to information and services for citizens, with particular emphasis on migrant communities. However, eGovernment usability remains crucial to fully address to ensure a universally inclusive and practical user experience. The term 'eGovernment usability' encapsulates the ease with which citizens can access and utilise government services and information online (Baker, 2009).

Extensive studies on eGovernment usability, which have focused on defining and gauging the usability constructs of such services, understanding how they influence user attitudes and behaviours, and identifying the critical factors that potentially impact the service's usability, reveal a complex landscape (Barnes & Vidgen, 2004; Garcia, Maciel & Pinto, 2005; Teo, Srivastava & Jiang, 2008). Huang & Benyoucef, (2014) critically noted that, despite these efforts, the current state of eGovernment websites continues to be fraught with numerous usability issues, such as complex and incomprehensible content. These ongoing issues may result from overlooking diverse user needs, especially in multicultural contexts, and the rapid technological changes that continuously reshape user expectations. Furthermore, the focus on technological advancement can sometimes overshadow user-

centric design considerations. This suggests a more nuanced understanding of usability in eGovernment services. It explicitly targets user groups like migrants, where language and cultural elements play an essential role in shaping their experiences and satisfaction with these services. Consequently, studies such as this are vital for bridging these gaps and enhancing the inclusivity and effectiveness of eGovernment services.

A collective of researchers has discerned certain pivotal factors that shape the usability of an eGovernment website: learnability, efficiency, trustworthiness, transparency, and accessibility (Akpinar & Ondin, 2008; Wangpipatwong, Chutimaskul & Papasratorn, 2005; Huang & Benyoucef, 2014; Al-Soud & Nakata, 2010; King & Youngblood, 2016). These researchers have defined the terms learnability, efficiency, trustworthiness, transparency, and accessibility in the following manner. Learnability refers to the ease with which new users can understand and interact with an eGovernment website. It assesses how quickly a user without prior experience with the website can learn to use it to accomplish their intended tasks. Websites with high learnability are intuitive and well-structured and provide clear instructions or support to guide users, enhancing their overall experience and satisfaction. Efficiency, in the context of eGovernment websites, relates to how quickly and effectively users can complete their tasks after they have learned how to use the site. This might involve filling out forms, finding information, or accessing services. Efficiency is often measured by the time it takes to complete tasks, the number of errors made during task completion, or the level of cognitive load during use. Trustworthiness involves the degree to which users perceive an eGovernment website as reliable and credible. Trustworthiness can be influenced by various factors, including the security and privacy measures in place, the quality and accuracy of the information provided, and the degree of transparency in how user data is used and managed. High trustworthiness can result in greater user confidence and increased use of the eGovernment service. Transparency pertains to the clarity and openness with which an eGovernment website conducts its operations and communicates with its users. This includes how clearly the

website explains its processes, how open it is about its data usage and privacy policies, and how easily users can find and understand this information. High transparency can lead to increased trust and confidence in the website. Finally, accessibility refers to the inclusivity of the eGovernment website, ensuring all users, including those with disabilities or other special needs, can access and effectively use the site. This includes considerations for visually, hearing, or mobility-impaired users and language and cultural inclusivity to cater to a diverse user base. An accessible website complies with recognised accessibility standards such as the WCAG 2.2 to ensure no user is excluded from utilising the eGovernment services.

Designing digital services with these usability factors at the forefront could potentially enhance the eGovernment experience for all users, especially the migrant population.

Previous research into eGovernment usability has offered many encouraging results for users. For instance, user satisfaction, efficiency, accessibility, trust, transparency, and data-driven decision-making processes have all seen marked improvements (Jørgensen & Krogstie, 2004; Foley & Alfonso, 2009; Ekong & Ekong, 2010; Persson et al. 2015; Alexopoulos et al. 2019). This suggests that prior research into eGovernment usability has yielded significant and positive results. This is observed in user satisfaction, efficiency, accessibility, trust, transparency, and data-driven decision-making processes. An analysis of these improvements may indicate the following:

1. User Satisfaction: Enhanced usability improves user experience, directly impacting user satisfaction. A well-designed, user-friendly eGovernment platform makes interaction with government services more efficient and less frustrating, thereby increasing satisfaction levels.

2. Efficiency: Usability research often identifies and eliminates pain points and bottlenecks within a digital service. As a result, users can perform their tasks more swiftly and with less effort on a well-optimised eGovernment platform.

3. Accessibility: Accessibility is a crucial focus of usability research. It ensures that eGovernment services are usable by all citizens, including those with disabilities. This improvement results in a more inclusive and equitable service.

4. Trust: A user-friendly and reliable eGovernment service can foster trust among users. Trust is also boosted when platforms have robust security measures and transparent data-handling processes.

5. Transparency: Usability improvements often enhance the clarity and comprehension of the information presented, leading to greater transparency. This is important for citizens to understand government processes, their rights, and obligations.

6. Data-Driven Decision-Making: Usability research often involves collecting and analysing user data to make informed design decisions. This data-driven approach can lead to solutions that meet user needs and improve service delivery.

The specific reasons why these improvements have been observed can be manifold. However, at a high level, they all stem from a more user-centric approach to eGovernment design and implementation. By focusing on the users' needs, preferences, and behaviours, usability research enables the creation of eGovernment services that are more effective, user-friendly, and trustworthy.

Researchers such as Følstad, Jørgensen & Krogstie (2004), Foley & Alfonso (2009), Ekong & Ekong (2010), Persson et al. (2015), and Alexopoulos et al. (2019) have all noted these improvements, highlighting the importance and benefits of usability research in eGovernment services.

Nevertheless, some researchers have expressed concern over the seemingly high cost, limited scope, and limited focus on security and privacy, among other issues associated with eGovernment usability research (Al-Shafi & Weerakkody, 2010; Sheng & Trimi, 2008; Bélanger & Crossler, 2011; Al-Adawi, Yousafzai & Pallister, 2005; Jimenez, Lozada & Rosas, 2016; Henriksson et al. 2007). These concerns indicate that eGovernment platform

development, implementation, and maintenance can be costly. This is due to the need for sophisticated technologies, constant updates, and regular monitoring for smooth operation. Usability research can also be expensive, requiring comprehensive user testing, expert evaluations, and potentially significant redesign efforts based on the research findings. The scope of eGovernment usability research could be restricted due to numerous reasons. One could be the focus on only a subset of usability features or user groups, potentially overlooking crucial aspects of the user experience. This could lead to findings that are not generalisable or applicable to all users or all aspects of the eGovernment service. Security and privacy are paramount in the digital age, especially for eGovernment services that handle sensitive user information. If usability research doesn't adequately address these aspects, it could leave services vulnerable to breaches and users at risk. This could be due to overemphasising functionality, efficiency, and aesthetics, with security and privacy considerations taking a back seat.

The reasons why these concerns exist could be manifold. A potential reason could be resource constraints—organisations may not have sufficient funds or personnel to invest in comprehensive, wide-ranging usability research. Another reason could be the rapid pace of technological change, which makes it challenging to maintain a current, secure, and efficient eGovernment service. There could also be a lack of awareness or understanding of the full breadth of usability considerations, leading to a narrower research scope.

Researchers Al-Shafi & Weerakkody (2010), Sheng & Trimi (2008), Bélanger & Crossler (2011), Al-Adawi, Yousafzai & Pallister (2005), Jimenez, Lozada & Rosas (2016), and Henriksson et al. (2007), all point out these issues, suggesting a need for more holistic, secure, and resource-efficient approaches in eGovernment usability research. Their work underscores the importance of addressing these challenges to improve eGovernment services' effectiveness and user acceptance.

Therefore, a substantial knowledge gap remains in this field of study, particularly regarding creating a more universally accessible and effective eGovernment service. It underlines the

need for further comprehensive and detailed research to improve the design and development of such services while considering the essential usability factors. This approach could make government services more accessible, efficient, and satisfactory for all citizens.

Summary

The progressive digitalisation of government services has significantly improved online access to information and services for citizens, including migrants. However, despite these advancements, the usability of eGovernment services, termed 'eGovernment usability', still presents a knowledge gap. Past research has concentrated on defining usability constructs, examining their influence on user behaviour and attitudes, and identifying critical usability factors like learnability, efficiency, trustworthiness, transparency, and accessibility. However, current eGovernment websites still suffer from usability issues, such as complex content. Previous studies have shown promising outcomes, including improved user satisfaction and increased efficiency. However, there are concerns over high costs, limited scope, and security and privacy issues in eGovernment usability research. Hence, there is a clear need for further comprehensive research to enhance the accessibility and effectiveness of eGovernment services for all citizens, including migrants.

Intercultural Communication

Culture is complex and multifaceted, encompassing shared beliefs, values, customs, behaviours, and artifacts that define a group or society. It influences how people think, feel, and act, shaping their perception and interaction with the world. This section provides an overview of the concept of culture, including its definition, transmission, and evolution and its

influence on human cognition, emotion, and behaviour. It also highlights the contributions of significant researchers to the study of culture, including the development of theories and models to explain cultural differences. Furthermore, it emphasises the importance of understanding and appreciating cultural differences, particularly in communication and interaction.

Culture refers to the shared beliefs, values, customs, behaviours, and artifacts that define a group or society. It encompasses many elements, including language, social norms, customs and traditions, arts and literature, and ways of thinking and understanding the world. Culture shapes human cognition, emotion, and behaviour and is transmitted and evolves through socialisation and learning. Researchers such as Franz Boas (1920), Clifford Geertz (1971), Ernest Gellner (1987) and Margaret Mead (2017) have made significant contributions to the study of culture and have explored topics such as cultural transmission, change, and evolution. Understanding culture is essential for various reasons, including social and cultural analysis, cultural communication, cultural understanding and tolerance, and cultural policy and programming. Theorists such as Hofstede (2011), Hall (1976), Trompenaars (2011), Kohls (2011), Kluckhohn and Strodtbeck (1961), and Markus (1977) have studied cultural differences and developed theories and models to explain them. However, there is criticism of the lack of coherence in cultural research.

Chinese culture and Indian culture are both rich and diverse cultural traditions that have evolved over thousands of years. Both cultures have many similarities: language, literature and art, philosophy, religion, family and community, and food. However, there are also many cultural differences between Western countries, such as Australia and Eastern countries, such as China and India. These cultural differences can create barriers for migrants from Eastern countries when they attempt to integrate into a Western country. The term "East" is typically used to refer to regions including China, India, and other countries in Asia, while "West" typically refers to countries in Europe and North America. These cultural differences may include differences in language, beliefs, values, customs, and ways of life.

Understanding and appreciating these cultural differences is essential for effective communication and interaction.

Culture refers to the shared beliefs, values, customs, behaviours, and artifacts characterising a group or society.

Civilization, taken in its broad, ethnographic sense, is that complex whole that includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society (Tylor, 1871, p.1).

Culture includes the way of life of a group of people, their language, social norms and values, customs and traditions, arts and literature, and ways of thinking and understanding the world. Culture influences how people think, feel and act, shaping how they perceive and interact with the world. Richard Shweder, Hazel Markus, and Clifford Geertz have contributed significantly to understanding how culture shapes human cognition, emotion, and behaviour.

Researchers such as Franz Boas (1911), Margaret Mead (1928), Clifford Geertz (1971), and Ernest Gellner (1987) have all contributed to studying cultural transmission, change, and evolution. These researchers have found that culture is transmitted from generation to generation through socialisation and learning, and it evolves in response to changing social, economic, and political conditions. This focus on culture's dynamic nature aligns well with elements concerning the cultural usability of Australian eGovernment services for migrants.

Considering our overarching thesis argument, which is about enhancing language attributes and cultural elements in eGovernment services to improve communication for migrants whose first language is not English, this cultural consideration is quite significant.

To effectively cater to migrant users, it's crucial to understand that their cultural backgrounds and experiences influence their interaction with and perception of eGovernment services. As culture is not a static entity and evolves in response to various factors, the design and

functionality of these services must also be adaptable to reflect these dynamic cultural nuances.

For example, understanding how Indian and Chinese migrants perceive and use technology, considering their cultural backgrounds, would be crucial in designing an eGovernment service that effectively communicates with these communities. This understanding can then be applied to specific design elements, such as language, iconography, colour schemes, and representation of people.

These researchers have introduced a critical dimension - the dynamism of culture - which significantly agrees with our discussions and thesis argument. Understanding the fluidity of culture further strengthens the case for ongoing usability studies and adaptations of eGovernment services to ensure their cultural relevance and effectiveness for diverse user groups, such as migrants.

Culture, being a fundamental determinant of identity, communication, socialisation, globalisation, and diversity, has been studied from various perspectives, including social and cultural analysis, cross-cultural communication, cultural understanding and tolerance, and cultural policy (Du Gay & Pryke, 2002; Miller & Yúdice, 2002; Gudykunst, 2003; Liu, 2007).

Prominent theorists such as Hofstede (2001), Hall (1959), Trompenaars (2011), Kohls (2011), Kluckhohn (1961), Strodtbeck (1961), and Markus (1977) have provided frameworks to understand cultural differences, offering crucial insights on cultural dimensions, cultural differences in communication and values, and cultural psychology.

Despite these contributions, the field faces criticisms concerning its coherence, relativism, essentialism, empirical rigour, and potential political bias (Scruton, 1980; Narayan, 1998; Rachels, 1999; Geertz, 2008; Fuchs, 2009; Pearce & Pons, 2019). Critics argue that cultural studies can lack precise definitions, overlook power dynamics, depict cultures as static, rely heavily on qualitative methods, and exhibit a predisposition

towards identity and social justice issues (Charmaz, 2005; Namenwirth & Weber, 2016; Brady, Fryberg & Shoda, 2018).

In the context of our thesis, this discussion underscores the need for a nuanced and dynamic understanding of culture, mainly when designing eGovernment services for multicultural populations. It suggests the importance of acknowledging cultural fluidity, power dynamics, and the potential biases inherent in cultural studies when analysing and improving the cultural usability of these services. Such an approach aligns with the thesis of enhancing language attributes and cultural elements of eGovernment services to improve their usability for migrants whose first language isn't English, thus highlighting the relevance of these cultural studies and their criticisms to our research.

Chinese Culture

Exploring Chinese culture's rich and multifaceted traditions is pivotal to our thesis argument. It provides the necessary contextual background for understanding how cultural dimensions influence the interaction of Chinese migrants with eGovernment services. By exploring aspects of Chinese culture like language, literature, art, philosophy, religion, family values, and even cuisine, we gain insights into the social and cognitive frameworks these users bring to their interactions with eGovernment services.

For instance, the unique Chinese writing system could potentially influence the readability and comprehension of these services. Understanding the importance of community harmony and respect for elders may inform the design of user interfaces or how information is presented. Therefore, considering such cultural elements in our design would foster more culturally adaptive and user-friendly eGovernment services for Chinese migrants whose first language isn't English, thus reinforcing the thesis argument.

Chinese culture is a rich and diverse cultural tradition that has evolved over thousands of years. Some of the main cultural aspects of Chinese culture include language, literature and art, philosophy, religion, family and community, and food (Fan, 2000).

Several languages, including Mandarin, Cantonese, and various dialects, characterise Chinese culture. Chinese writing is a distinctive aspect of Chinese culture, with a complex system of evolved characters (Bachner, 2014).

Chinese literature and art have a long and acclaimed history and include a range of genres and styles, such as poetry, fiction, drama, painting, and calligraphy (Gao, Minglu & Bryson, 1998).

Several philosophical traditions influence Chinese culture, including Confucianism, Taoism, and Buddhism. These traditions have shaped Chinese values and beliefs and influenced how people understand the world.

Chinese culture is predominantly Confucian, strongly influencing other religions such as Buddhism, Taoism, and Islam. Religion plays a significant role in Chinese culture and is often entangled with other aspects of cultural life, such as social customs, rituals, and festivals (Jensen, 1997).

Chinese culture strongly emphasises family and community, and values such as respect for one's elders and harmony within the community are critical cultural norms (Sangren, 1987).

Chinese cuisine is a distinctive facet of Chinese culture, including many dishes and cooking styles. Fresh ingredients often characterise Chinese food, a balance of flavours, and various cooking techniques, such as stir-frying, steaming and roasting (Li & Hsieh, 2004).

Indian Culture

Understanding Indian culture and its unique and diverse traditions is fundamental to our thesis argument. This investigation provides the crucial cultural backdrop needed to comprehend how the cultural dimensions influence the engagement of Indian migrants with eGovernment services. The cultural aspects explored, including language, literature, art, philosophy, religion, family, community, and food, present an insightful view of Indian culture. The diversity in language, along with the richness in literature and art, contribute to the uniqueness of Indian culture and thus impact how its migrants interact with digital services. Similarly, the philosophical traditions of Hinduism, Buddhism, Jainism, and Sikhism have shaped Indian values and beliefs, likely affecting their perception and usage of eGovernment services. The importance of religion and family within the Indian culture further underscores the need to consider these cultural attributes while designing and implementing eGovernment services. Ultimately, a deep understanding of these cultural aspects is crucial in identifying and addressing the cultural usability challenges faced by Indian migrants in using eGovernment services.

Indian culture, like Chinese culture, has a rich and diverse cultural tradition. Some of the main cultural aspects of Indian culture include language, literature and art, philosophy, religion, family and community, and food.

Several languages, including Hindi, Tamil, Telugu, and Bengali, characterise Indian culture. Indian languages are often written in various scripts, including Devanagari, Tamil, and Telugu (Schiffman, 2012).

Indian literature and art have a long and celebrated history and include a range of genres and styles, such as poetry, fiction, drama, painting, and sculpture. Indian literature and art are often profoundly influenced by religion, mythology, and cultural traditions (Chaudhuri, 2008).

Several philosophical traditions, including Hinduism, Buddhism, Jainism, and Sikhism, deeply influence Indian culture. These traditions have shaped Indian values and beliefs and have influenced how Indian people understand the world (Knott, 2016).

Indian culture is predominantly Hindu, strongly influencing other religions such as Islam, Christianity, and Sikhism. Religion plays a significant role in Indian culture and is often merged with other aspects of cultural life, such as social customs, rituals, and festivals (Sarkar, 2001).

Indian culture strongly emphasises family and community, and values such as respect for elders and harmony within the community are the essential cultural norm (Derné, 1995).

Indian cuisine is a distinctive and diverse aspect of Indian culture and includes many dishes and cooking styles. Indian food is often characterised by using spices, herbs, and various vegetables and grains (Mangalassary, 2016).

Western and Eastern Cultural Differences

Our study aims to elucidate the role of cultural differences, especially between Eastern countries like China and India and Western countries like Australia, in shaping migrants' interaction with eGovernment services. China and India, due to their ancient histories, are steeped in Eastern philosophies and customs, starkly contrasting the Western traditions shared mainly by Australia, a country with significant ties to the Western world (Berman, 2014).

Central to these cultural contrasts are the dichotomies of individualism versus collectivism, personal rights versus societal obligations, direct versus indirect communication, hierarchy versus equality, and differing time orientations. Western cultures like Australia frequently

stress individualism, individual rights, straightforward communication, equality, and a future-oriented perspective (Yum, 1988; Oyserman, Coon & Kemmelmeier, 2002; Bedford & Hwang, 2003; Oyserman, 2006; Hofstede & Minkov, 2010). Conversely, Eastern cultures, epitomised by China and India, lean towards collectivism, societal obligations, indirect communication, hierarchy, and a present or past orientation.

There are, however, nuanced differences between Western and specific Eastern cultures. For instance, Chinese culture is comfortable with physical contact and personal space and may uphold more traditional gender roles than Western cultures (Hayduk, 1983; Marshall, 2008). Similarly, Indian culture, predominantly Hindu, has a substantial influence on other religions, and its traditional gender roles starkly contrast the evolving gender roles in Western societies (Varshney, 1993; Dasgupta, 1998).

This overview aids our understanding of potential usability issues faced by migrants from Eastern cultures when engaging with eGovernment services designed based on Western norms. However, these distinctions are generalisations, and variations within and across cultures should be acknowledged.

These cultural differences provide essential insights into the design and usability of eGovernment services, especially for those Eastern migrants in a Western context like Australia. Understanding these differences can help identify barriers that migrants may face when interacting with these services and can inform the design and implementation of more culturally inclusive and accessible services.

One of the notable differences between Eastern and Western cultures is the contrast between individualism and collectivism. In line with their culture, eGovernment services in Western countries may be designed around individual users, assuming each user operates independently. However, in collectivist cultures like China and India, decisions and actions may be influenced by a group or family context. As such, eGovernment services could

benefit from facilitating collective decision-making through features that allow for shared access or decision-making within a family or group context.

Communication is another area where cultural differences may impact eGovernment services' usability. Western cultures value direct and clear communication, which may be reflected in eGovernment interfaces and user communication. On the other hand, individuals from Eastern cultures may be accustomed to more indirect forms of communication and may find overly direct communication styles off-putting or confusing. Thus, user interface design and content could be adapted to match these communication preferences better, providing more context and indirect guidance rather than direct instructions.

Finally, hierarchy and respect for authority, prominent in Eastern cultures, may impact how users engage with eGovernment services. For instance, users from these cultures might be more likely to accept decisions made by authorities, even if they disagree or find them challenging to understand. Therefore, providing clear explanations and justification for findings within eGovernment services could improve trust and acceptance among these users.

The aim is to create separate systems for different cultural groups, which could avoid fragmenting the user base and increasing the complexity of service delivery. Instead, it's about adopting a more inclusive design approach accommodating a more comprehensive range of cultural expectations and preferences. This could lead to more universally effective eGovernment services, improving user satisfaction and engagement across diverse user groups.

Migrant Integration

Migrant integration is intrinsically linked to employment opportunities and their associated socio-cultural benefits. Gaining employment is paramount for migrants, as it not only ensures economic stability through a reliable source of income (Paas & Halapuu, 2012) but also paves the way for social integration. Through employment, migrants can weave themselves into the fabric of their new communities, establishing essential social bonds and fostering personal growth (Lin, Wu & Li, 2020). Moreover, the sense of purpose and personal fulfilment derived from gainful employment substantially enhances their well-being and happiness (Parisi, 2022). In specific contexts, securing a job can even facilitate migrants achieving legal status or citizenship in their host country, amplifying their sense of security and granting them access to a broader spectrum of rights (Omidvar & Richmond, 2005).

One significant barrier to employment is language, where non-native English speakers might find it hard to communicate efficiently with potential employers or comprehend job intricacies (Isphording & Otten, 2014). Further complicating their journey is the non-recognition of their foreign qualifications and work experiences in countries like Australia, which can severely curtail their employment opportunities in specialised fields (Basran & Zong, 1998; Casimiro, Hancock & Northcote, 2007). Fuelled by biases against non-native English speakers and unfounded prejudices, discrimination often acts as another deterrent in hiring (Maxwell, 2010; Colic-Peisker & Tilbury, 2007). Competition in specific sectors, especially when pitted against native English speakers, can pose insurmountable challenges (Şahin Mencütek & Nashwan, 2021).

The nuances of migrant integration, especially concerning employment, are further exemplified when examining Chinese and Indian attitudes towards employment. Employment is not just a means to an end for the Chinese diaspora. It is deeply rooted in cultural paradigms where work and achievements equate to social respect (Liu & Liu, 2016). Organisational loyalty, underscored by a willingness to

make sacrifices for the greater good of the institution, is held in high regard (Jackson & Bak, 1998). The Chinese workplace dynamics are predominantly hierarchical, emphasising respect for authority (Bush & Haiyan, 2000), collectivism, group harmony (Chiu & Kosinski, 1995), and a unique approach to conflict resolution, heavily tilted towards maintaining face and avoiding confrontations (Kirkbride, Tang & Westwood, 1991).

On the other hand, Indian migrants, while sharing some similarities with their Chinese counterparts, have distinct cultural orientations. Employment, for them, is seen as a gateway to achieving societal respect (Kshetri, 2011). The Indian workplace ethos is steeped in hierarchy, respect for authority (Gopalan & Rivera, 1997), collectivism, group harmony (Pulla & Carter, 2020), a profound reverence for elders and traditions (Alexander & Chauhan, 2020), and an emphasis on non-confrontational communication (Agarwal & Rai, 2019).

For inclusive eGovernment platforms to truly foster migrant integration, they must be receptive to these employment nuances (Yeasmin, 2018). By proactively addressing associated challenges, these platforms can provide a spectrum of resources, from language training and qualification recognition processes to cultural integration tools, ensuring a cohesive and inclusive society for all.

Established Frameworks

Understanding established frameworks, such as those developed by Hofstede (2001), Hall (1959), Trompenaars (2011), Kohls (2011), Markus (1977), Kluckhohn (1961), and Strodtbeck (1961), is essential to comprehensively understand cultural usability issues in eGovernment.

Established frameworks provide a common language and conceptual framework for cultural research and practice (Matsumoto & Yoo, 2006). This enables researchers and practitioners to communicate and collaborate effectively across cultural contexts. Established frameworks also provide a reliable basis for cultural research (Brislin, 1980). They have been tested and validated in numerous studies and have high credibility and acceptance within the field. Researchers can use established frameworks to conduct comparative analyses of different cultures and identify similarities and differences (Smelser, 2003). This can help to improve our understanding of cultural diversity and the factors that shape culture. Finally, established frameworks have practical applications in various fields, such as eGovernment, business and education (Maheswaran & Shavitt, 2000). By using these frameworks, practitioners can develop interventions and strategies that are culturally appropriate and effective. Building on these established frameworks, this thesis can advance cultural research and practice.

Hofstede

Dutch social psychologist Geert Hofstede (2001) devised a framework detailing six cultural value dimensions: individualism/collectivism, uncertainty avoidance, power distance, masculinity/femininity, long-term/short-term orientation, and indulgence/restraint. These were derived from analysing data from over 100,000 IBM employees across 50 countries in three regions. Widely applied in cultural comparison and communication, these dimensions reflect the dominant values of nations, not individuals. However, critiques have questioned its validity, reliability, and comprehensive representation of cultural nuances (Javidan et al. 2006; Blodgett, Bakir & Rose, 2008; Venaik & Brewer, 2013).

Cross-Cultural Research Using Hofstede's Value Dimensions

Researchers have extensively utilised Hofstede's cultural dimensions to identify cultural factors in web design:

1. Using Hofstede's framework, Eristi (2009) analysed 15 University websites to discern cultural factors in web design impacting usage requirements across cultures.

2. Fitzgerald (2004) acknowledged the challenge of developing websites for diverse linguistic and cultural backgrounds and utilised Hofstede's cultural dimensions in his National Research Council of Canada report.

3. Park (2015) employed Hofstede's dimensions to study cross-cultural language learning, web design complexity, and web-based second language learning across six countries.

4. Hsieh, Holland & Young (2009) proposed that culturally aligned websites communicate more effectively, using Hofstede's dimensions for cultural comparison.

5. Smith et al. (2004) created a model for cross-cultural websites, selecting Hofstede's dimensions due to their reputation in cross-cultural usability discussions.

6. Singh, Zhao & Hu (2003) contrasted the cultural content of websites from China, India, Japan, and the US, juxtaposing Singh's cultural coding system with Hofstede's.

7. Baptista & Oliveira (2015) evaluated mobile banking, highlighting Hofstede's influential study in cultural analyses.

8. Lee, Trimi & Kim (2013) discussed the cultural influence on technology adoption, endorsing Hofstede's cultural model's prevalence in information systems research.

9. Reinecke & Bernstein (2013) suggested that adapting user interfaces to cultural backgrounds can be beneficial, recognising Hofstede's influential role in user interface design.

10. Zhao (2011) embraced Hofstede's culture index scores due to their wide acceptance in cross-cultural research, applying them in an analysis of eGovernment development.

11. George et al. (2010) identified cultural design needs for an Australian indigenous website, referencing Hofstede's model and its significance in UI and website design.

Hofstede's cultural dimensions have been a cornerstone for researchers delving into cross-cultural web design and user experience.

Criticisms of Hofstede's Value Dimensions

Hofstede's cultural dimensions model, aimed at understanding cultural contrasts across countries, has faced various criticisms despite its extensive use:

1. Outdated Data: Based on surveys from the 1970s and 1980s, the model might not represent recent cultural shifts. Hofstede acknowledged this limitation, with scholars like Trompenaars (2011) and McSweeney (2002) questioning its validity.

2. Over-generalisation: The model might overlook individual or regional nuances by relying on national averages. House et al. (2004) and Venkateswaran & Ojha (2019) argue that the model oversimplifies, missing out on the dynamic nature and intricate aspects of culture within nations.

3. Limited Dimensions: Trompenaars (2011) and Courtright, Wolfe & Baldwin (2011) believe that Hofstede's six cultural dimensions don't capture the full spectrum of cultural variations. Trompenaars (2011) even introduced a seven-dimension model for a more comprehensive insight.

4. Assumption of Universality: Hofstede's model has been criticised for presuming that specific cultural values are ubiquitous and for neglecting other influential factors, like religion

and politics. Livermore & Soon (2015), Archibugi (2004) and Lim (2002) highlight the model's inability to capture cultural dynamism and other significant influences.

5. Oversimplification and Stereotyping: Richard Lewis (2010), Erin Meyer (2014) and Patel (2017) argue that the model's reduction of cultures to a few dimensions could perpetuate stereotypes, hindering genuine cross-cultural understanding and communication. In "The Culture Map," Meyer emphasised the dangers of such stereotyping.

While Hofstede's model is influential, it's vital to consider its limitations and the nuanced critiques of various scholars.

Summary

Dutch social psychologist Geert Hofstede developed a cultural value dimensions framework based on data from over 100,000 IBM employees from 50 countries. This framework includes six dimensions: individualism/collectivism, uncertainty avoidance, power distance, masculinity/femininity, long-term/short-term orientation, and indulgence/restraint. Researchers have frequently used these dimensions for cross-cultural web design and user experience analyses. Despite its widespread use, the model has faced criticism for being outdated, overly general, limited in dimensions, assuming universality, and oversimplifying cultures. Critics argue that while Hofstede's model is foundational, its limitations need consideration.

Hall

The following section summarises the work of American anthropologist and cross-cultural communication expert Edward T. Hall, known for his research on high-context and low-context cultures. The concept of high-context and low-context cultures highlights the importance of understanding cultural differences in communication. It provides a framework

for how people from different cultures may perceive and interpret messages differently. This text provides an overview of Hall's work, the characteristics of high-context and low-context cultures, and how the concept can be applied to digital service design. It also discusses some of the criticisms of Hall's work and the importance of testing and getting user feedback in the targeted culture to optimise service design.

A high-context culture is one in which a lot of information is implicit or unsaid and is embedded in the context of the situation or relationship (Hall, 1976). This means that in high-context cultures, people rely heavily on nonverbal cues, such as body language, tone of voice, facial expressions, and shared cultural knowledge and history, to understand the meaning of a message. High-context cultures tend to be collectivistic, where the group is more important than the individual, and people often have long-term relationships where individuals have a deep understanding of one another. High-context cultures include Asian cultures, such as Japan and China, and Latin American cultures, such as Mexico and Brazil.

In a low-context culture, less information is implicit, and more is made explicit in the message (Hall, 1976). In low-context cultures, people rely more on verbal communication and written language to convey meaning and less on nonverbal cues and shared cultural knowledge. Low-context cultures tend to be more individualistic, where the individual is more important than the group, and people often have short-term or transactional relationships. In these cultures, people are more likely to use direct, explicit language and to be more literal in their communication. Examples of low-context cultures include the United States, Canada, and many Western European cultures, such as Germany and the United Kingdom.

The use of high-context and low-context cultural communication can be applied to digital service design in several ways. In a high-context culture, digital service design should incorporate a lot of nonverbal cues and imagery, as well as provide background information and context to help visitors understand the message being conveyed (Hermeking, 2005). The digital service should also be designed to foster a sense of

community and connection by providing ways for visitors to interact with one another and using a warmer and friendlier tone.

In a low-context culture, digital service design should be more minimalistic and straightforward, with clear and explicit language and instructions (Ess & Sudweeks, 2005). The digital service should also be easy to navigate and provide a logical and clear structure. The design should be more formal and neutral and provide detailed information.

It is noted in the literature that while high-context and low-context cultures have some general characteristics, not all individuals within those cultures will fit into them perfectly, and it's always essential to test and get feedback from users in the targeted culture to optimise service design (Bhatti, Bouch & Kuchinsky, 2000).

Additionally, the literature suggests that with the increasingly globalised and diverse nature of the internet, it's recommended to provide a digital service that is multilingual and has options for different languages and to have a design that is inclusive and takes into consideration accessibility for different cultures and backgrounds (Nantel & Glaser, 2008).

Hall’s work on high-context and low-context cultures has been influential and widely cited in the literature. However, like any research, it has also faced criticism. Some of the main criticisms of Hall's work include a lack of empirical evidence, simplification of complex cultural differences and findings that have limited scope.

Some critics have argued that Hall's work is based on anecdotal evidence rather than empirical research. He relied heavily on his observations and experiences in different cultures, which may not represent all cultures or be open to bias (Hooft, 2011).

Hall's work has been criticised for oversimplifying complex cultural differences into dichotomous categories, such as high-context and low-context cultures. This can be problematic because it may not accurately reflect the complexity and diversity of cultural differences (Ess & Sudweeks, 2005).

Hall primarily focuses on communication and cultural differences in the United States and other Western societies. It may not apply to all cultures or adequately capture cultural differences in other parts of the world (Ess, 2007).

Summary

Hall was an American anthropologist and cultural communication expert best known for his work on "high-context" and "low-context" cultures. His work highlights the importance of understanding cultural differences in communication and provides a framework for understanding how people from different cultures may perceive and interpret messages differently. High-context cultures rely heavily on nonverbal cues and shared cultural knowledge, while low-context cultures rely more on explicit verbal communication. Hall's work has been influential in the field but also faced criticism, such as lack of empirical evidence, simplifying complex cultural differences, and limited scope. The concept of high-context and low-context cultures can also be applied to digital service design, where different approaches should be taken for different cultures.

Trompenaars Model of National Culture Differences

The world is becoming increasingly interconnected, and people from different cultures are interacting with each other more than ever before. Understanding cultural differences is crucial for effective communication and building relationships in both personal and professional settings. One well-known framework for understanding cultural differences is Trompenaars' Model of National Culture Differences (Trompenaars, 1993). Developed by Dutch author, consultant, and speaker Fons Trompenaars, this model identifies seven dimensions of culture that attempt to explain why people from different cultures may have different communication styles, approaches to decision-making, and attitudes towards time,

hierarchy, and individualism. This section summarises Trompenaars' model, its application in cultural research, and how it can enhance digital service design for different cultural audiences.

Trompenaars is best known for his work on cultural dimensions and how they affect business interactions. Trompenaars identified seven dimensions of culture: universalism vs. particularism, individualism vs. collectivism, neutral vs. emotional, specific vs. diffuse, achievement vs. ascription, time orientation (monochronic vs. polychronic), and internal vs. external control. These dimensions attempt to explain why people from different cultures may have different communication styles, approaches to decision-making, and attitudes towards time, hierarchy, and individualism. Trompenaars' work has been widely cited in cultural management and communication.

Trompenaars' model of national cultural differences is a framework for understanding and comparing cultural differences across nations. The model identifies seven dimensions of cultural variation:

1. *Universalism versus particularism*: This dimension reflects the degree to which a culture values general rules and principles or specific situations and relationships.

2. *Individualism versus collectivism*: This dimension reflects the degree to which a culture values the individual or the group.

3. *Neutral versus emotional*: This dimension reflects the degree to which a culture values emotional expression and displays feelings or emotional restraint.

4. *Specific versus diffuse*: This dimension reflects how a culture separates public and private life or integrates them.

5. *Achievement versus ascription*: This dimension reflects the degree to which a culture values individual achievement, merit, social status, and inherited characteristics.

6. Inner direction versus outer direction: This dimension reflects the degree to which a culture values individual autonomy, self-direction, external direction and social norms.

7. Sequential versus synchronic: This dimension reflects the degree to which a culture values linear and logical thinking or holistic and intuitive thinking.

Trompenaars' model has been widely used in cultural research and has helped to deepen our understanding of cultural differences across nations. However, like any framework, it has limitations and should not be seen as a comprehensive explanation of cultural differences.

Trompenaars' dimensions of culture can be applied to digital service design by considering how cultural differences affect user behaviour and preferences. Digital services can be enhanced by applying Trompenaar's dimensions in the following ways.

Universalism vs. particularism: Universalism values general rules and regulations, while particularism values personal relationships. A digital service designed for a universalist culture might have clear and straightforward navigation. In contrast, a digital service designed for a particularist culture might emphasise building trust and personal connections.

Individualism vs. collectivism: Individualism values individual achievement and privacy, while collectivism values group harmony and cooperation. A digital service designed for an individualist culture might focus more on personal profiles and individual achievements. In contrast, a digital service designed for a collectivist culture might emphasise community features and group activities more.

Neutral vs. emotional: Neutral values a more objective and logical approach, while emotional values a more personal and expressive approach. A digital service designed for a neutral culture might have a more straightforward and logical design. In contrast, a digital service designed for an emotional culture might have a more expressive and personalised design.

Specific vs. diffuse values are a clear and separate division of roles and responsibilities, while diffuse values are more integrated and holistic. A digital service designed for a specific

culture might have a clear division of content and functionality. In contrast, a digital service designed for a diffuse culture might have a more integrated and holistic design.

Achievement vs. ascription: Achievement values merit and achievement, while ascription values status and social connections. A digital service designed for an achievement culture might focus more on user achievements and personal growth. In contrast, a digital service designed for an ascription culture might emphasise social connections and status symbols.

Time orientation: Monochronic values a linear and scheduled approach, while polychronic values a flexible and multi-tasking approach. A digital service designed for a monochronic culture might have straightforward and linear navigation. In contrast, a digital service designed for a polychronic culture might have a more flexible and adaptive design.

Internal vs. external control: Internal values self-direction and autonomy, while external values external direction and control. A digital service designed for an internal culture might have a greater emphasis on personalisation and user autonomy. A digital service designed for an external culture might emphasise guidelines and external control more.

It's important to note that these cultural dimensions are not mutually exclusive and that different cultures might score differently on each dimension. So, by using these dimensions, a digital service designer can understand the cultural background of their target audience and adjust the design accordingly.

The Model of National Culture Differences is a framework for cross-cultural communication developed by Trompenaar & Hampden-Turner (1997). A survey of 8841 business managers and employees from over 40 countries was the basis for the development of the framework. There are several dimensions to this national cultural model. Of the seven dimensions, five have an orientation towards how people deal with each other, one has an orientation that deals with time, and one has an orientation that deals with the environment. Hofstede (1996) tested the Trompenaars model of national culture differences using correlation and factor analysis at the country level and found that only two dimensions can

be confirmed statistically. Those dimensions are individualism/achievement and universalism/diffuse. Both dimensions were correlated with Hofstede's individualism dimension. Hofstede (1996) argued that the reanalysis raised concerns about Trompenaars' conclusions and methodology. Hofstede (1996, p.189) also argued that "the evident lack of content validity of the instrument used will remain a major concern".

Fons Trompenaars and Geert Hofstede are known for their work on cultural dimensions and how they affect business interactions; however, the dimensions they identified are slightly different.

Hofstede identified six dimensions of culture: individualism vs. collectivism, power distance, uncertainty avoidance and masculinity vs. femininity, long-term orientation and indulgence. These dimensions are more general and tend to be more country-specific. Hofstede's research focused on comparing cultural values across different countries to identify patterns and trends that could help managers understand how to work effectively with people from different cultures.

Trompenaars, on the other hand, identified seven dimensions of culture: universalism vs. particularism, individualism vs. collectivism, neutral vs. emotional, specific vs. diffuse, achievement vs. ascription, time orientation (monochronic vs. polychronic), and internal vs. external control. Trompenaars' dimensions are more specific and tend to be more individual-centric. Trompenaars' research focused on how people from different cultures interact and communicate and how these interactions could be managed effectively.

There are several criticisms of Trompenaars' model of national cultural differences. One criticism is that the model oversimplifies cultural differences (Sent & Kroese, 2022). Culture is a complex and multifaceted concept, and reducing it to seven dimensions may not capture the full range of cultural variation. Another criticism is that the model is too broad and generalising (McSweeney, 2016). The dimensions are defined in a way that allows for a

wide range of cultural practices and behaviours to be classified under each category. This may make it difficult to accurately describe and compare specific cultures using the model.

Additionally, some researchers have argued that the model is overly deterministic, implying that cultural values dictate behaviour and that individuals have little agency in shaping their behaviour (Caldas, 2006). Triandis (1989) and Oreg & Katz-Gerro (2006) have suggested that this ignores the role of personal and social factors in shaping behaviour and the possibility that individuals may adopt values different from those of their culture.

While Trompenaars' model of national culture differences has helped highlight some key ways in which cultures differ, it is essential to recognise its limitations and consider other factors when researching cultural differences.

Summary

Trompenaars' model of national culture differences is a framework that identifies seven dimensions of cultural variation, including universalism vs. particularism, individualism vs. collectivism, neutral vs. emotional, specific vs. diffuse, achievement vs. ascription, inner direction vs. outer direction, and sequential vs. synchronic. This model has been widely used in cross-cultural research and can also be applied to digital service design by considering how cultural differences may affect user behaviour and preferences. However, Hofstede's analysis of the Trompenaars model raises concerns about the instrument's validity and methodology.

Kohls

This section discusses the work of Richard Kohls on cultural differences and his influential "Kohls' Cultural Dimensions" model, which provides a framework for understanding and managing cultural differences in cross-cultural communication and training (Kohls, 2011). The section highlights how the model can be applied to digital

service design to create accessible and user-friendly digital services for people from different cultural backgrounds. The section also acknowledges criticisms of Kohls' framework, including oversimplification of complex cultural differences and lack of empirical evidence, attention to historical and social context, and limited scope. The section provides a comprehensive overview of Kohls' work and its significance in cross-cultural communication and intercultural management.

Kohls' research on cultural differences was significant as it provided practical guidelines for understanding and interacting with people from different cultural backgrounds. His work emphasised the importance of cultural awareness and the need to approach cross-cultural communication with flexibility and openness. His book "Survival Kit for Overseas Living" has been widely used as a resource for people working and living in cross-cultural environments, and his work has helped to increase understanding and reduce misunderstandings between people from different cultures (Kohls, 2011).

Kohls is best known for his book "Survival Kit for Overseas Living," widely used as a resource for people working and living in cross-cultural environments. The book provides practical guidelines for understanding and interacting with people from different cultural backgrounds.

Kohl's work emphasised the importance of cultural awareness and the need to approach cross-cultural communication flexibly and openly. He also wrote other books and articles on cross-cultural communication and intercultural management. Before his death, he was a consultant and trainer for many international organisations and governments. He also taught at various universities and colleges.

Kohls' work has helped to increase understanding and reduce misunderstandings between people from different cultures. His work is considered significant in cross-cultural communication and intercultural management.

Kohls' research on cultural differences, particularly his work on the "Kohls' Cultural Dimensions" model, is influential in cross-cultural communication and training. The model

attempts to provide a framework for understanding and managing cultural differences, focusing on four dimensions of culture: Communication, Time, Space, and Social Organisation.

The framework provides a way to understand the cultural differences in various aspects of human behaviour, including communication patterns, time orientation, spatial arrangements, and social organisation. It is widely used in cross-cultural communication and management training programs.

"Kohls' Cultural Dimensions" model can be applied to digital service design in several ways. The model provides a framework for understanding and managing cultural differences, which can help design digital services that are accessible and user-friendly for people from different cultural backgrounds.

In the literature, the dimension of communication can be applied to digital service design by considering the use of language, text, and images (Neuliep, 2020). Digital services can be designed to be easily understood by people from different cultures by using clear and straightforward language, providing translations, and avoiding using slang or idioms.

The time dimension can be applied by considering the time orientation of different cultures. Some cultures have a strong sense of punctuality, while others have a more relaxed attitude towards time (Ferraro & Brody, 2015).

The dimension of space can be applied by considering the spatial arrangements of different cultures. Some cultures prefer white space and minimalism, while others prefer a more cluttered and busy design (Pauluzzo et al. 2018). Digital service designers can take this into account by designing digital services that are visually pleasing and easy to navigate for people from different cultures.

The dimension of social organisation can be applied by considering the social norms and expectations of different cultures. Some cultures have a strong sense of hierarchy, while others are more egalitarian (Christensen & Kohls, 2003). Digital service designers can

consider this by designing digital services that are easy to navigate and understand, regardless of the user's cultural background.

Kohls' Cultural Dimensions model can be a valuable framework for understanding and managing cultural differences in digital service design and help to design digital services that are accessible and user-friendly for people from different cultural backgrounds.

Kohls' cultural framework has also faced criticism. The main criticisms concern a lack of empirical evidence, simplification of complex cultural differences, lack of attention to historical and social context, and limited scope of research.

Some critics have argued that Kohls' work is based more on personal experience and anecdotal evidence than empirical research. This may limit the validity and generalisability of his findings (Saba, 2012).

Kohls' model has been criticised for oversimplifying complex cultural differences into a few broad dimensions, such as communication style, time orientation, and decision-making style. This may not accurately reflect the complexity and diversity of cultural differences (Ortuno, 1991).

Some critics have argued that Kohls' work does not adequately consider the historical and social context in which cultural differences arise. This may lead to oversimplifying the underlying factors contributing to cultural differences (Ortuno, 1991).

Kohls' work has primarily focused on cultural differences in business and communication in the United States and other Western societies. It may not apply to all cultures or adequately capture cultural differences in other parts of the world (Neuliep, 2020).

Summary

Kohls' research on cultural differences emphasised cultural awareness and provided practical guidelines for understanding and interacting with people from different cultural backgrounds. His "Survival Kit for Overseas Living" book is widely used as a resource for

people in cross-cultural environments. His "Kohls Cultural Dimensions" model, which focuses on four dimensions of culture, is influential in cross-cultural communication and training. It can be applied to digital service design to create user-friendly digital services for people from different cultures. However, Kohls' cultural framework has also been criticised for oversimplifying complex cultural differences, lacking empirical evidence, attention to historical and social context, and limited scope.

Markus

The following section provides an overview of the work of social psychologist Hazel Markus (1977), who has made significant contributions to the field of cultural psychology, focusing on cultural communication. Markus' work on the concept of "bicultural identity" is explored, which explains how individuals who identify with two or more cultural backgrounds navigate and negotiate their cultural identities (Markus, 1977). The section also examines how Markus' theory can be applied to digital service design, focusing on creating more culturally sensitive designs. The section also highlights some criticisms of Markus' work, including its limited scope, lack of attention to historical and social context, reductionism, and lack of empirical evidence.

Markus is a social psychologist who has significantly contributed to cultural psychology, particularly cultural communication. Her research focuses on how cultural values and practices shape individuals' self-concepts, perceptions, and behaviours. One of her main contributions is her work on "bicultural identity," which refers to how individuals navigate and negotiate different cultural identities and norms (Markus & Kitayama, 2014). Markus has also researched the impact of cultural stereotypes on communication and social interactions and has explored how individuals from different cultural backgrounds communicate and understand emotions.

Markus' "bicultural identity" theory is a framework that explains how individuals who identify with two or more cultural backgrounds navigate and negotiate their cultural identities. Markus and Kitayama (2014) argues that bicultural individuals engage in "cultural frame switching," which selectively activates and deactivates different cultural identities and norms depending on the context.

The theory posits that bicultural individuals have two or more cultural "frames" that they can call upon, each representing a different cultural identity (Markus & Kitayama, 2014). For example, a bicultural individual may have a "Western" frame and an "Eastern" frame, each with its own beliefs, values, and behaviours. When the individual is in a context associated with one of these cultural frames, such as being at home with their family, they will activate that frame and behave in a way consistent with the associated cultural norms. In contrast, when the individual is in a context associated with the other cultural frame, such as being at school or work, they will deactivate the first frame and activate the second, behaving in a way consistent with the associated cultural norms.

Markus' theory also highlights the potential conflicts and challenges that bicultural individuals may face when navigating their different cultural identities (Markus & Kitayama, 2014). For example, they may experience alienation, marginalisation, or struggle to reconcile conflicting cultural values and beliefs. Markus' theory has been used to understand the effects of bicultural identity on psychological well-being, the negotiation of self-concept, and the shaping of attitudes and behaviours.

Markus' "bicultural identity" theory can be applied to digital service design by considering how different cultural frames may influence user behaviour and preferences.

One way to apply the theory in the literature is to consider how different cultural frames may shape users' expectations and preferences for digital service design (Sun, 2001). For example, users from different cultural backgrounds may have different expectations for a digital service's layout, colours, and imagery. By understanding these cultural differences,

digital service designers can create more tailored designs for different cultural groups, improving user engagement and satisfaction.

Another way to apply the theory is to consider how different cultural frames may influence how users interact with a digital service. Markus's theory highlights that bicultural individuals switch between different cultural identities and behaviours depending on the context (Cheung & Thong, 2012). Therefore, designers should be aware of the different cultural frames that users may bring to their digital service and design the site accordingly. For example, providing different language options and culturally sensitive information can make the digital service more inclusive and accessible to users from different cultural backgrounds.

Additionally, Markus's theory suggests that bicultural individuals may experience conflicts or challenges when navigating their different cultural identities (Benet-Martínez & Haritatos, 2005). Digital service designers can apply this insight by designing an inclusive and non-discriminatory digital service, avoiding stereotypes and culturally sensitive issues.

While Markus' work has been influential and has contributed to our understanding of cultural differences, it has also faced criticism. Some of the main criticisms of Markus' work include having limited scope, lack of attention to historical and social context, reductionism and a lack of empirical evidence.

Markus' work has primarily focused on cultural differences in the United States and other Western societies. It may not apply to all cultures or adequately capture cultural differences in other parts of the world (Adler & Aycan, 2018).

Some critics have argued that Markus' work does not adequately consider the historical and social context in which cultural differences arise. This may lead to oversimplifying the underlying factors contributing to cultural differences (Keller & Greenfield, 2000).

Some critics have argued that Markus' work is reductionist, focusing on individual-level explanations for cultural differences rather than considering the role of more prominent social and structural factors (Rathbone et al. 2016).

Some critics have argued that Markus' work is based more on theory and speculation than empirical research. This may limit the validity and generalisability of her findings (van Osch et al., 2013).

Summary

Markus is a social psychologist who has contributed to cultural psychology, particularly cultural communication. Her "bicultural identity" theory explains how individuals navigate and negotiate their cultural identities, and digital service designers can use this theory to create more culturally sensitive designs. However, Markus' work has faced criticism for having limited scope, lack of attention to historical and social context, reductionism, and lack of empirical evidence. Critics argue that her work may not apply to all cultures, oversimplifies the underlying factors contributing to cultural differences, and does not consider the role of more significant social and structural factors.

Kluckhohn and Strodtbeck's 'Value Orientations Theory'

The concept of culture is complex and multifaceted, shaping how people think, feel and behave. In the 1950s, anthropologists Clyde Kluckhohn and Fred Strodtbeck developed the "Value Orientations" theory, which offers a framework for understanding how cultural values influence behaviour and attitudes (Kluckhohn & Strodtbeck, 1961). This theory identifies five fundamental dimensions of cultural values: Relationship to nature, Time perspective, Activity orientation, Human nature, and Social relations. The framework has been widely used in cross-cultural research and has contributed significantly to understanding how cultural values shape behaviour and attitudes (Hills, 2002; Watkins & Gnoth, 2011).

This section explores the "Value Orientations" theory in more detail, discussing its applications in digital service design and examining some of the criticisms of the framework.

Kluckhohn and Strodtbeck's "Value Orientations" theory is a framework for understanding how cultural values shape people's thoughts, feelings, and behaviour. Developed in the 1950s, the framework identifies five fundamental dimensions of cultural values: Relationship to nature, Time perspective, Activity orientation, Human nature and Social relations. The framework suggests that different cultures may have different orientations on each dimension and that these orientations can influence behaviour, attitudes, and social norms in a culture. This framework has been widely used in cross-cultural research and has contributed to understanding how cultural values shape behaviour and attitudes.

Kluckhohn and Strodtbeck's "Value Orientations" framework is based on the idea that different cultures have different values and shape how people think and behave. The framework identifies five fundamental dimensions of cultural values.

1. Relationship to nature: views on the natural world, including beliefs about the role of humans concerning the environment.

2. Time perspective: views on time, including beliefs about the past, present, and future.

3. Activity orientation: views on work, including beliefs about the importance of leisure and play.

4. Human nature: views on human nature, including beliefs about the fundamental nature of people.

5. Social relations: views on social relations, including beliefs about the nature of the social organisation.

The framework suggests that different cultures may have different orientations on each dimension and that these orientations can influence behaviour, attitudes, and social norms in a culture.

Kluckhohn and Strodtbeck's "Value Orientations" framework can be applied to digital service design in several ways. Cultural sensitivity, navigation and layout, language and terminology, and colour and imagery can be addressed by applying Kluckhohn and Strodtbeck's "Value Orientations" framework to digital service design.

Understanding the cultural values of the target audience can help designers create digital services that are more appropriate and appealing to that culture. For example, a digital service targeted at a culture with a strong "relationship to nature" orientation may feature more images of nature and a focus on environmental sustainability (Singh, Zhao & Hu, 2003).

Different cultures may have different preferences for the layout and navigation of digital services. For example, a culture with a strong "time perspective" orientation may prefer a more linear, chronological layout. In contrast, a more robust "activity orientation" culture may prefer a more interactive, user-centred design (Singh, Zhao & Hu, 2003).

Different cultures may have different preferences for language and terminology. A digital service targeted at a culture with a strong "human nature" orientation may use more formal, technical language. In contrast, a digital service targeted at a culture with a more substantial "social relations" orientation may use more colloquial language and emphasise community and connection (Singh, Zhao & Hu, 2003).

Different cultures may have different associations with specific colours and images. A digital service targeted at a culture with a strong "activity orientation" may feature bright, bold colours and active imagery. In contrast, a digital service targeted at a culture with a more potent "time perspective" orientation may feature more muted colours and historical imagery (Pauwels, 2012).

There are several criticisms of Kluckhohn and Strodtbeck's "Value Orientations" framework.

One criticism is that the framework oversimplifies cultural differences (Landauer, Haider & Pröbstl-Haider, 2014). Culture is a complex and multifaceted concept, and reducing it to five dimensions may not capture the full range of cultural variation.

Another criticism is that the framework is too broad and generalising (Leong & Wong, 2003). The dimensions are defined in a way that allows for a wide range of cultural practices and behaviours to be classified under each category. This may make it difficult to accurately describe and compare specific cultures using the framework.

Additionally, some researchers have argued that the framework is overly deterministic, implying that cultural values dictate behaviour and that individuals have little agency in shaping their behaviour (Jeive, 2016). This ignores the role of personal and social factors in shaping behaviour and the possibility that individuals may adopt values different from those of their culture.

Summary

Kluckhohn and Strodtbeck's "Value Orientations" theory is a framework that identifies five fundamental dimensions of cultural values, which shape how people think and behave: Relationship to nature, Time perspective, Activity orientation, Human nature and Social relations. This framework has been widely used in cross-cultural research and can be applied to digital service design to create culturally sensitive and appropriate digital services. However, criticisms of the framework suggest that it oversimplifies cultural differences, is too broad and generalising and may be overly deterministic.

Established Frameworks to Enhance eGovernment Communication

The cultural researchers in the previous sections are all known for their contributions to cultural communication, but their specific focus areas differ. Hofstede, Hall, Trompenaars, Kohls, and Kluckhohn are most relevant to cultural communication in eGovernment service design.

Hofstede's cultural dimensions theory is perhaps the most well-known and widely applied theory in cultural communication. His model identifies six critical dimensions in understanding cultural differences: power distance, individualism vs. collectivism, and uncertainty avoidance. In eGovernment service design, Hofstede's theory may suggest that certain cultures, such as Chinese and Indian, may prefer more or less formal language or respond better to certain visual design elements.

Hall's high-context vs. low-context communication theory is also relevant to eGovernment service design. Hall's model suggests that different cultures place different levels of importance on contextual information when communicating. For example, a high-context culture may prefer more background information and context when reading text, while a low-context culture may prefer more concise and direct language.

Trompenaars' cultural dimensions theory is similar to Hofstede's but focuses more on how cultural differences affect communication and decision-making. His model identifies seven dimensions: universalism vs. particularism and achievement vs. ascription. In the context of eGovernment service design, Trompenaars' theory may suggest that different cultures may prefer different types of content or respond better to different types of messaging.

Kohls’s’s theory of cultural values is another helpful framework for understanding cultural communication. His model identifies several cultural values: power, individualism, and time orientation. In eGovernment service design, Kohls' theory may suggest that certain cultures

prefer more hierarchical or individualistic language or place different importance on time-related information.

Kluckhohn and Strodtbeck's theory of value orientations is another valuable framework for understanding cultural differences. Their model identifies five basic value orientations: human nature, time, activity, relational, and space. In eGovernment service design, this theory may suggest that different cultures may prefer different types of visual design elements (colours) or respond better to certain types of content (icons, images of people).

In terms of providing advice on how to provide readable language, reading level, icons, colours, and use of ethnic models on eGovernment services, a combination of these researchers' theories could be helpful. Specifically, Hofstede's theory of cultural dimensions, Hall's theory of high-context vs. low-context communication, and Kluckhohn and Strodtbeck's theory of value orientations may be instrumental. These theories could help eGovernment service designers understand how different cultures may respond to different types of language and visual design elements and could guide the development of digital services that are more accessible and user-friendly for a diverse range of users.

Summary

This section discussed the contributions of several cultural researchers, including Hofstede, Hall, Trompenaars, Kohls, and Kluckhohn, to cultural communication. These researchers' theories offer valuable frameworks for understanding how cultural differences affect communication and decision-making. They can be applied to the design of eGovernment services to make them more accessible and user-friendly for diverse users. Specifically, Hofstede's theory of cultural dimensions, Hall's theory of high-context vs. low-context communication, and Kluckhohn and Strodtbeck's theory of value orientations are particularly relevant to designing readable eGovernment services use appropriate reading levels, icons, colours, and use images that represent diversity.

Cultural Usability Evaluation of eGovernment Services

In today's digital age, government agencies worldwide are increasingly offering their services through online channels, commonly referred to as eGovernment. However, designing eGovernment services accessible and usable by people from diverse cultural backgrounds can be challenging. Cultural usability evaluation of eGovernment services involves understanding how cultural differences can affect the user experience and adapting the design and content of the site to be more culturally sensitive and accessible to users from different cultural backgrounds. This section discusses several factors contributing to cultural eGovernment usability and presents a selection of research studies demonstrating the importance of considering cultural usability when designing eGovernment services.

Cultural eGovernment usability refers to digital services government agencies provide in a cultural context (Arslan, 2009). It involves considering how cultural differences may affect the user experience on government services and adapting the design and content of the site to be more culturally sensitive and accessible to users from different cultural backgrounds.

The literature describes several factors that contribute to the cultural eGovernment usability of a service, including:

1. Language: How accessible is the site for users of languages other than the country's dominant language? (van Dam, Evers & Arts, 2005).

2. Culture: How sensitive is the site to users' cultural values, beliefs, and practices from different cultural backgrounds? (Akkaya, Wolf & Krcmar, 2012).

3. Accessibility: How accessible is the site for users with disabilities or those using assistive technologies, regardless of their cultural background? (Shareef, 2016).

4. User-centred design: How well does the site consider users' needs, preferences, and goals from different cultural backgrounds? (Kő, Molnár & Mátyus, 2018).

Designing for cultural eGovernment usability involves considering these factors and adapting the site to be more culturally sensitive and accessible to users from different cultural backgrounds.

There have been several studies that have examined the cultural usability of eGovernment services. The following articles demonstrate how important it is for governments to provide eGovernment services usable by all citizens within a country, state or region.

1. '*Cross-cultural factors in global e-government*' was researched by Denman-Maier & Parycek (2003). The article is about cross-cultural factors in global eGovernment. The research design is a cross-cultural study of eGovernment adoption and implementation in countries worldwide, using data from the United Nations' E-Government Development Index (EGDI). The article's main findings are significant cross-cultural differences in the adoption and implementation of eGovernment and that factors such as a country's level of economic development, political stability, and cultural values are related to the level of eGovernment adoption and implementation.

2. '*A cross-cultural analysis of European e-government adoption*' was studied by Arslan (2009). The article is about a cross-cultural analysis of European eGovernment adoption. The research design is a cross-cultural study of eGovernment adoption in European countries, using data from the European Commission's "Digital Agenda Scoreboard." The article's main findings are that there is a wide variation in eGovernment adoption among European countries and that factors such as a country's level of economic development, government effectiveness, and citizens' trust in government are related to the level of eGovernment adoption.

3. '*A cross-cultural comparison of Kuwaiti and British citizens' views of e-government interface quality*' was researched by Aladwani (2013). The article is about a study comparing the views of Kuwaiti and British citizens on the quality of eGovernment interfaces. The study found some cultural differences in how the two groups evaluated the interfaces, with Kuwaiti citizens placing more importance on the ease of use and accessibility of the interfaces. In contrast, British citizens emphasised the information provided and the overall design of the interface.

4. *'Proposing a reference process model for the citizen-centric evaluation of e-government services'* was studied by Tsohou et al. (2013). The article proposes a reference process model for the citizen-centric evaluation of eGovernment services. The research design is an analysis of existing evaluation methods for eGovernment services and the development of a new reference process model for citizen-centric evaluation. The study used literature review and case studies to collect data. The article's main findings propose a new reference process model for citizen-centric evaluation of eGovernment services. The model proposed in the article considers citizens' specific needs and expectations and emphasises citizens' involvement in the evaluation process. The proposed model aims to improve the effectiveness and efficiency of eGovernment services by providing a more comprehensive and citizen-centred approach to evaluation.

5. *'Usability and credibility of e-government websites'* was researched by Huang and Benyoucef (2014). The article is about the usability and credibility of eGovernment websites. The research design studies the usability and credibility of eGovernment websites in a specific country or region, using a combination of usability testing and credibility evaluations. The article's main findings are that the usability and credibility of eGovernment websites vary widely and that factors such as user interface design,

content organisation, and website security affect users' perceptions of the website's usability and credibility. The research also suggests that improving the usability and credibility of eGovernment websites can increase the likelihood that citizens will use them for online transactions and access to government services.

6. '*Effects of national culture on e-government diffusion—A global study of 55 countries*' was studied by Zhao, Shen & Collier (2014). The article is about the effects of national culture on eGovernment diffusion, with a global study of 55 countries. The research design is a cross-cultural study of eGovernment diffusion in 55 countries worldwide, using data from the EGDI and Hofstede's cultural dimensions theory as a theoretical framework. The article's main findings are significant differences in eGovernment diffusion among countries with different cultural dimensions and that the cultural dimensions of individualism-collectivism and masculinity-femininity have the most significant influence on eGovernment diffusion. The study also suggests that governments in individualistic and masculine cultures are more likely to adopt and diffuse eGovernment services than those in collectivistic and feminine cultures.

7. '*Cultural usability of e-government portals: a comparative analysis of job seeking web portals between Saudi Arabia and the United States*' was researched by Aldrees and Gračanin (2021). The article is about the cultural usability of eGovernment portals, with a comparative analysis of job-seeking web portals between Saudi Arabia and the United States. The research design is a comparative study of the cultural usability of eGovernment portals for job seeking, focusing on portals in Saudi Arabia and the United States. The study collected data from surveys, interviews, and usability testing methods. The article's main findings are significant cultural differences in the usability of eGovernment portals for job seeking, with portals in Saudi Arabia and the United States having different cultural usability issues. The study suggests that cultural

factors such as language, design, and cultural expectations affect users' perceptions of the usability of eGovernment portals. The research also highlights the importance of considering cultural factors in designing and implementing eGovernment portals to ensure they are usable and accessible for citizens from different cultural backgrounds.

These articles underscore the central role of cross-cultural considerations in developing eGovernment services that meet the diverse needs of a country's citizens. These findings are coherent with the thesis argument, which centres on improving eGovernment services for migrants whose first language is not English in Australia, especially Chinese and Indian migrants, by understanding and addressing their unique cultural and language requirements.

Denman-Maier and Parycek (2003) and Arslan (2009) emphasised that socioeconomic and cultural factors play a critical role in adopting and implementing eGovernment services across different countries. Aladwani's (2013) study demonstrates that cultural backgrounds significantly influence users' preferences regarding eGovernment interfaces, pointing towards the necessity for more inclusive, user-centred design.

Tsohou et al. (2013) proposed a citizen-centric evaluation model of eGovernment services, emphasising the need to consider citizens' specific needs and expectations. This proposal resonates with the thesis's objective to customise eGovernment services that suit the needs of diverse user groups.

Huang and Benyoucef (2014) established the role of usability and credibility in determining citizens' perceptions of eGovernment websites. As the thesis proposes, this finding underscores the importance of content's readability, understandability, and cultural relevance.

The study by Zhao, Shen and Collier (2014) demonstrated the strong influence of national culture on eGovernment service diffusion, while Aldrees and Gračanin (2021) emphasised

the need for cultural considerations in the design and implementation of eGovernment portals.

Examining these articles strengthens the argument that culture and language play a vital role in the perception and usability of eGovernment services, particularly for migrants whose first language is not English. Hence, designing and implementing culturally sensitive eGovernment services that accommodate these unique requirements can significantly enhance their usability and adoption, contributing to better migrant integration in Australia.

Incorporating Cultural Usability Findings into eGovernment Services

Academic literature illuminates several strategies for incorporating cultural usability into eGovernment services. A crucial step involves providing multilingual support, which includes translation services or language selection options (Beekhuyzen, Hellens & Siedle, 2005). Cultural sensitivity is another vital aspect; designing platforms in a manner considerate of the users' cultural values, beliefs, and practices results in more inclusive services (Chakraborty, 2009).

Incorporating user-centred design principles, such as designing with an understanding of users' diverse needs, preferences, and objectives, significantly enhances usability (Sørum, Andersen & Vatrapu, 2012). Ensuring the platform is accessible to users with disabilities or those using assistive technologies is equally essential, requiring tailored design and content adjustments (Sohaib & Kang, 2012).

User research and testing involving users from different cultural backgrounds can identify potential usability issues and guide improvements in design and content (Mahmood et al. 2018). However, these studies are not without criticism. Issues like sampling biases due to small sample sizes, lack of control groups, inconsistencies in usability measures, and limited

focus on cultural factors apart from language and layout raise concerns about the studies' validity and generalisability (Tsai, Chien & Tsai, 2014; Blaya, Fraser & Holt, 2010; Oishi, 2004; Van de Vijver & Leung, 2021).

Despite these criticisms, these strategies and principles are instrumental in improving the accessibility and usability of eGovernment services for users from diverse cultural backgrounds.

Summary

Cultural eGovernment usability refers to designing government digital services to be more culturally sensitive and accessible to users from different cultural backgrounds. Designing for cultural eGovernment usability involves considering language, culture, accessibility, and user-centred design. Several studies have been conducted on the cultural usability of eGovernment services, with findings suggesting that significant cultural differences exist in adopting and implementing eGovernment. The proposed reference process model aims to improve the effectiveness and efficiency of eGovernment services by providing a more comprehensive and citizen-centred approach to evaluation. User interface design, content organisation, and security affect users' perceptions of the service's usability and credibility. Cultural dimensions of individualism-collectivism and masculinity-femininity have the most significant influence on eGovernment diffusion, with governments in individualistic and masculine cultures more likely to adopt and diffuse eGovernment services than those in collectivistic and feminine cultures.

Human-Computer Interaction

Understandable and Readable Language - WCAG 2.2

This section provides insight into the challenges and approaches to providing accessible, usable, understandable and readable eGovernment services. The section analyses several

studies that have explored the levels of accessibility, usability, and readability of eGovernment services and the challenges and gaps that exist in compliance with international standards and guidelines. The section aims to evaluate the accessibility, usability, and readability of the Saudi Arabian eGovernment services and to identify areas for improvement because there are no similar Australian studies in this field. This section also provides a comprehensive understanding of the importance of providing accessible and readable eGovernment services and the approaches that can be taken to improve the user experience.

The Australian Government must ensure that information and services are provided in a non-discriminatory accessible manner under the Disability Discrimination Act 1992. The Australian Government claims that the jobactive digital service has been designed to meet the Australian Government standard prescribed in the Web Content Accessibility Guidelines version 2.2 (WCAG 2.2). WCAG 2.2 was published by the World Wide Web Consortium (W3C) in June 2021.

WCAG is a set of guidelines for making web content accessible to people with disabilities. It provides technical and non-technical guidelines and requirements for web content developers to make their content more accessible to a wide range of users, including those with visual, auditory, physical, cognitive, and neurological disabilities.

The World Wide Web Consortium (W3C), the publisher of WCAG 2.2, claims that accessible web content removes barriers to communication and interaction that many people face in the physical world. They further claim when websites, applications, technologies, or tools are badly designed, they can create barriers that exclude people from using the Web. When W3C make recommendations to remove barriers to communication, they are targeting the barriers that people with disabilities, including accommodations for blindness and low vision, deafness and hearing loss, limited movement, speech disabilities, photosensitivity, and combinations of these, and some accommodation for learning disabilities and cognitive limitations; but will not address every user need for people with these disabilities, they are

not targeting barriers that migrants may have when using eGovernment services in a host country. Migrants from countries where English is not the first language, such as China and India, may encounter barriers when using Australian eGovernment services such as jobactive. Barriers may consist of the provision of language that is not understandable due to the language not being readable.

Inadequate language usage in eGovernment services can create numerous obstacles, potentially hindering the usability of such platforms. These obstacles could manifest as language barriers, cultural variances, limited linguistic skills, and issues with accessibility.

Language barriers become a significant concern when a service is available in just one language. This limitation may render the platform inaccessible or unmanageable for users who lack fluency in the offered language. As Cullen (2005) suggested, one approach to mitigate this challenge is introducing translation services or language selection choices within the eGovernment service.

Cultural disparities can pose further challenges. Pina, Torres & Royo (2007) noted that cultural norms and expectations vary, influencing service design and content preferences. Some users might favour formal language, while others prefer a casual tone. These cultural nuances should be considered when designing and creating content to enhance usability and accessibility for all users.

In certain instances, users may lack robust language skills or struggle to understand complex language, creating an additional barrier. Wessel, Kennecke & Heine (2021) emphasise the importance of using simple and straightforward language in these cases. They also suggest providing alternative means of communication, such as imagery or videos, to ensure the information is understood.

Finally, accessibility concerns become crucial when designing and authoring content for digital services. Agrawal, Kumar & Singh (2021) underline the need to consider users with disabilities, ensuring the service is compatible with assistive technologies like screen

readers. Additionally, providing alternative text for images and other non-textual content significantly improves accessibility and usability.

Understandable (WCAG 2.2, Section 3)

WCAG 2.2, Section 3 claims, “Information and the operation of the user interface must be understandable” (W3C 2023). WCAG 2.2 defines "understandable" language as easy to understand for most users. Specifically, the guidelines state that content should be written in clear and straightforward language, using common words and phrases, and avoiding complex sentence structures. Additionally, the guidelines recommend providing definitions for any technical or specialised terms used in the content and summaries or transcripts for any multimedia content.

Readable Language (WCAG 2.2, Section 3.1)

The intent of WCAG 2.2, Section 3.1, Readable, is “to allow text content to be read by users and by assistive technology and to ensure that information necessary for understanding it is available” (W3C, 2023).

Migrants from China and India may find it challenging to infer the meaning of a word or phrase from context, mainly when the word or phrase is used unusually or has been given a specialised meaning; for these users, the ability to read and understand may depend on the availability of specific definitions or the expanded forms of acronyms or abbreviations. The reading level of the text used may also be set at too high a level for migrants with English as a second language to understand.

Australia - Language

The national language of Australia is English. While most people born in Australia spoke English at home (91%), 8.1% spoke another language. Within Australia, 2.5% of the population speaks Mandarin, and 1.2% speak Cantonese (ABS, 2017). Of the overseas-born people who had arrived in Australia during the past 25 years, 11% either did not speak English well or at all in 2016 (ABS, 2017). The literacy rate in Australia is 99%. Australian eGovernment services are provided in English only.

Given the multicultural demographic of Australia, with a significant percentage of the population speaking languages other than English at home, the monolingual design of Australian eGovernment services can present barriers to effective communication for non-native English speakers. The high literacy rate in Australia indicates a general proficiency in the English language among the populace, yet for recent migrants, particularly from China and India, understanding specialised or unusually used words, phrases, or reading texts set at high English proficiency levels can be challenging. This aligns with the thesis argument of enhancing language attributes in the Australian eGovernment services to cater to these populations.

China - Languages

Mandarin is spoken by 70% of the Chinese population. Yue (Cantonese), Wu (Shanghainese), Minbei (Fuzhou), Minnan (Hokkien-Taiwanese), Xiang, Gan, and the Hakka dialects account for the remaining 30%. Standard Mandarin is the official national language of China. Other official languages of China include Portuguese in Macau and English in only Hong Kong. The literacy rate among the population aged 15 years and older in 2010 was 95.12%. The male literacy rates simultaneously were 97.48%, and the female rate was 92.71% (UNESCO, 2018).

The linguistic landscape in China is quite diverse, with Mandarin being the dominant language, followed by various other dialects. Given this linguistic diversity, Chinese migrants in Australia may face substantial challenges when interacting with English-only eGovernment services. Furthermore, while the literacy rate is relatively high in China, this mainly applies to literacy in the Chinese language(s), not necessarily English. Thus, complex, high-level English text on Australian eGovernment services can lead to comprehension issues for Chinese migrants, reinforcing the need to enhance language attributes to improve their user experience, a primary assertion of this thesis.

India - Languages

India has no national language (Constitution of India, 1949). Indo – Aryan and Dravidian are the two prominent language families. Hindi, from the Indo – Aryan family, is the official language of the Indian government as described in article 343 of the Indian Constitution and accounts for 1035 million speakers or 76.5% of the population as of 2018. English is also used in government, business and education as a legacy of British colonialism. The 2001 Census of India describes 122 major languages and 1599 other languages used within India. The literacy rate among the aged 15 years and older in 2011 was 69.3%. The male literacy rates at the same time were 78.88%, and the female rate was 60% (UNESCO, 2018). These literacy rates are lower than those of China.

India has a vast linguistic diversity, with no single national language and many languages spoken. Although Hindi and English are widely used, English proficiency varies widely among the population, and the overall literacy rate is lower than that of Australia and China. Indian migrants in Australia with limited English proficiency might encounter difficulties understanding and using English-only eGovernment services. This aligns with the thesis's emphasis on improving language attributes and culturally specific elements in eGovernment

services to ensure they are more accessible and user-friendly for users with diverse linguistic and cultural backgrounds.

Integration of Theory

Understandable and Readable Language Studies

There have been several studies that have explored the levels of understandable and readable language on eGovernment services. The studies generally found that eGovernment services had accessibility and usability issues, gaps in compliance with international standards and guidelines for website accessibility and usability, and low readability levels for provided content. Recommendations were made in the studies for improving the eGovernment services based on user testing and evaluation criteria based on international standards for usability, accessibility, and readability.

An important example of research into providing accessible, usable, understandable and readable eGovernment services is in an article titled ‘Evaluating the accessibility and usability of top Saudi eGovernment services’ by Al-Faries et al. (2013). This article evaluates the accessibility and usability of top Saudi eGovernment services. Al-Faries et al. (2013) aimed to assess these services’ user experience and identify areas for improvement in terms of accessibility and usability. The use of a national government’s electronic services used in Al-Faries et al. (2013) investigation is similar to that used in this thesis.

The research method used by Al-Faries et al. (2013) combined evaluation methods, including heuristic evaluation, cognitive walkthrough, and usability testing. The evaluation criteria were based on international standards and guidelines for website accessibility and usability. Similarly, usability testing and evaluation criteria are also used in this thesis.

The main findings of Al-Faries et al. (2013) were that the eGovernment services had some accessibility and usability issues, such as poor navigation, lack of clear instructions

and labels, and difficulty completing tasks. Al-Faries et al. (2013) also found gaps in the services' compliance with international standards and guidelines for website accessibility and usability. The study results provided recommendations for improving the accessibility and usability of eGovernment services for users.

A further notable example of research into providing accessible, usable, understandable and readable eGovernment services is made in ‘The accessibility of Moroccan public websites: Evaluation of three eGovernment websites’ by Boussarhan & Daoudi (2014).

This article evaluates the accessibility of Moroccan public websites with a focus on three eGovernment websites. The research aimed to assess the accessibility of these websites for users with disabilities and to identify areas for improvement. Although this study focuses on people with disabilities using eGovernment services, migrants from China and India may have similar difficulties whilst not being disabled.

Boussarhan & Daoudi (2014) used automated testing tools and manual testing to evaluate the accessibility of eGovernment websites. The evaluation criteria were based on international standards and guidelines for website accessibility, such as the Web Content Accessibility Guidelines (WCAG) 2.0.

Boussarhan & Daoudi (2014) found that the eGovernment websites had several accessibility issues, such as poor contrast, missing alternative text, and lack of keyboard navigation. Boussarhan & Daoudi (2014) also found that the websites had low compliance with international standards and guidelines for website accessibility. The study provides recommendations for improving the accessibility of Moroccan public websites for users with disabilities.

A helpful example of research into providing accessible, usable, understandable and readable eGovernment services is in ‘The accessibility, usability, quality and readability of Turkish state and local government websites: an exploratory study’ by Akgül (2019).

This article presents an exploratory study on the accessibility, usability, quality, and readability of Turkish state and local government websites. Akgül (2019) aimed to evaluate these websites' quality and compare the results between state and local government websites.

Akgül (2019) used a combination of evaluation methods, including automated testing tools, expert evaluations, and user testing. The evaluation criteria were based on international standards and guidelines for website accessibility, usability, quality and readability. The use of user testing to evaluate the usability of eGovernment services is also applied in this thesis.

Akgül (2019) found that state and local government websites had issues related to accessibility, usability, quality, and readability. Akgül (2019) also found some differences in the results between state and local government websites, with local government websites performing better in accessibility and usability. Still, state government websites generally perform better in quality and readability. The study recommends improving the overall quality of Turkish state and local government websites.

Another notable example of research into providing accessible, usable, understandable and readable eGovernment services is illustrated in 'Automated readability assessment for Spanish eGovernment information' by Morato et al. (2021).

This article discusses the use of automated readability assessment for Spanish eGovernment information. Morato et al. (2021) aimed to evaluate the readability of eGovernment information provided in Spanish and identify improvement areas. The approach used in this investigation regarding the evaluation of the readability of the text is similar to that used in this thesis.

Morato et al. (2021) used automated readability assessment tools to evaluate the readability of eGovernment information provided in Spanish. The study also analysed the readability using different readability formulas such as Flesch-Kincaid, Coleman-Liau, and Automated

Readability Index (ARI). Using the Flesch-Kincaid readability tests is also a feature of this thesis, as it indicates how difficult a passage written in English is to understand.

Morato et al. (2021) found that most eGovernment information provided in Spanish had low readability. Morato et al. (2021) also found that different readability formulas produced different results, with the Coleman-Liau formula generally producing the most favourable results. The study suggests that efforts should be made to improve the readability of eGovernment information in Spanish to make it more accessible to the general public.

Finally, a further helpful study into providing accessible, usable, understandable and readable eGovernment services can be seen in 'Assessing the usability, accessibility, and mobile readiness of eGovernment websites: a case study in India' by Agrawal, Kumar & Singh (2021).

This article presents a case study on the usability, accessibility, and mobile readiness of eGovernment websites in India. Agrawal, Kumar & Singh (2021) aimed to evaluate these websites' user experience and identify areas for improvement in terms of usability, accessibility, and mobile readiness.

Agrawal, Kumar & Singh (2021) used a combination of evaluation methods, including heuristic evaluation, user testing, and automated testing tools. The evaluation criteria were based on international standards and guidelines for website usability, accessibility, and mobile readiness. Agrawal, Kumar & Singh (2021) evaluated a sample of the top eGovernment websites in India. The selection of the top government websites in India is similar to the approach taken in this thesis. The Australian Government's jobactive digital service was chosen as it, too, is a top eGovernment service. It is a service where migrants can search and apply for jobs or find more information on their pathway to employment.

Agrawal, Kumar & Singh (2021) found that the eGovernment websites had several issues related to usability, accessibility, and mobile readiness. Agrawal, Kumar & Singh (2021) also found gaps in website compliance with international standards and guidelines for

website usability, accessibility, and mobile readiness. The study provides recommendations for improving the overall user experience of eGovernment websites in India.

WCAG 2.2 Recommendations for Improving Readability of web pages

WCAG 2.2 makes recommendations for improving the readability of web pages for users who do not speak the primary language of the content. These recommendations include providing translations of the content in multiple languages, machine-readable versions, clear and straightforward language, and definitions or explanations for any technical or specialised terms used in the content.

WCAG 2.2 also recommends providing a mechanism to change the language of the content and make it easy to understand by adjusting the text size, spacing, and contrast, alternative text for images, videos, and audio, and providing captions for multimedia content. WCAG 2.2 also recommends providing a mechanism for users to switch between different languages and a way to search for content in multiple languages.

Summary

The Australian Government must provide accessible information and services to all citizens, including those with disabilities, under the Disability Discrimination Act. The jobactive digital service is designed to meet the accessibility standards in the Web Content Accessibility Guidelines (WCAG) version 2.2, published in June 2021 by the World Wide Web Consortium (W3C). However, the guidelines primarily address the needs of people with disabilities, not those who may face language barriers, such as migrants from countries where English is not the first language. Language barriers can pose several challenges, such as cultural differences, limited language skills, and poor readability, and it is crucial to consider the needs of all users when designing and writing content for a digital service. WCAG 2.2

Section 3 sets out guidelines for creating understandable content written in clear and straightforward language and provides definitions for technical terms and summaries or transcripts for multimedia content. Migrants from China and India may struggle reading and understanding content due to unfamiliar words and complex sentence structures. While English is the national language of Australia, 8.1% of Australians speak another language, and 11% of overseas-born people who arrived in the past 25 years did not speak English well or at all in 2016.

The section also discussed several studies that have evaluated the accessibility, usability, and readability of eGovernment services. The studies found that eGovernment services had several issues related to accessibility, usability, compliance with international standards, and readability. The research methods used in these studies included evaluation methods such as heuristic evaluation, cognitive walkthrough, automated testing tools, expert evaluations, and user testing. The studies also provide recommendations for improving the accessibility, usability, and readability of eGovernment services. The article further notes that the findings of the studies are relevant not only for people with disabilities but also for non-disabled migrants.

Unusual Words (WCAG 2.2, Section 3.1.3)

This section discusses two related topics: the use of unusual words in eGovernment services and the challenges posed by idioms for second language learners. The first section provides clear and straightforward language on eGovernment services to ensure all users, including migrants with limited English proficiency, can understand the information. The second section explores the difficulties that idioms can pose for second language learners and the impact that this can have on their ability to communicate effectively in the target language. Together, these topics highlight the importance of accessibility and inclusivity in online communication, particularly in the context of eGovernment services and information.

Understandable text on an Australian eGovernment service is essential for local site users and migrants for whom English is their second language. Providing understandable text is essential as it would allow migrants to read and understand important information. A migrant’s misunderstanding of vital information may result in lost opportunities for financial assistance or employment options.

WCAG 2.2, Section 3.1.3 does not explicitly define "unusual words" in its guidelines. However, it recommends using clear and simple language and providing definitions or explanations for any technical or specialised terms used in the content, including words considered "unusual" or uncommon for most users. Additionally, it recommends providing summaries or transcripts for multimedia content to help users understand unusual words used in audio or video content.

WCAG 2.2 Section 3.1.3 provides explicit definitions for words or phrases likely to be unfamiliar to some of the website's users. This is important because it ensures that users with cognitive or learning disabilities can understand the website’s content. Additionally, providing definitions can also make a website more usable for users who are not familiar with the subject matter of the website or for users who have limited reading skills. WCAG 2.2 claims that providing definitions for unusual words can help to make the website more accessible and usable for a broader range of users; however, not using unusual words at all could make an eGovernment website more understandable.

Idioms

An idiom is a phrase or expression with a symbolic meaning that differs from the literal meaning of the individual words. Idioms are a type of figurative language that is commonly used in everyday speech and writing. They can add colour and interest to language and help convey meaning more concisely. However, idioms can be difficult for non-native speakers to understand because their symbolic meaning is unclear.

Some common idioms include "break a leg," which means "good luck," and "the ball is in your court," which means "it's your turn to take action." Idioms can be based on social or cultural references and vary widely from one language or culture to another.

Idioms can be difficult for second language learners because they often have meanings that cannot be inferred from the individual words that make up the phrase. They also may have cultural references that are not familiar to non-native speakers. Additionally, idioms can have multiple meanings depending on the context in which they are used, making them difficult to translate. This can make it challenging for second language learners to understand idioms' meanings and use them correctly in their speech and writing.

Various researchers have studied idioms in linguistics, psychology, and education. Linguists who study language and its structure and use have analysed idioms from various perspectives, including their syntax, semantics, and pragmatics. Psychologists have studied the cognitive processes involved in understanding and using idioms and have also explored the role of idioms in social communication and the development of language skills. Educators have focused on the challenges that idioms can pose for language learners and have developed strategies and materials to help learners understand and use idioms more effectively.

Many studies have investigated the use of idioms because they are commonly used in language and literature, and these studies have focused on the use of idioms in written

communication or language acquisition. However, very few research studies specifically used idioms in an eGovernment context.

Several studies have examined natural language processing (NLP) techniques, such as machine translation and text summarisation, in the literature around eGovernment communication (Khurana et al. 2023; Gambhir & Gupta, 2017; Allen, 2003). Within these studies, idioms have been briefly mentioned as posing problems for both machine translation processes and text summarisation processes rather than the problems that idioms may cause to those people who are second language learners.

For example, research into NLP where idioms are briefly considered is given in the study "Distributed Representations of Words and Phrases and their Compositionality" by Mikolov et al. (2013). This paper introduced the concept of word embeddings, which are distributed representations of words that capture their meaning and context. Word embeddings are now widely used in NLP tasks such as language modelling, machine translation, and text classification. One of the difficulties these researchers found was that in their presentation of a simple method for finding phrases in the text and showing that learning good vector representations for millions of phrases was possible, they encountered an inherent limitation and inability to represent idiomatic phrases. The difficulty at the NLP level demonstrated how important it is to reduce the use of idioms in an eGovernment service to improve NLP and the understandability of the information provided.

Understanding past research is required to understand the difficulties caused by using idioms by NLP researchers and second language learners.

An early attempt was made by Irujo (1986) to explain the difficulties that second language learners encounter when they come upon the use of idioms. Irujo (1986) examined the most relevant reasons why idioms are challenging to learn and pointed out the inadequacies of the teaching materials available in the mid-nineteen eighties. Before Irujo (1986), Cowie & Mackin (1975) proposed that to have a competent command of English; one must be familiar

with a wide range of idiomatic expressions. The ability to use idioms and to distinguish amongst them in context is essential to understanding the English language.

A few years later, Seidl (1978) and McMordie (1978) noted that while second language learners may aspire to have a native-like command of English, it was unnecessary for their daily lives. Seidl (1978) and McMordie (1978) found that idiomatic usage is so common in English that speaking or writing without idioms can be challenging. Irujo (1986) posited that the non-literalness of idioms made it difficult for second-language learners to comprehend. A second language learner's exposure to idioms can affect their ability to decode words, understand words and phrases or use context to aid understanding (Irujo, 1986).

Idioms are commonly used in digital service multimedia. The passive interaction that second language learners have with multimedia does not provide the type of contact necessary for learning a language (Irujo, 1986). These non-interactive encounters with multimedia give no opportunity for second language learners to negotiate the meaning of idioms or receive feedback on their use. Second-language learners may misunderstand the text provided without feedback and make poor decisions.

More recently, Zhu (2009) carried out a study that analysed the language problems in web localisation and found that if technical communicators (and in this instance, we can consider the Australian government's jobactive service as being technical communicators) were to write in English for a cross-cultural audience that they would need to be selective in their use of language. Zhu (2009) argued that many idioms and culturally specific words were untranslatable and that communicators should use appropriate language for cross-cultural audiences. Zhu (2009) also noted that technical communicators (such as Australia's eGovernment service, jobactive) should avoid jargon, slang, idioms, abbreviations, colloquialisms and vernacularisms in their digital communications. These types of unusual words create trouble for cross-cultural audiences because they do not possess the necessary language and social environment to understand the meaning of the words (Zhu, 2009). Zhu (2009) raised several concerns about using figurative idioms in digital services used by multiple cultures.

Zhu's (2009) main concern was that inexperienced technical communicators would more likely than not use figurative idioms of their own culture when writing in the target language. The figurative idioms often used animals or plants as the communication vehicle.

Unfortunately, people from different cultures have different interpretations regarding the properties of some animals. For example, Chinese people regard dragons as auspicious animals, but in English culture, they are considered violent and brutal. Zhu (2009) explained that such figurative idioms have a positive image in one culture. Still, a negative image of another might result in a miscommunication that could be inappropriate. Other mythical animals, such as the Phoenix or actual animals, such as bats and dogs, have different cultural meanings between the Chinese and English cultures. For example, the Phoenix in Chinese culture is associated with physical attractiveness and encouragement, whereas in English culture, the Phoenix is associated with longevity and new life. The Chinese regard dogs as menial, dirty and ferocious, whereas English cultures regard dogs as loyal and friendly.

Another example of the problems caused by using idioms is seen in Minkler & Chang (2013), who discussed the challenges and strategies for migration and health in community-based participatory research. Minkler & Chang (2013) discovered that the validated scale items they used in their research did not translate accurately into Chinese. Idioms used within the scale (the Centre for Epidemiological Studies Depression Scale), like 'butterflies in my stomach', were not understandable to migrant respondents. By removing the idiom, 'butterflies in my stomach', Minkler & Chang (2013) found that such a culturally and socially appropriate change resulted in more accurate responses to the questionnaire.

Similarly, other researchers such as Kohrt & Hruschka (2010) and Rasmussen et al. (2011) found that by eliminating the use of phrases whose meaning cannot be deduced from the meaning of the individual words, that is, idioms, comprehension of a text or

image is enhanced. Migrants, especially those learning a new language, may have difficulty understanding idioms because they are figurative expressions that have a meaning that is different from the literal meaning of the individual words. Idioms can be incredibly challenging for language learners because they are often culture-specific and may not have an equivalent in the learner's native language. For migrants learning a new language, understanding idioms can be a challenge because they are often not explicitly explained in language materials or lessons. In addition, idioms are often used in informal or colloquial language, which can be difficult for learners to understand even if they have a good grasp of formal language. To help migrants understand idioms, it can be helpful to provide explicit explanations or examples and to give learners opportunities to practice using idioms in various contexts or not use them when conveying important information.

The employment of idioms on a webpage has attracted several criticisms. A significant criticism revolves around the issue of accessibility. Users, particularly non-native language speakers or those unfamiliar with the specific idioms, such as Chinese and Indian migrants, may struggle to comprehend these idioms (Bernstein, 2013). This inaccessibility results in decreased user-friendliness of the content on the webpage.

Another criticism emerges from cultural diversities, as idioms could be understood differently among users from varying cultural contexts, potentially causing confusion or misunderstanding (Boers & Demecheleer, 2001). Additionally, idioms can sometimes be inappropriate or offensive, constituting another primary concern (Cornell, 1999).

The lack of clarity is another drawback of using idioms on a webpage. As idioms are often not straightforward, they may necessitate extra explanation or context for proper comprehension by the users (Hoffman & Kemper, 1987). Lastly, overreliance on idioms can introduce unnecessary complexity or confusion, impairing the content's comprehensibility (Gibbs, 1980).

Using idioms sparingly or not at all on a webpage is essential. If they are used, then digital service designers ought to ensure that they are used in a way that is appropriate, clear, and culturally understandable.

The following measures are commonly used in the literature to determine the comprehension of idioms. Self-report measures (e.g. rating scales, questionnaires) (Chao, 2020), reaction time measures (e.g. lexical decision task, sentence-picture verification task) (Estill & Kemper, 1982), accuracy measures (e.g. multiple-choice tests, fill-in-the-blank tests) (Nippold & Martin, 1989), eye-tracking measures (Siyanova-Chanturia, Conklin & Schmitt, 2011) and brain imaging techniques (e.g. fMRI, EEG) (Canal et al. 2017).

This thesis uses self-report measures to determine a migrant's comprehension of idioms in an Australian eGovernment service. Self-report measures were chosen as they provide direct insight into the individual's understanding of the text provided; the measure is easy to administer as an electronic questionnaire and can be done quickly and cost-effectively. Additionally, self-report measures can provide information on how the individual interprets and makes sense of the text. The self-report measure also can measure comprehension of idioms in a real-world context.

Reaction time measures, accuracy measures, eye-tracking measures and brain imaging techniques were not used as they did not offer the benefits that self-report measures offered and were considered inappropriate for use in an outdoor street-level environment where the self-report data was collected.

Summary

The section discussed the importance of using understandable language in Australian eGovernment services, particularly for migrants who are non-native English speakers. It suggested that the digital service eliminate idioms and jargon to ensure critical information is understood. The section defined idioms as figurative expressions whose meaning is unclear from the individual words that makeup the phrase. It explained the

difficulties that second language learners face when encountering them. The use of idioms can also pose challenges for natural language processing (NLP) techniques, such as machine translation and text summarisation, commonly used in eGovernment contexts. The section called for reducing the use of idioms on eGovernment services to improve their understandability and accessibility for a broader range of users.

Jargon

Effective communication is critical for conveying information to different audiences, including the general public, policymakers, patients, and colleagues in various fields. However, jargon can often hinder effective communication, particularly with those outside a specific field or culture. This section explores the impact of jargon on effective communication in the broader community and offers practical advice for avoiding jargon in different contexts. The section focuses on the challenges of jargon in specific fields such as medicine, aviation, and cultural communication. The section highlights the importance of avoiding jargon to enhance communication and provide strategies for overcoming language barriers. By examining the impact of jargon in different fields, the section underscores the importance of clear, accessible communication in achieving successful communication outcomes.

Jargon is the specialised language used by a particular group or profession. It typically consists of terms, phrases, and expressions specific to a particular subject or field; people outside that field may not understand that. Jargon can be found in various fields, including science, technology, business, and the arts. It is often used to convey complex concepts or ideas concisely and can be an essential tool for professionals to communicate with each other. However, jargon can also be misused or overused and can be a barrier to clear communication with people outside of the field or profession. It is generally recommended to use jargon sparingly and to provide explanations (in a glossary) or context when it is

necessary to use jargon in communication with people who are not familiar with the terms (Hoffmann & Worrall, 2004).

In the literature, various researchers have studied jargon in fields such as linguistics, sociology, and communication studies. Linguists have analysed jargon's structure and use and examined how it differs from other types of language (Biber, Conrad & Reppen, 1998). Sociologists have studied the role of jargon in shaping professional identities and creating boundaries within and between different groups and professions (Fournier, 2002). Communication researchers have explored the effects of jargon on communication and how it can influence power dynamics and access to information (Berkenkotter & Huckin, 2016).

In addition to these fields, researchers have also studied jargon in a wide range of disciplines, including education, psychology, and anthropology. Many of these researchers have focused on the challenges that jargon can pose for learners or non-experts and have developed strategies and materials to help people understand and communicate effectively with jargon.

Merriam-Webster's Dictionary describes there being three aspects of jargon; 1) jargon being described as "the technical terminology or characteristic idiom of a special activity or group", 2) jargon is also described as being an "obscure and often pretentious language marked by circumlocutions and long words", and finally, 3a) jargon is a "confused unintelligible language", 3b) a "strange, outlandish, or barbarous language or dialect", 3c) a "hybrid language or dialect simplified in vocabulary and grammar and used for communication between peoples of different speech".

The first serious discussions and analyses of jargon emerged during the 1960s. Goodman (1967) described how reading was a psycholinguistic process that required a reader, being led by the knowledge of the language (in this instance, English), to reconstruct and encode the message by correctly selecting syntactic and semantic cues through the process. Foreign English language learners encounter native language interference and unfamiliarity

with the code when jargon is used, which makes the reading process much more complex (Goodman, 1967). Colloquialisms and jargon make comprehension more difficult for culturally and linguistically diverse readers (Goodman, 1967, Yorio, 1971). Further difficulties for English as second language learners include the context in which a language was used and the unique dimensions of register variation that each language possess.

Wardhaugh (2002) presented a comprehensive review of socio-linguistics and summarised that the context in which a language was used affected how different people chose to communicate. For example, the choice of pronunciation, morphology (such as inflection, derivation and compounding), vocabulary, grammar and discourse would all change when individuals used language in different contexts.

Biber (1995) presented a comprehensive review of the dimensions of register variation, stating that these choices made by an individual gave rise to different varieties of language. The author described these varieties as unique speech patterns closely associated with varying situations, geographical locations or social groups. Examples within Australia of these unique human speech patterns may include; legalese, cricket terminology, Australian football commentaries, computing terminology, corporate terminology, science terminology, wine-tasting descriptors and medical terminology. Biber (1995) described how varieties of language associated with situational contexts are defined as registers within linguistics. Earlier, Biber (1988) indicated that registers could be defined based on variables, such as the roles and characteristics of the individuals, the social role relations among the individuals and the topic or purpose of the communication.

Linguistic theorists such as De Beaugrande (1991) proposed that language speakers could instinctively perceive the probability of particular word groups or phrases within given registers. De Beaugrande (1991) accordingly argued that an individual could speak of a scientific register of English. This register would mainly be used by scientists communicating about their field with their peers and students. The register is characterised, as described prior, by choice of pronunciation, morphology (such as inflection, derivation and

compounding), vocabulary, grammar and discourse. This document will specifically focus on the specialised vocabulary of a corporate register or corporate jargon. The Australian Government uses corporate jargon in their jobactive digital service. There is a possibility that culturally and linguistically diverse migrants whose second language is English may find it challenging to comprehend the utilisation of the different varieties of English registers presented to them in different situations.

Wardhaugh (2002) describes that any individual language user must be able to manipulate different language varieties in different situations. This practice of utilising different language varieties in different situations is called “code-switching” (Wardhaugh, 2002). Grupp and Heider (1975) analysed non-overlapping disciplinary vocabularies. They noted that jargon could provide a helpful vocabulary to aid scientists in representing mental schemas or conceptualising new facts to their peers. Jucks, Schulte- Löbbert & Bromme (2007) also argued that jargon provided a necessary toolset for scientists. Whereas Grupp & Heider (1975) and Jucks, Schulte-Löbbert & Bromme (2007) provide ample evidence that jargon can be of benefit to specific groups, it is unfortunate that no studies have been carried out on how the use of jargon, in particular on Australian Government service, may limit accessibility on government services by migrants whose first language is not English. The ability of such migrants to code-switch between different varieties of language in government service is not clearly understood.

In recent years, there has been an increasing amount of literature addressing the use of jargon in science and medical communication. Similar studies of jargon in the field of government communication are rare to find in the literature. An understanding of jargon in the areas of science and medicine may assist in recognising the importance of limiting the use of jargon in government service. Besley & Tanner (2011) posited that health and science regulators would benefit from learning to eliminate jargon from their communication. Baram-Tsabari & Lewenstein (2012) reported that the learning aspect, as described by

Besley & Tanner (2011), paid little attention to defining the goals learners should aim for in such training and how the realisation of these goals should be evaluated.

Hartz & Chappell (1997), Dean (2009) and Meredith (2010) all argued that to engage with a public audience effectively; scientists should transmit meaningful scientific ideas without the use of scientific jargon. Stableford & Mettger (2007, p.75) highlighted the need for communicators to eliminate jargon and use plain language within health literature. They stated, "…plain language embodies clear communication. While some mistakenly believe that the term means just using simple words, or worse, 'dumbing things down,' it refers to communications that engage and are accessible to the intended audience". Although the need to eliminate jargon had been identified, no standard measurement for the use of jargon existed.

Sharon & Baram-Tsabari (2014) attempted a preliminary quantification of the use of jargon in science communication. They found that there was no standard measurement for the use of scientific jargon. The authors proposed using a computational linguistic approach to provide such measurement. They were able to make such a proposal based on an analysis of transcripts from scientific TED Talks. Sharon & Baram-Tsabari (2014) found that scientists used less jargon when communicating with a lay audience than with peers. However, the jargon that they did use was not always less obscure. The authors believed they had laid the foundation for future evaluation of jargon within the scientific community. This foundation led to computer software development to identify jargon in written text.

More recently, Rakedzon et al. (2017) discussed the challenges and strategies for the provision of a standard with which to guide scientists in adjusting their communication with the public and policymakers. These researchers argued that it was difficult to avoid jargon because scientists were so highly specialised in their language. They developed a software program (the De-jargonizer12) for identifying jargon in written texts based on over ninety million words published on the BBC (British Broadcasting Corporation) website for three years from 2012. The authors conducted three mini-studies that were used to validate the

results of the new software program. The first mini-study involved a comparison and correlation with extant frequency wordlists found in scientific literature. The second mini-study was similar to that of Sharon & Baram-Tsabari (2014). This mini-study compared with prior research on jargon used in TED transcripts. Finally, the third mini-study used five thousand pairs of published research abstracts and lay reader summaries that described the same article from the journals PLOS (Public Library of Science), Computational Biology and PLOS Genetics. The researchers identified significant differences in jargon use between the published research abstracts and the lay reader summaries. They found that more jargon was used in academic abstracts than in lay summaries. Interestingly, although the lay reader summaries used far less jargon than the research abstracts, they did exceed the recommended amount for the public to understand.

Howard, Jacobson & Kripalani (2013) provided an in-depth analysis of medical physicians' use of clear verbal communication. The basis of their argument centred on their belief that low health literacy negatively affects processes and outcomes of care. They found that medical physicians did not consistently use communication techniques recommended for low-health literate patients and that they overestimated (a comparison of self-assessed communication with behaviours observed) the clarity with which they communicated during a patient encounter. Kripalani & Weiss (2006) and Weiss (2007) argued that to enhance medical provider communication with low-literate patients, the provider should avoid medical jargon and limit the information given to a patient at each visit. Martin & Nakayama (2014) noted that to diagnose problems and help patients understand complicated treatments, potentially confusing or difficult-to-understand medical jargon should be avoided during intercultural communication.

Anawati & Craig (2006) studied behavioural adaption within cross-cultural virtual teams. They found that of the 122 respondents spread throughout 17 different countries, the most ranked ‘limit use of slang and jargon’ as the most important criterion when adapting written communication to a different culture. Kagawa-Singer & Blackhall (2001) highlighted the

need to avoid medical or complex jargon when negotiating issues influenced by an essential culture in end-of-life care. The authors recommended the avoidance of complex jargon to eliminate any unnecessary physical, emotional or spiritual suffering by patients due to language barriers.

Jirwe, Gerrish & Emami (2009) mention the significant relationship between student nurses' experiences of communication and cross-cultural care encounters. They showed that the professional language nurses use could often be a barrier to understanding culturally and linguistically diverse patients. They identified a need for nurses to simplify complex terminology and avoid jargon.

Back et al. (2005) highlight the need to avoid medical jargon when approaching complex communication tasks in oncology. The authors believed that effective communication by physicians would improve patients' understanding of their illnesses. Their research advised physicians to avoid jargon, which would confuse patients.

Merritt & Maurino (2004) comprehensively reviewed the cross-cultural factors in aviation safety. Their research focused on situations where members of one culture encounter people or cultural elements from other cultures. They reported that the main challenge for English speakers was to remove all jargon from their professional communication to communicate English to those from non-English backgrounds successfully. They also reported that most Anglos are "mono-linguists who have never faced the challenge of communicating in a second or third language" (Merritt & Maurino, 2004, p.173).

When the central issue in cross-cultural human-computer interaction (HCI) design was examined, Bourges-Waldegg & Scrivener (1998) indicated that the main problem in cross-cultural HCI design was the usability issue relating to representational variations between cultures. The variations between cultures included colour, icons, symbols, pictures, jargon and abbreviations. These variations differ between cultures due to cultural factors such as language, taste and religion. The extant literature identifies that the use of jargon within a

cross-cultural context may obscure communication or confuse the receiver of such messages. The use of jargon on an Australian Government digital service can limit the usability of that service by migrants whose first language is not English.

Using jargon can present difficulties for second language learners because it often includes specialised vocabulary and phrases specific to a particular field or industry. This vocabulary and phrases may not be familiar to second language learners, making it difficult to understand the meaning of the text or conversation. Additionally, jargon can be idiomatic and not directly translatable, making it even more challenging for second-language learners to understand. The use of jargon can also make it difficult for second language learners to participate in conversations or discussions, as they may not feel comfortable using or understanding the specialised language. It can also create a barrier in communication and hinder the exchange of ideas and understanding.

Migrants, especially those learning a new language, may have difficulty understanding the jargon. For migrants learning a new language, understanding jargon can be incredibly challenging because it is not always explained in language materials or lessons and may not be familiar to them even if they have a good grasp of the general language. In addition to the language-related challenges that jargon can pose for migrants, there may also be cultural or social barriers to understanding the jargon. Migrants may be unfamiliar with the concepts or contexts referred to by jargon. They may not have the same familiarity or expertise with the field or profession as native speakers. To help migrants understand the jargon, it can be helpful to provide explicit explanations or examples and to give learners opportunities to practice using jargon in various contexts, or eGovernment communicators can make an effort to eliminate the use of jargon.

Various criticisms have emerged regarding the use of jargon on webpages, with issues surrounding limited accessibility, lack of clarity, overuse, the dichotomy of insiders versus outsiders, and misuse being central concerns.

Limited accessibility is a significant criticism. According to Jia, Pang & Liu (2021), using industry-specific or technical language can pose comprehension challenges for users unfamiliar with the subject matter or terminology. This complexity can render webpage content less accessible to many users.

The clarity of content can suffer due to jargon. Terranova et al. (2012) argue that industry-specific terms may not be precise or concise, necessitating extra explanation or context for users to understand the information.

Overuse of jargon is another area of criticism. LeBlanc et al. (2014) suggest that some websites overindulge in jargon, leading to unnecessarily convoluted or confusing content for users.

A sense of exclusivity or elitism can be unintentionally created by jargon, forming a divisive line between those familiar with the terminology and those who are not, as observed by Wu, Li & Wang (2019). This division can lead to feelings of alienation among users unfamiliar with the jargon.

Lastly, misuse of jargon is a significant concern. Adams et al. (1997) suggest that some websites might employ industry-specific terminology incorrectly or misleadingly. This practice can lead to confusion and misunderstandings, undermining the website's usability and credibility.

It is vital to use jargon sparingly on an Australian government webpage and ensure that it is used concisely and appropriately for the intended audience. It may be helpful to provide explanations or context to help users understand the terms being used or where vital information is presented, not to use jargon at all.

The following measures are commonly used in the literature to determine the comprehension of jargon. Self-report measures (e.g. rating scales, questionnaires) (Miller et al. 2022), reaction time measures (e.g. lexical decision task, sentence-picture verification task) (Marimuthu & Devi, 2012), accuracy measures (e.g. multiple-choice tests, fill-in-

the blank tests) (Warcup & Zimmerman, 2009), eye-tracking measures (Wijenberg, 2021) and brain imaging techniques (e.g. fMRI, EEG) (Harley, 2013).

This thesis uses self-report measures to determine a migrant's comprehension of jargon on an Australian eGovernment service. Self-report measures were chosen as they provide direct insight into the individual's understanding of the text provided; the measure is easy to administer as an electronic questionnaire and can be done quickly and cost-effectively. Additionally, self-report measures can provide information on how the individual interprets and makes sense of the text. The self-report measure also can measure comprehension of jargon in a real-world context.

Reaction time measures, accuracy measures, eye-tracking measures and brain imaging techniques were not used as they did not offer the benefits that self-report measures offered and were considered inappropriate for use in an outdoor street-level environment where the self-report data was collected.

Summary

This section discussed the challenges and strategies for scientists to adjust their communication with the public and policymakers. The authors developed the De-jargonizer software, which identifies jargon in written texts. They found that more jargon is used in academic abstracts than lay summaries and that even lay summaries often exceed the recommended amount of jargon for the public to understand.

The section also presented various studies highlighting the adverse effects of jargon in different contexts, such as in medical settings, cultural communication, and aviation safety. The use of jargon can limit the understanding of low-literate patients, culturally and linguistically diverse patients, and second-language learners and can create barriers to communication. The section recommended avoiding or limiting jargon to improve communication and understanding in these contexts.

Unusual Words Abbreviations, Initialisms, Acronyms (WCAG 2.2, Section 3.1.4)

Using abbreviations, initialisms, and acronyms can be a convenient way to shorten written language and save space. However, their overuse of digital services can create significant problems for users unfamiliar with the terms or with disabilities. This can lead to confusion, difficulty accessing information, and reduced usability. This section explores the guidelines set forth by WCAG 2.2, Section 3.1.4, which aims to ensure that website content is accessible and understandable for all users. The section also discusses the potential issues associated with using abbreviations, initialisms, and acronyms and why governments and other organisations must minimise their digital services to improve accessibility and usability for all users.

WCAG 2.2, section 3.1.4 deals with providing expansions or explanations for abbreviations, initialisms and acronyms likely unfamiliar to some of the website's users. This is important because it ensures that users with cognitive or learning disabilities or migrants whose first language is not English can understand the content of the digital service by providing the complete form of the abbreviations, initialisms or acronyms. Additionally, providing explanations can also make a digital service more usable for users unfamiliar with the subject matter of the service or users with limited reading skills.

WCAG 2.2 also advises not to use an abbreviation, initialism or acronym if it is not widely recognised and understood by the audience. The Australian eGovernment service, jobactive, uses abbreviations, initialisms and acronyms for its audience.

Using abbreviations, initialisms and acronyms on an eGovernment service can cause several difficulties for users, such as confusion, accessibility, localisation, searchability, maintenance, redundancy and consistency.

Confusion: Abbreviations, initialisms and acronyms can be confusing for users who are not familiar with the terms and their meanings. This can lead to frustration and difficulty navigating the website (Grange & Bloom, 2000).

Accessibility: Abbreviations, initialisms and acronyms can be difficult for users with disabilities, such as those who are visually impaired or have cognitive disabilities. They may be unable to understand or interpret the meaning of the abbreviation (Fandrych, 2007).

Localisation: Abbreviations, initialisms and acronyms may not be understood by users who speak languages other than the one used on the digital service. This can make it difficult for non-native speakers to access and use the service (Kadhim, Mahdi & Maktoof, 2022).

Searchability: Abbreviations, initialisms and acronyms can make it harder for users to find relevant information on the digital service, as they may not know the correct term to search for (Beall, 2008).

Maintenance: Abbreviations, initialisms and acronyms used in different ways or have different meanings in different contexts can create confusion among users and require more maintenance to clarify or update (Yuen & Rood, 2009).

Redundancy: Abbreviations, initialisms and acronyms can be redundant if the original phrase is already short, and it may not be necessary to use an abbreviation (Imre, 2022).

Consistency: Using abbreviations, initialisms and acronyms on an eGovernment service can be inconsistent, with some abbreviations spelled out and others not, leading to confusion for users (Spiteri, 2007).

The text content of a government service ought to be readable and understandable by all users. Migrants with English as a second or third language may have difficulty decoding abbreviations, acronyms or initialisms. They may also have difficulty using context to aid their understanding of abbreviations, acronyms and initialisms. The potential problems of ‘decoding’ and ‘using context’ may confuse some migrants. The confusion may cause

migrants to minimise their use of an eGovernment service, limiting their access to other government initiatives and employment opportunities.

An abbreviation is a shortened form of a written word or phrase used in place of the whole word or phrase. Bloom (2000) indicated that modern language favours simplicity. As many new words were long and cumbersome, it was necessary to simplify them for everyday use. Bloom (2000) traced the early use of abbreviations back to an early bureaucratic European empire, that of the Romans. Long inscriptions could be accommodated when working on parchment if common words were abbreviated. Caon (2016) studied the use of abbreviations, acronyms and initialisms and their use in medical physics and asserted that abbreviations were short forms of existing words designed to save time and use less space in scenarios where there is insufficient space to write the entire word.

The literature has generally defined initialism as an abbreviation formed from the first letter of each word in a phrase, pronounced one letter at a time, for example, "F.B.I." (HaCohen-Kerner, Kass & Peretz, 2013). Research on the use of initialisms has shown that they can improve reading speed and comprehension, as well as aid in the recall and recognition of information, compared to fully-spelled terms (Beres, 2007). Initialisms can also help to convey technical and specialised knowledge and reduce wordiness in writing. However, initialisms can also pose challenges for readers unfamiliar with the terminology, leading to potential confusion and misinterpretation (Stockwell & Minkova, 2001). As a result, it is often recommended to spell out the full term when first introducing an initialism and to provide an accompanying explanation or definition.

An acronym is a word formed from the initial letter or letters of each successive or significant part of a compound term (Wren & Garner, 2002). For example, an acronym is a word made from the first letters of a phrase, pronounced as a single word, like "NASA". Bloom (2000) identified the initial development of acronyms as North American. Bloom (2000) succinctly defined an acronym as condensing a word or phrase into a pronounceable initialism.

A study by Mirabela & Ariana (2009) comprehensively reviewed the use of abbreviations, initialisms and acronyms in business English. The authors suggested that abbreviations were used for a multitude of reasons. The first reason they gave was to avoid repetition. The second reason was to save space (presumably available writing space) and, finally, to conform to conventional language usage. They argued that linguists could not agree on the capitalisation or punctuation for many abbreviations, indicating no set rules for their formation or usage. Mirabela & Ariana (2009) concluded that it was not wise to abbreviate a written text unless there was good reason to do so, and only then if the writer knew that the reader could understand the abbreviation.

There are quite a few research studies on abbreviations, initialisms and acronyms. In recent years, most of these studies have focused on their use within the healthcare industry. Diamond (2005) studied the need for legibility and accuracy in medical documentation. Diamond (2005) found that using abbreviations abounded in healthcare and that the Nursing and Midwifery Council had stated that their use was unacceptable. Pakhomov, Perdersen & Chute (2005) reviewed abbreviation and acronym disambiguation in clinical discourse. They noted that many abbreviations and acronyms are ambiguous, and despite the many efforts to limit their use, they are still pervasive in clinical reports. Tokuda et al. (2008) examined the influence of medical jargon mixed with foreign terminology in the Japanese clinical environment. The results from the 3090 respondents concluded that Japanese physicians should consider the unique medical situation in which foreign terminology and abbreviations are used in Japan and that physicians should try to educate patients with those foreign terms and abbreviations. Other industries, such as the information technology (IT) industry, also have concerns with the growing use of abbreviations. Choong, Plocher & Rau (2005) have proposed that those involved with cultural design for IT products and services should not use abbreviations. They argued that few abbreviations are truly international in their meaning and that some languages, such as Chinese and

Hindi, do not have a concept of abbreviations. This thesis examines whether Chinese and Indian migrants find using abbreviations on an Australian eGovernment service understandable.

Most of the research about the use of abbreviations, initialisms and acronyms so far has tended to focus on medical language systems, patient safety and clinical practice (Liu, Lussier & Friedman, 2001; Nadkarni, Chen & Brandt, 2001).

Various researchers in other fields, such as linguistics, psychology, and communication studies, have carried out the remaining studies into the use of abbreviations, initialisms and acronyms. Linguists have analysed the structure and use of abbreviations and examined how they are formed and change over time (Nasir & Al-Ghizzy, 2019). Psychologists have studied the cognitive processes involved in understanding and using abbreviations and have explored the role of abbreviations in communication and language development (Hales, Williams & Rector, 2017). Communication researchers have focused on how abbreviations are used in different contexts, such as speech and writing, and have examined the effects of abbreviations on communication and understanding (Anamaria-Mirabela & Monica-Ariana, 2014).

The following measures are commonly used in the literature to determine the comprehension of abbreviations, initialisms and acronyms. Self-report measures (e.g. rating scales, questionnaires) (Durkin, Conti-Ramsden & Walker, 2010), reaction time measures (e.g. lexical decision task, sentence-picture verification task) (Landgraf et al. 2012), accuracy measures (e.g. multiple-choice tests, fill-in-the-blank tests) (Wass et al. 2008), eye-tracking measures (Bol et al. 2016) and brain imaging techniques (e.g. fMRI, EEG) (Coleman et al. 2007).

This thesis uses self-report measures to determine a migrant’s comprehension of abbreviations, initialisms and acronyms found on an Australian eGovernment service. Self-report measures were chosen as they provide direct insight into the individual's understanding of the text provided; the measure is easy to administer as an electronic

questionnaire and can be done quickly and cost-effectively. Additionally, self-report measures can provide information on how the individual interprets and makes sense of the text. The measure also has the benefit of measuring comprehension in a real-world context.

Reaction time measures, accuracy measures, eye-tracking measures and brain imaging techniques were not used as they did not offer the benefits that self-report measures offered and were considered inappropriate for use in an outdoor street-level environment where the self-report data was collected.

Migrants, especially those learning a new language, may have difficulty understanding abbreviations, initialisms and acronyms because they are shortened words or phrases used to save time or space. Abbreviations, initialisms and acronyms can be incredibly challenging for language learners because they are often not explicitly explained in language materials or lessons and may not be familiar to them even if they have a good grasp of the general language. In addition, abbreviations, initialisms and acronyms can vary widely from one language or culture to another and may not have an equivalent in the learner's native language.

To help migrants understand abbreviations, initialisms and acronyms, it could be helpful to provide explicit explanations or examples and to give learners opportunities to practice using abbreviations, initialisms and acronyms in various contexts. It can also be helpful to provide resources or guidance on navigating and understanding the abbreviations commonly used in different fields or professions. It is generally recommended to use abbreviations, initialisms and acronyms sparingly in formal writing and to spell out words in full unless the reader is familiar with the abbreviation.

Summary

WCAG 2.2, section 3.1.4, recommends explaining abbreviations, initialisms, and acronyms on a digital service to ensure that users can understand the content, particularly those with cognitive or learning disabilities or migrants whose first language is not English. Using

abbreviations, initialisms, and acronyms can cause confusion, accessibility, localisation, searchability, maintenance, redundancy, and consistency problems. The Australian eGovernment service, jobactive, uses abbreviations, initialisms and acronyms for its audience, which can limit access to government initiatives and employment opportunities for migrants. Abbreviations are shortened forms of a written word or phrase used in place of the whole word or phrase. At the same time, initialisms are an abbreviation formed from the first letter of each word in a phrase, and acronyms are words formed from the initial letter or letters of each of the successive parts or significant parts of a compound term.

Reading Level (WCAG 2.2, Section 3.1.5)

Readability formulas are tools used to measure the difficulty of written text and ensure that it is accessible to a broad audience. Several widely used readability formulas include the Gunning-Fog Index (Gunning, 1952), the Cloze Procedure (Taylor, 1953), and the SMOG Index (Mc Laughlin, 1969). The Gunning-Fog Index, which has been widely used since its development in 1952, calculates the readability of a text based on the average sentence length and the percentage of complex words. On the other hand, the Cloze Procedure, developed by Taylor in 1953, proposes using a deletion test to measure the difficulty of a text based on an individual's comprehension. Meanwhile, the SMOG Index, developed by McLaughlin in the 1960s, estimates the education level required to understand a text based on the number of polysyllabic words it contains. While each formula has its strengths and weaknesses, their widespread use in business, government, and educational settings underscores their importance in ensuring that written materials are accessible to a broad audience.

WCAG 2.2 does not explicitly define "reading level" in its guidelines. WCAG 2.2, Section 3.1.5 deals with providing content that can be understood by users with a lower reading level. This is important because it helps to ensure that users with cognitive or learning

disabilities can access and understand the content of the service. By providing content at a lower reading level, Australian eGovernment services can help to make the text more accessible and usable for a broader range of users, such as those who have limited reading skills, are non-native speakers such as Chinese and Indian migrants, or are not familiar with the subject matter of the service.

WCAG 2.2 recommends using a readability test to assess the content's difficulty level, such as the Flesch-Kincaid Readability Test, which can give a reading grade level score.

This thesis argues that the Australian Government should provide text that is easy to read and understand on their jobactive digital service by recently arrived migrants. In the literature, readability measures the ease with which a reader can understand a written text. Dubay (2004) defines readability as making one text easier to read than another. Klare (1963) preferred to define readability in terms of understanding and comprehension due to the writing style. McLaughlin (1969) explained that readability was "the degree to which a given class of people find certain reading matter compelling and comprehensible". A readability level set beyond the capabilities of recently arrived migrants may cause them not to read or not understand important information. It is a requirement set by the Australian Government that all jobseekers who receive government financial assistance must use the jobactive digital service to search for and apply for employment opportunities. These requirements may not be successfully fulfilled if recently arrived migrants cannot easily read and understand the text provided. Such a failure may lead to loss of financial assistance and employment opportunities.

Readability refers to the ease with which a reader can understand a text (DuBay, 2004). A text is considered more readable if it is easy for the reader to understand and follow the ideas presented (Klare, 1974). Factors that can affect readability include the complexity of the language and sentence structure and the organisation and presentation of the information (Oakland & Lane, 2004).

In the literature, the following researchers have constructed measures commonly used to determine the reading level of text. Researchers such as Rudolf Flesch (1948), who developed the “Flesch Reading Ease Score”, Edgar Dale and Jeanne Chall (1948) developed the “Dale-Chall Readability Formula”, and later in 1995, they developed the “New Dale-Chall Readability Formula”, Robert Gunning (1952) who developed the “Gunning-Fog Index”, Wilson Taylor (1953) who developed the “Cloze Procedure”, G. Harry McLaughlin (1969) who developed the “SMOG Index”, Flesch (1948) and Kincaid (1975) who developed the “Grade Level”, have all made significant contributions to the study of readability.

Flesch Reading Ease Score

Rudolf Flesch (1948) developed the "Flesch Reading Ease Score", which is widely used in education to measure the complexity of texts. The Flesch Reading Ease Score measures the readability of written text based on the number of syllables per word and words per sentence. It gives a score that indicates the text’s difficulty level, with a lower score indicating more accessible text and a higher score indicating a more complex text. The formula is commonly used to assess the readability of educational materials, legal documents, and other written content that needs to be understandable by a wide range of people. The formula is:

Count words, syllables, and sentences in three 100-word passages.

Reading Ease = 206.835 – 84.6 (total syllables/total words) – 1.015 (total words/total sentences)

Results fall between 1 and 100, and the researcher looks it up on a table (low numbers mean hard reading level; 64 is considered plain English).

In the literature, the Flesch Reading Ease Score has received criticism for its limitations in measuring readability.

One criticism is that the formula does not account for content complexity (Graveel & Fribourg, 1987). The Flesch Reading Ease Score only considers sentence length and syllable count, ignoring other factors that can make text difficult to understand, such as the complexity of the vocabulary, sentence structure, and subject matter.

Another criticism argues that the formula relies on word and syllable counts (Friedman & Hoffman-Goetz, 2006). The formula's accuracy depends on accurate word and syllable counts, which can be challenging to obtain with 100% accuracy, especially in cases where words have multiple meanings or unclear syllable count rules.

The Flesch Reading Ease Score does not account for cultural differences (Gazni, 2011). The Flesch Reading Ease Score was developed with a US audience in mind. It may not apply to other cultures or languages where sentence structure, vocabulary, and syllable counts can differ.

The Flesch Reading Ease Score does not account for the reader's background (Begeny & Greene, 2014). The formula assumes that the reader has a certain level of education and prior knowledge, but this may not always be the case, making it difficult to determine the actual difficulty level for a particular reader.

Finally, the Flesch Reading Ease Score does not account for stylistic choices (Tan et al. 2016). The formula is based on mathematical calculations but does not consider the writer's stylistic choices, such as humour, irony, or figurative language, which can affect the readability of the text.

Dale-Chall Readability Formula

The Dale-Chall Readability Formula is designed to measure children's difficulty with texts. The formula is a widely used method to determine the difficulty level of a text for English-language learners or people with lower reading skills. It uses a list of 3000 words, known as

the "Dale-Chall Word List," that are considered easy for most English-speaking people to read and understand. The formula considers the number of words in a passage, the number of complex words (words not on the Dale-Chall Word List), and sentence length to calculate a readability score, which can then be used to determine the grade level of the text. A lower score indicates that the text is easier to read, while a higher score indicates that the text is more complicated.

The primary uses of the Dale-Chall Readability Formula are found in education, government, marketing and healthcare. In education, the Dale-Chall Readability Formula is used to assess the difficulty level of school textbooks, reading materials, and other educational resources to ensure that they are appropriate for students of different ages and reading abilities (Lee & Belden, 1966). Government agencies use the formula to evaluate the readability of documents and forms, such as tax, health insurance, and voting materials, to ensure they are accessible to the general public (McTaggart, 1962). Marketing businesses use the formula to evaluate the readability of advertisements, brochures, and other promotional materials to ensure they are understandable by the target audience (DuBay, 2008). The healthcare industry uses the formula to evaluate the readability of patient education materials, such as prescription drug labels, discharge instructions, and health information brochures (Kasabwala et al. 2013).

The Dale-Chall readability formula has been widely used but criticised for several reasons. The main criticisms are that the formula has a limited word list, that it ignores context, and has an overreliance on sentence length.

The Dale-Chall formula uses a limited list of 3,000 "easy" words. However, this list may not accurately reflect the vocabulary of all English speakers, especially those with a more limited vocabulary or non-native English speakers (Glass & Cook, 1990).

The Dale-Chall formula only considers the difficulty of individual words and does not consider the context in which they are used (Rawian, 2019). This can lead to a misleading

readability score, as a passage may contain many easy words but still be challenging to understand due to complex sentence structures or unfamiliar concepts.

The Dale-Chall formula places a heavy emphasis on sentence length, which can lead to a misleading score for short, dense passages or passages with long, complex sentences (Bryant, 2019).

New Dale-Chall Readability Formula

The New Dale-Chall Readability Formula is an updated version of the Dale-Chall formula. The new formula is a method used to estimate the difficulty of reading a written text. It is based on the Dale-Chall formula, developed in the 1940s and measures readability by counting the number of complex words in a text and comparing that to the total number of words. The "New" version of the formula updates and improves the original Dale-Chall formula by incorporating more modern insights into what makes the text easy or challenging to read. The New Dale-Chall formula is widely used in education and literacy research and in developing reading materials for children and adults with limited reading skills.

The exact formula for the New Dale-Chall readability formula is proprietary and not publicly available. The formula generally works by analysing the text to determine the number of difficult words, which are words that are not found on a list of common, easy-to-read words. This list of common words is updated and expanded periodically to reflect changes in the English language. The formula then calculates a score based on the number of difficult words and other factors, such as sentence length and structure. This score is then used to estimate the text's overall readability, with a higher score indicating a higher difficulty level.

The New Dale-Chall formula is typically accessed through specialised software or tools, such as reading assessment programs or online readability calculators. These tools analyse

a given text and use the formula to generate a readability score, which can then determine the text's estimated difficulty.

The New Dale-Chall formula has its strengths and limitations and has been subject to some criticism. Some of the main criticisms include having a limited word list, being inaccurate with technical texts, not considering text context, and not considering cultural differences.

The New Dale-Chall formula relies on a list of common, easy-to-read words to determine the difficulty of a text (Pruitt, 2022). This list may not accurately reflect the words people find challenging, as it may exclude words commonly used in specific contexts or fields of study. Another criticism of the New Dale-Chall formula is that it may not accurately assess the readability of technical texts that contain many specialised terms and jargon (Wang, 2016). Additionally, the New Dale-Chall formula does not consider the text's context, such as the reader's prior knowledge or interest in the topic. Finally, the New Dale-Chall formula assumes that all English-language text is equally tricky for all readers, regardless of their cultural background, which may not always be accurate (Greenfield, 2004).

Gunning-Fog Index

A widely used measure of readability is the Gunning-Fog Index. The Gunning-Fog Index is a measure of the readability of written text. It was developed by Gunning in 1952 and is calculated based on the average sentence length and the percentage of complex words (words with three or more syllables) in a text. A higher Fog Index indicates that the text is more difficult to read and understand, while a lower Fog Index indicates that the text is easier to read. The Gunning-Fog Index is commonly used in business, government, and educational settings to assess documents' readability and ensure that written materials are accessible to a broad audience.

The formula for the Gunning-Fog Index is:

Gunning-Fog Index = 0.4 * (Average Sentence Length + Percentage of Complex Words)

Where:

Average Sentence Length = Total Number of Words in Text / Total Number of Sentences

Percentage of Complex Words = (Number of Complex Words / Total Number of Words) * 100

Complex words are defined as words with three or more syllables. The Gunning-Fog Index is calculated by adding the average sentence length and adding it to the percentage of complex words in the text and then multiplying the result by 0.4. The resulting number is the Gunning-Fog Index, with a higher number indicating a higher level of difficulty in reading and understanding the text.

The Gunning-Fog Index has been widely used but has also been criticised for several reasons, including a simplistic calculation, difficulty with long words, an inadequate reading level assessment, and a lack of sensitivity to the subject matter.

The Gunning-Fog Index only considers the average sentence length and the percentage of complex words. It does not consider other factors impacting readability, such as word choice, paragraph structure, and text layout (McAdams, 1992).

The Gunning-Fog Index considers any word with three or more syllables complex, even if the word is commonly used and easily understood. This can result in an overly high Fog Index for a text that is easy to read (Bogert, 1985).

The Gunning-Fog Index provides a rough estimate of readability, but it may not accurately reflect the reading level of the target audience (Cho & Kim, 2005).

The Gunning-Fog Index does not consider the specific subject matter of a piece of text, which can impact readability (Rezaei, 2000). For example, a technical document may contain many complex words, but the target audience may still be able to understand the text easily.

Cloze Procedure

A significant researcher through this period was Taylor, who in 1953 developed the Cloze Procedure, which he proclaimed to be a new tool for measuring readability. He found that classic readability formulas could be improved upon. He argued that the measurement of words alone was not the best measure of difficulty in determining the readability of text but rather how those words related to one another. An individual's comprehension of a text is essential in measuring readability. He proposed using a deletion test that he called a Cloze test. These tests were based on the theory that readers can better fill in missing words as their cognitive reading skills develop. A Cloze test consists of a short paragraph where every nth word is deleted. For example, every sixth word in the paragraph is deleted. McCray et al. (2016) conducted recent research using eye tracking on participants whilst completing a Cloze test.

The authors believe that participants with lower reading skills are more likely to concentrate on the meanings of the words that immediately surround the deleted word in the text. In comparison, participants with higher reading skills use more global information in selecting a word to fill a deletion in the text. The introduction of the Cloze test allowed readability researchers to test the properties of text and readers' abilities with far greater accuracy than was previously available. Zinkhan & Martin (1983) used the Cloze test when they measured audience characteristics in their paper, where they introduced two copy-testing techniques. The first of the copy-testing techniques was the cognitive complexity test, and the second technique was the Cloze test. The authors argued that the Cloze test was superior when compared to other tests, such as Gunning's Fog Index or the Dale-Chall formula because the resultant score gave an indication of a reader interacting with the text rather than that interaction being based on a formula comprised of sentence length or syllables within words. According to Dubay (2004), the Cloze test became very popular as a

research tool because it complemented conventional reading formulas and was suitable for measuring participants' reading comprehension with varying abilities.

SMOG Index

McLaughlin (1969) developed the SMOG Index in the 1960s, building on the research of Thorndike. SMOG (Simple Measure of Gobbledygook) is a readability that calculates the readability of a text by determining the number of polysyllabic words and then using that number to estimate the education level required to understand the text. The SMOG Index is calculated by counting the number of polysyllabic words (words with three or more syllables) in a sample of 30 sentences. The square root of the number of polysyllabic words is taken, and three is added to the result. The result gives an estimate of the number of years of education required to understand the text, which is considered the "grade level" of the text. For example, a SMOG score of 8 indicates that a text is written at an 8th-grade level, and a person with eight years of education is expected to understand it easily.

The SMOG Index has been widely used but criticised for several reasons. One criticism of the SMOG Index is that it does not consider the context in which words are used. For example, a word like "contradictory" may be considered difficult according to the SMOG Index, but it may not be difficult to understand if it is used in a context where its meaning is clear (Zamanian & Heydari, 2012).

Another criticism of the SMOG Index is that it relies heavily on the number of polysyllabic words in a text, which may not be a good indicator of the overall complexity of the text. For example, a text with many simple words may still be challenging to understand if it is poorly organised or uses complex concepts (Zhou, Jeong & Green, 2017).

A final criticism of the SMOG Index is that it may not be accurate for texts written in languages other than English, as it was developed specifically for English texts. This means that it may not accurately measure the readability of texts in other languages (Klare, 1974).

Flesch-Kincaid Grade Level Formula

Later, Flesch-Kincaid (1975) developed the Flesch-Kincaid Grade Level Formula. The Flesch-Kincaid Grade Level Formula is a readability formula that estimates the grade level needed to comprehend a text. The formula is based on two measures, the average sentence length and the average number of syllables per word. The formula combines these two measures into a single score corresponding to a U.S. grade level.

The formula involves counting words, syllables, and sentences in three 100-word passages.

Grade Level = 0.39 (total words/total sentences) + 11.8(total syllables/total words) – 15.59

The average sentence length is calculated by dividing the total number of words by the total number of sentences. The average number of syllables per word is calculated by dividing the total number of syllables by the total number of words. The resulting score indicates the estimated US grade level required to comprehend the text. A score of 8.0 indicates that an average 8th grader can understand the text, while a score of 11.0 indicates that the text is appropriate for an 11th grader.

The Flesch-Kincaid formula is used in various applications such as document analysis, content creation, and language education. It helps writers and content creators to ensure that their material is written in a way that is easy to understand for their intended audience and helps educators and language learners to gauge their progress and determine the difficulty level of the materials they are studying.

There are some criticisms of the Flesch-Kincaid Grade Level Formula in the extant literature. Some researchers have argued that the formula lacks cultural sensitivity, has limited scope, gives an inaccurate assessment of readability, is biased towards short sentences and simple words and is inadequate for non-English languages.

The Flesch-Kincaid Grade Level formula assumes a Western reading and writing style, which may not accurately reflect the complexity of texts in other cultures (Boulos, 2005).

The formula only measures the readability of a text based on sentence length and word complexity, ignoring other factors such as writing style, subject matter, and audience (Dalton & Smith, 2012).

The formula may not always accurately predict the actual reading level of a text. For example, a text written straightforwardly with simple words may still be challenging to understand if the subject matter is complex (Neuhoff et al. 2016).

The formula rewards texts with short sentences and simple words, which may not necessarily result in more readable or accessible writing (Lehrman & Schnure, 2019).

The formula is designed for English text and may not be applicable or accurate for other languages (Sazzed, 2022).

Microsoft Word

Microsoft included a readability tool in Microsoft Word to help users improve the readability and clarity of their written documents. The readability tool uses various algorithms to analyse the text in a document and provide suggestions for improving its readability, such as by suggesting shorter sentences, simpler words, and a more active voice. This can be particularly useful for writers who want to ensure that their documents are easy to understand for a broad audience, including those who may not be native speakers of the language or who may have reading difficulties.

In addition to helping users improve the readability of their documents, the readability tool can also be used to check the complexity of the language in a document and ensure that it is appropriate for the intended audience. This can be useful for writers who want to ensure that their documents are accessible and understandable to all readers.

Including a readability tool in Microsoft Word reflects the importance of clear and effective communication in written documents and the recognition that a document's readability can significantly impact its effectiveness.

Microsoft uses several algorithms to analyse the text in a document and provide suggestions for improving its readability. Microsoft's algorithms include the Flesch Reading Ease Score, the Flesch-Kincaid Grade Level and the Fog Index.

Measures used in this Thesis

This thesis uses the Flesch Reading Ease Score and the Flesch-Kincaid Grade Level to determine the text's current readability and grade level on the Australian Government's jobactive digital service. These formulas are also used to determine the readability and grade level of the newly rewritten text offered to Chinese and Indian respondents as part of this thesis. The Flesch Reading Ease Score and the Flesch-Kincaid Grade Level were chosen because these measures provide a quantitative evaluation of the ease or difficulty of reading a text. The Flesch Reading Ease Score ranges from 0 to 100, with higher scores indicating text that is easier to read, while the Flesch-Kincaid Grade Level assigns a U.S. grade level to text, with lower grades indicating text that is easier to read. This type of information helps compare the readability of different texts.

This thesis uses self-report measures to determine a migrant's understanding of the text on an Australian eGovernment service. It also measures the time it takes for a migrant to read the text at an easy and challenging readability level.

Self-report measures were chosen as they provide direct insight into the individual's understanding of the text provided; the measure is easy to administer as an electronic questionnaire and can be done quickly and cost-effectively. Self-report measures can also

provide information on how the individual interprets and makes sense of the text. The measure also has the benefit of measuring comprehension in a real-world context.

The measure of time was used to assess a reading task as it is a way to determine the efficiency with which a reader can comprehend a text. Time can be a valuable indicator of a text's difficulty level and help identify areas needing improvement.

Accuracy measures, eye-tracking measures and brain imaging techniques were not used as they did not offer the benefits of self-report measures. They were considered inappropriate for use in an outdoor street-level environment where the self-report data was collected.

Summary

This section discussed the importance of providing content easily understood by users with lower reading levels, particularly those with cognitive or learning disabilities and non-native speakers. The Australian Government's jobactive digital service is used as an example, as it requires users to read and understand the provided text to fulfil the requirements for government financial assistance and employment opportunities. The Flesch Reading Ease Score is one of several methods used to measure the complexity of the text and assess its readability. However, the formula has limitations, such as not accounting for content complexity, cultural differences, and the reader's background.

Also discussed were the Gunning-Fog Index, Cloze Procedure, and SMOG Index are readability formulas used to assess the ease of reading and comprehension of written texts. The Gunning-Fog Index is based on the average sentence length and the percentage of complex words in a text. The Cloze Procedure is a test where every nth word in a paragraph is deleted to measure comprehension. The SMOG Index calculates the grade level required to understand a text based on the number of polysyllabic words. While these readability formulas have been widely used, they have also been criticised for their limitations in assessing readability and comprehension.

Icons

This section discusses the use of icons in the context of the Australian eGovernment service, highlighting the potential benefits and challenges of using icons in visual communication. Icons can enhance the usability of services by providing a visual representation of concepts or actions that may be difficult to understand using text alone. However, using icons carefully and appropriately is vital to avoid confusion or unclear communication. The text also discusses the cultural implications of using icons, as interpretation and meaning can vary widely across cultures, and provides recommendations for selecting culturally appropriate icons to ensure accessibility for a diverse audience. The use of cultural icons on eGovernment services has been studied by researchers from various disciplines, including linguistics, psychology, and communication studies, and this growing body of literature is discussed in the text.

Using icons on an Australian eGovernment service can enhance usability by visually representing concepts or actions that may be difficult to understand using text alone (Knight, Gunawardena & Aydin, 2009). Icons can be a valuable tool for conveying information clearly and concisely. They can be helpful for users who may not be familiar with the specific idioms, jargon, or abbreviations used in the service (Cerulo, 1988).

It is crucial to use icons carefully and appropriately, as they can also be confusing or unclear if used excessively or if the user is unfamiliar with them (Bourges-Waldegg & Scrivener, 1998). Using icons in conjunction with text is generally recommended rather than relying solely on them to convey information (Islam, 2015). This can help to ensure that the information is understood by a broad audience, including users who may not be familiar with the specific icons being used.

In visual communication, icons are small graphic symbols or images used to represent concepts, actions, or objects. Icons are commonly used in interface design, such as software applications or websites, to visually represent a concept or action that users can easily

understand (Barry, 1997). They can help convey information clearly and concisely and can be used to supplement or enhance the use of text.

Icons can be designed in various styles and be simple or more complex, depending on the intended use. Some familiar icons include navigation icons, used to help users move around a website or application, and action icons, representing actions that users can take, such as printing or saving a document. Icons can also represent objects or concepts, such as a trash can icon to represent the action of deleting something.

The use of icons in visual communication can have cultural implications, as the interpretation and meaning of icons can vary widely from one culture to another (Würtz, 2005). Icons that are widely understood and accepted in one culture may be confusing or meaningless to users in another culture (Würtz, 2005). This can create barriers to understanding and access for users unfamiliar with the specific icons.

It is also essential to consider the cultural and social context in which the icons will be used and to be aware of any potential cultural or social sensitivities that may be relevant (Fan et al. 2020). Using culturally appropriate and respectful icons can help enhance the usability and effectiveness of visual communication for a diverse audience (Fan et al. 2020).

Various researchers have studied the use of cultural icons on eGovernment services in fields such as linguistics, psychology, and communication studies. Linguists have analysed the structure and use of icons on eGovernment services and have examined how they are interpreted and used in different cultures (Cheng, 2017). Psychologists have studied the cognitive processes involved in understanding and using icons on eGovernment services and have explored the role of icons in communication and language development in this context (Forsythe, 2011). Communication researchers have focused on how icons are used in eGovernment services and have examined the effects of icons on communication and understanding across cultures (Olson, 2007).

Researchers in various disciplines, including anthropology, sociology, and education, have also studied the use of cultural icons on eGovernment services. Many of these researchers have focused on the challenges that icons can pose for learners or non-experts and have developed strategies and materials to help people understand and use icons more effectively on eGovernment services in cultural contexts.

A growing body of literature is developing around the cultural use of icons. Iconography is the study of identifying, describing and interpreting the content of images. The aspects of the images that are studied include composition and detail. A second meaning for the term iconography is the study of religious images. This definition does not apply to this thesis. Choong & Salvendy (1998) discussed how computer systems use icons to represent objects of interest. Most icons on computer systems are either pictorial or verbal. Icons can be either pictorial, text icons, or a combination of picture and text. A migrant whose first language is not English may find interpreting the icons used on Australian eGovernment services difficult. They may find it difficult because the picture may not be culturally appropriate, and their level of English may be too low to understand.

Choong & Salvendy (1998) surveyed 30 American and 30 Chinese respondents. All respondents were undergraduates of Purdue University. These researchers used a laptop computer to conduct their experiments. Their results indicated that Chinese respondents performed better when provided with a pictorial icon. Barber & Badre (1998) argued that of the many factors employed on a webpage, such as colours, fonts, language, and flags, icons were just as important in affecting how a user interacts with the digital service.

Luna, Peracchio & deJuan (2002) suggested that web designers should use culture- specific content for worldwide visitors of websites. Icons should suit a visitor's culture to enhance a user’s optimal navigation experience in a cultural context. George et al. (2010) identified cultural design requirements for an Australian indigenous website. They found that icons and text were significant factors determining a user’s cultural website usage.

Further studies focusing on using icons include Brugger (1990), who determined that international icons were not necessarily understood globally.

Various criticisms have surfaced about the use of icons on webpages. The key issues identified include lack of standardisation, limited accessibility, absence of context, overuse, cultural variations, and inconsistency in usage.

One of the main criticisms is the absence of standardisation in the representation of icons. Denman-Maier & Parycek (2003) noted that different icons often depict similar concepts or actions, leading to user confusion and potential misunderstandings.

Another critique targets the accessibility of icons, particularly for users with visual impairments. Denman-Maier & Parycek (2003) argue that these users might struggle to see or interpret the icons, limiting the website's usability for this demographic.

The lack of context surrounding icons is a further issue, with Feldman (2006) highlighting that without accompanying text or cues, users may struggle to comprehend the icon's purpose or meaning.

The overuse of icons is another prevalent criticism. Galitz (2007) suggests that excessive use of icons can result in cluttered and visually chaotic pages, impeding easy navigation for users.

In addition, cultural differences can lead to varying interpretations of icons, as pointed out by Epskamp (1984). Icons considered universal might convey different meanings in different cultures, leading to potential confusion or misunderstandings.

Finally, the lack of consistency in using icons across different websites and platforms is a significant concern. Benet-Martínez et al. (2002) note that wide variations in style and meaning can hinder their effectiveness as a universal means of communication,

causing user confusion. This lack of uniformity can diminish the overall user experience, highlighting the need for more standardised guidelines for icon usage.

The application of cultural icons, particularly in eGovernment services, is not without its criticisms and disadvantages, as highlighted in various literature. Key criticisms revolve around cultural differences, linguistic obstacles, the need for localisation, and potential stereotyping.

One significant issue is the varying cultural interpretations of icons, which can lead to misunderstandings and misinterpretations (Plocher et al. 2021). This cultural variance in icon comprehension can significantly hinder effective communication.

In addition, language barriers can exacerbate the problem, as icons may not equally resonate with speakers of different languages, causing further confusion and potential miscommunication (Bourges-Waldegg & Scrivener, 1998).

Localising icons is another hurdle, as it amplifies the effort required in designing and maintaining an effective website that utilises icons (Chang & Su, 2012). This translates to higher development and maintenance costs and time investment.

Finally, the use of icons can inadvertently further stereotypes and cultural biases. This could result in causing offence or exclusion to specific demographic groups, potentially limiting the inclusivity of the service (Spering, 2001).

One standard measure to determine the user preference for icons used on a webpage is A/B testing (Stark, 2018). In this method, two or more versions of a web page are shown to users randomly, and the version that receives the most positive engagement (such as clicks or conversions) is considered the preferred version. Another method is to conduct surveys or user testing to gather direct feedback from users on the icons they prefer (Belt, Väyrynen & Häkkilä, 2010). Finally, analysing website analytics can give insights into which icons users use most frequently (Lachner, Fincke & Butz, 2017).

This thesis employs surveys and user testing methodologies to obtain direct feedback from Chinese and Indian migrant communities regarding their preference and understanding of webpage icons. The selection of these research tools is underpinned by several advantages they offer in the context of web design.

Firstly, surveys and user testing provide a platform for researchers to garner immediate feedback from the migrant population. This firsthand input assists in validating design choices and identifying potential areas for enhancement. Thus, these methods ensure that the needs and preferences of a diverse user base are directly reflected in the design process, contributing to a more user-centred design.

Secondly, these techniques allow for interactive data collection, revealing how migrants engage with digital services. This data can be used to make adjustments that enhance the platform's overall usability and user experience. As a result, designs that are shaped by user feedback typically see increased user engagement and satisfaction.

Finally, surveys and user testing are more cost-effective than other data collection techniques. They allow researchers to identify and address potential issues before the service's release, proving more economical than making adjustments post-launch based on user data. Therefore, adopting surveys and user testing in this thesis aligns with the goals of optimising user engagement, usability, and cost-efficiency.

Summary

Icons are small graphic symbols commonly used in interface design to supplement or enhance the use of text. They can be a valuable tool for conveying information clearly and concisely, especially for users who may not be familiar with their meaning when used on a digital service. However, icons should be carefully and appropriately used, as excessive use or unfamiliarity with the icons can cause confusion or misunderstanding. The use of cultural icons has been studied by researchers in various disciplines, including linguistics, psychology, communication studies, anthropology, sociology, and education.

Colour

The role of colour in cultural communication and its impact on human behaviour and perception has been a topic of interest in various fields, including digital service design, marketing, and psychology. This section provides an overview of the importance of colour selection in Australian eGovernment services for effective communication with multicultural audiences. The section highlights the complex nature of colour perception and its cultural significance, which can vary significantly between societies and regions. The section reviews several studies that explore the impact of colour on consumer behaviour, psychology, and digital service design, emphasising the need for businesses and governments to consider the cultural meanings of colour when designing their digital services to avoid negative user experiences and build trust with their audiences.

The selection of colours for Australian eGovernment services is vital for cultural communication because different cultures may associate different meanings and emotions with the same colours. Colour is a powerful design element that can influence how people perceive and interact with a digital service, as it can create visual interest, convey meaning, and evoke emotions (Elliot & Maier, 2014). For example, while red may symbolise love and

passion in one culture, it may symbolise danger and excitement in another. Suppose Australian eGovernment services use inappropriate or offensive colours in a particular culture. In that case, it may result in a negative user experience, leading to a loss of trust and potential loss of opportunities for the user. By considering the cultural significance of colour, an eGovernment service can help build trust and establish a connection with its users, regardless of their cultural background.

Colour is the visual property of objects produced by light's reflection, absorption, or emission. It results from the interaction between light waves and matter, and the human eye perceives it. Colours can be described in terms of wavelength, intensity, and hue. Different combinations of these properties produce different colours. For example, red light has a longer wavelength and lower frequency than blue light. The perception of colour is a complex process influenced by various factors, including the properties of the light source, the nature of the surface being illuminated, and the characteristics of the observer's visual system (Nassau, 2001).

Cultural differences can exist in how colour is used in communication (Adams & Osgood, 1973). Colour can have different meanings and associations in different cultures, and these differences can lead to misunderstandings or miscommunications if they are not considered (Zhu, 2010). For example, in many Western cultures, white is associated with purity, innocence, and cleanliness, while in some Eastern cultures, it is associated with death and mourning (Aslam, 2006). Some cultures may consider certain colours lucky or unlucky or associated with specific religious or cultural traditions.

In the literature, there have been numerous studies conducted about the use of colour in digital services and other visual media, such as marketing (Aslam, 2006), psychology (Elliot & Maier, 2014), and website design (Cyr & Dash, 2008).

Aslam (2006) conducted a cultural review of colour in marketing. Aslam (2006, p.15) showed, “Colours exercise powerful effects and induce reactions based on instincts and

associations. Colours alter the meanings of the objects or situations with which they are associated, and colour preferences can predict consumers' behaviour". Aslam (2006) examined the impact of colour on marketing across different cultures. The author argued that colour is essential in buying decision-making and that its significance can vary between cultures. The article provided an overview of the cultural meanings of colour across different countries and regions and how these meanings could influence consumer behaviour. The author concluded that businesses must consider cultural differences when choosing colours for their marketing and branding efforts to effectively reach and appeal to their target audience.

In the same year, an article by Singh (2006) discussed the role of colour in marketing and how it affects consumer behaviour and decision-making. The author argued that colour is a powerful tool for creating brand identity and differentiation and could significantly impact consumer perceptions and emotions. The article also provided insights into the psychology of colour and how different hues evoke feelings and associations. The author concluded that businesses should consider using colour in their marketing strategies to effectively communicate their brand message and attract customers.

In psychology, an article by Elliot & Maier (2014) explored the impact of colour perception on human psychology. The authors discussed how different colours could evoke specific emotions and influence behaviour and the role culture and personal experience played in colour perception. They also reviewed the evidence for the effects of colour on memory, attention, and motivation. The article concluded that colour perception had a significant impact on psychological functioning.

In the same year, an article by Birren (2016) explored the relationship between colour and human behaviour and emotion. The author discussed how colour could affect our moods, perceptions, and psychological well-being and reviewed the existing research on colour psychology. The article also introduced the concept of colour therapy and its use in promoting healing and balancing the body and mind. Birren (2016) concluded that colour has

a profound and meaningful impact on human life and is an important study area for researchers and practitioners in psychology, design, and therapy.

Colour has been an important research element in cultural studies and website design (Cyr & Trevor-Smith, 2004). Cyr & Trevor-Smith (2004) investigated the differences in web design across different cultures. The authors conducted an empirical study comparing the design characteristics of websites from Germany, Japan, and the United States. They found significant cultural differences in colour usage, graphical elements, and aesthetics. The authors argued that localisation of web design was crucial for businesses seeking to establish a solid online presence in different countries, as cultural differences in design preferences could impact consumer engagement and buying behaviour. The authors concluded that businesses must consider cultural differences when designing websites to effectively reach and resonate with their target audience.

Researchers Barber & Badre (1998) described that using colour on a webpage could influence a user's experience with the webpage. Colour might influence their expectations about overall content and navigation and improve their satisfaction with the service.

In their article, Barber & Badre (1998) explored the relationship between culture and usability in designing digital products and services. The authors argued that there is a need for a new design approach that considers users' cultural differences and preferences in different regions and countries. "culturability" was introduced, which referred to designing culturally sensitive products that meet users' specific needs and expectations in different cultures. The authors provided examples of successful cultural-sensitive designs and discussed the challenges and opportunities of designing for a global audience. The authors concluded that the concept of culturability was a crucial aspect of designing products that were accessible, usable, and appealing to a diverse user base.

Cyr, Head & Larios (2010) analysed colour appeal in website design within and across cultures. The article examined the impact of colour on website design and its appeal to users

across different cultures. The authors conducted a multi-method evaluation, including qualitative and quantitative research, to understand the cultural differences in colour preferences and how these preferences impacted website design. The authors found that cultural differences in colour preferences can significantly impact website appeal and the user experience. They argued that businesses must consider these differences when designing websites for a global audience. The authors concluded that a culturally sensitive approach to website design, which considers the cultural meanings and associations of colour, is crucial for creating a practical and appealing online presence.

Colour Associations

Colours are essential to human life and significantly shape our perceptions and experiences (Labrecque & Milne, 2012). Different cultures have unique associations and meanings attached to various colours, which can vary significantly from one culture to another. This thesis explores the cultural significance of colour for three countries and their potential use on an Australian eGovernment service – Australia, China, and India. In Australia, blue, green, yellow, and red are commonly reported colour associations, while in China, red, yellow, white, black, and green hold significant meanings. Similarly, in India, red, yellow, green, white, and black have different cultural associations and meanings. These colour associations are, however, subject to individual variations and can differ across regions and communities within each culture.

Colour - China, India, and Australia

In China, as in many other cultures, colour has a variety of meanings and associations that can vary depending on the context (Akcay, Dalgin & Bhatnagar, 2011; Courtney 1986; Levitan et al. 2014).

In India, colour has several meanings and associations that can differ depending on the context (Akcay, Dalgin & Bhatnagar, 2011; Madden, Hewett & Roth, 2000; Singh & Tiwari, 2018).

The potential conflicts in colour use between a Western country such as Australia and an Eastern country such as China or India may arise due to cultural differences in colour associations and meanings. In Western countries, colour associations are universal and often based on natural and environmental elements (Wan et al. 2014). In Eastern countries, however, colour associations can be more nuanced and culturally specific, based on religious beliefs, historical events, and other cultural influences (Yu, 2014).

For example, in Western countries, red may be associated with passion, excitement, and danger, while in China and India, red is considered a lucky and auspicious colour (Yu, 2014). In Australia, yellow may be associated with warmth and happiness, while in China and India, yellow is associated with sacred and auspicious elements (Weightman, 1996).

For an Australian eGovernment service to avoid potential conflicts in colour use between Western and Eastern countries, it is crucial for their digital services designers to consider the cultural differences in colour associations and to make informed decisions about the colours they use on their digital services. This can help ensure the service is culturally appropriate and effectively communicates the desired message across different cultures.

Numerous criticisms have been raised regarding the potential human responses to colour and its utilisation on a webpage. Singh (2006) highlights the controversial nature of colour, stating that while some believe human reactions to colours are stable and universally applicable, others vehemently disagree. These critics assert that responses and preferences for colours can significantly vary across culture, gender, and age. Singh (2006) further cautions that even though meaningful scientific studies on colour exist, they are often contradicted by unverifiable research conducted by industry colour consultants. For

Australian eGovernment services, these insights underscore the necessity for digital service designers to carefully consider the implications of colour choices in their designs.

Additional criticisms stem from limited accessibility, cultural differences, overuse, inappropriate use, and lack of contrast. Alajarmeh (2022) points out that users, particularly those with visual impairments, may struggle to interpret or distinguish specific colours, leading to diminished accessibility of the webpage content.

Furthermore, Goyal, Miner & Nawathe (2012) bring attention to cultural differences and the varied associations certain cultures may have with specific colours. Thus, a colour choice on a webpage might be interpreted differently depending on the user's cultural background.

Issues of overuse of colour have also been raised. As Richardson, Drexler & Delparte (2014) argue, an excess of colour can lead to visually overwhelming pages, making them difficult for users to navigate.

Inappropriate or offensive use of colour is another area of criticism. As Hasan & Abuelrub (2003) suggest, specific colour uses can potentially offend some users.

Lastly, Zufic & Pogarcic (2019) indicate that specific colour combinations can hinder readability, particularly for visually impaired users.

Given these criticisms, it becomes clear that the judicious use of colour on a webpage is crucial. It should be accessible, culturally appropriate, and visually compelling to ensure an optimal user experience.

In the literature, the following measures are commonly used to determine the usability of colour on a webpage. Task completion time (Lee & Koubek, 2010), error rate (Huang & Chiu, 2007), user satisfaction (Brady & Phillips, 2003), eye tracking measures (Scolere et al. 2012), A/B testing (Xu et al. 2015) and user interviews and surveys (Zhang, Brown & Shankar, 2016).

This thesis uses self-report measures to determine a migrant's preferred colours that enhance their use of an Australian eGovernment service. Self-report measures were chosen as they provide direct insight into the individual's preference for the colours provided; the measure is easy to administer in the form of an electronic questionnaire and can be done quickly and cost-effectively. Additionally, self-report measures can provide information on how the individual interprets and makes sense of the colours provided. The self-report measure also can measure migrant preferences in a real-world context.

Task completion time, error rate, eye tracking measures, and A/B testing were not used as they did not offer the benefits that self-report measures offered and were considered inappropriate for use in an outdoor street-level environment where the self-report data was collected.

Summary

Colour is a powerful design element that can affect how people perceive and interact with a digital service. Different cultures associate different meanings and emotions with the same colours, so it is essential to consider the cultural significance of colour in cultural communication. In marketing, colour preferences can predict consumers' behaviour, and the use of colour is crucial for creating brand identity and differentiation. Research has also explored the impact of colour perception on human psychology, memory, attention, and motivation and how colour affects human behaviour and emotions. Cultural differences in design preferences could impact consumer engagement and buying behaviour, so localisation of web design is crucial.

Representation and Diversity – Images of People

EGovernment services are becoming increasingly popular worldwide, providing citizens with an efficient way to access government information and services. However, the design and

content of eGovernment services can significantly impact user satisfaction and trust in the service. To improve the user experience, it is crucial to consider representation and diversity when selecting images of people on the service, mainly for diverse groups such as Chinese and Indian migrants. This section explores the literature and potential benefits of including images of Chinese and Indian people on Australian eGovernment services, including the impact on user satisfaction, trust in the service, and social integration. The section highlights the importance of access, integration, and empowerment for migrant groups and the positive effects of building trust between eGovernment services and migrant communities. Additionally, it emphasises the need for understandable and culturally acceptable images when presenting images of people to an international audience.

There has been a growing trend towards adopting eGovernment services by governments worldwide in recent years. With the increasing availability of the internet and mobile technologies, eGovernment services provide citizens with a convenient and efficient way to access government information and services. However, the design and content of eGovernment services can significantly impact user satisfaction and trust in the service. One way to improve the user experience is by using relatable images of people on the service, mainly for diverse groups such as Chinese and Indian migrants. This section will explore the literature and potential benefits of including such images on Australian eGovernment services, including the impact on user satisfaction and trust.

Australian eGovernment services often serve a broad and diverse audience, and they need to ensure that the images used on the service accurately reflect the diversity of this audience. Using images that accurately reflect the audience's diversity can help create a sense of inclusivity and ensure the service is accessible and relevant to all users.

Access to eGovernment services is vital because migrants, like any other citizen, have the right to access government services (Dugdale et al. 2005). EGovernment services offer an opportunity to make government services more accessible and convenient for all citizens, including migrants. Migrants could benefit from greater access to information. Chinese and

Indian migrants have different language needs and cultural backgrounds, and representation in an Australian eGovernment service could help ensure that they can access relevant information in a format they can understand (Martin-Shields et al. 2022). This could include information about government services, rights, and responsibilities.

Secondly, integration is vital because eGovernment services can help migrants integrate into society by providing access to essential services such as healthcare, education, and employment (Ogura, 2006). Integration leads to inclusion. Migrants may benefit from being included in the decision-making process. When migrants are included in decision-making processes, they can provide valuable insights and perspectives, leading to more informed and effective decisions (ESCAP, U.N., 2019). With their voices heard on eGovernment services, migrants can participate in the democratic process and help shape the policies affecting their lives. Inclusivity is essential because by including migrants in eGovernment services, governments can demonstrate a commitment to inclusivity and diversity, which can help build trust between the government and migrant communities (Niehaves & Plattfaut, 2010). Finally, empowerment is essential because access to eGovernment services can empower migrants to exercise their rights and participate in civic life, contributing to their social, economic, and political integration into the host country (Thinyane et al. 2018).

Increased trust between an Australian eGovernment service and Chinese and Indian migrant groups can benefit both the service provider and the migrant users. It can lead to improved service delivery, increased participation, enhanced integration, increased efficiency, and improved public perception (Goldfinch, Gauld & Herbison, 2009; Mpinganjira, 2015; Parent, Vandebeek & Gemino, 2005; Rosenberg, 2021; Twizeyimana & Andersson, 2019).

Migrant groups may have unique needs and requirements that can be better addressed if the eGovernment service can establish trust with these groups. When migrant groups trust the eGovernment service, they are more likely to use it, provide accurate information, and seek assistance if needed (Mpinganjira, 2015). This, in turn, can lead to improved service delivery and a better overall experience for both the service provider and the migrant users.

When migrant groups trust an eGovernment service, they are more likely to participate in civic and political processes (Goldfinch, Gauld & Herbison, 2009). This could include registering to vote, participating in community forums, or engaging in other forms of public participation. This increased participation can lead to more inclusive decision-making and better outcomes for all community members.

Building trust between an eGovernment service and migrant groups can help to promote social integration and cohesion (Rosenberg, 2021). When migrant groups feel valued and included, they are more likely to engage with the broader community, build relationships, and contribute to the local economy. This can lead to a more diverse and vibrant community, benefiting all members.

Trust between an eGovernment service and migrant groups can increase service delivery efficiency (Parent, Vandebeek & Gemino, 2005). When migrant groups trust the service, they are more likely to provide accurate information and follow through on their commitments, which can reduce the need for follow-up and rework. This, in turn, can lead to cost savings and improved resource allocation.

An eGovernment service that migrant groups trust can enhance its public perception and reputation (Twizeyimana & Andersson, 2019). This can lead to increased support and funding, enabling the service to expand its offerings and improve its effectiveness.

Representation of Chinese and Indian migrants in eGovernment services could help to build trust between migrants and the Australian Government, making it more likely that they will engage with government services and participate in the community (Alhassan, 2022).

Boor & Russo (1993) highlighted the importance of considering cultural issues when designing user interfaces for international users. In their study, they specifically examined the challenges and strategies of presenting images of people to an international audience. They emphasised the need for images to be understandable and culturally acceptable, as what may be acceptable in one culture may not be in another. Similarly, Appiah & Liu, (2009)

explored the impact of ethnic and cultural cues on the psychological responses of Chinese and white consumers to advertisements. Their study found that Chinese consumers preferred highly Chinese culturally embedded advertisements to those with low Chinese cultural cues. Both studies shed light on the significance of cultural differences in design and advertising and the need to be sensitive to these nuances to communicate with international audiences effectively.

Boor & Russo (1993) argued that cultural issues such as text, local formats, images, symbols and colours ought to be carefully considered by user interface designers because they can be easily misunderstood due to cultural differences when designing for international users. In their study, they discussed the challenges and strategies of presenting images of people to an international audience. They identified that some cultures are susceptible to how human features are represented on a webpage. “Images are the visual language of a culture. Like words, images don’t always translate” (Boor & Russo, 1993, p.344). Images of people used on a webpage must be comprehensible and acceptable for use within that culture (Boor & Russo, 1993). What is acceptable in one culture may be unacceptable in another.

Appiah & Liu (2009) investigated the field of advertising and the differences in Chinese and white consumers’ psychological responses to advertisements that featured different levels of ethnic and cultural cues. In their study, they used digital manipulation of Chinese characters to vary the race of the characters, thereby affecting their strength of ethnic and cultural cues. They found that Chinese consumers preferred high Chinese culturally embedded advertisements to low Chinese culturally embedded advertisements.

A culturally embedded advertisement is an advertisement that incorporates cultural values, beliefs, symbols, and practices in its messaging to resonate with a particular target audience. It uses elements familiar to the audience to create a connection with them, which can help build brand loyalty and increase the chances of a successful marketing campaign.

Culturally embedded advertising aims to create a sense of familiarity and connection with the audience, which can help the advertisement stand out in a crowded market. It can also help to create a positive brand image and foster long-term customer relationships.

Researchers have identified within the advertising industry that many advertisers were reluctant to use ethnic minorities. They were reluctant to use ethnic minorities because they feared they would offend white consumers (Bush, Hair & Solomon, 1979). Feig (2004) also identified that businesses in the early 21st century were still hesitant to advertise directly to ethnic minorities because they believed they would disenfranchise their current customer base, putting future sales at risk.

Furthermore, Lee, Ferrnandez & Martin (2002) investigated the use of ethnic minorities in advertising. These authors found that Asian subjects (the ethnic minority group) self-referenced advertisements with Asian models more than white subjects (the ethnic majority group). Lee, Ferrnandez & Martin (2002, p.367) posited that "when an ethnic minority is exposed to a message that involves a dimension that is central to the self – like a model of the same ethnicity – self-referencing is activated and influences how the message is processed".

Self-referencing is a cognitive bias where individuals tend to process and remember information better when it is related to themselves or their personal experiences (Burnkrant & Unnava, 1995). This bias leads people to prefer and remember information that is personally relevant or applicable to their lives. Self-referencing can manifest in various ways. For example, individuals may remember a piece of information better if it is associated with their name or if they can relate it to their own experiences. They may also better understand complex concepts or ideas when applying them to their lives or experiences. Self-referencing can have both positive and negative effects.

On the one hand, it can help individuals remember important information and understand complex concepts. On the other hand, it can lead to a biased understanding of the world and

limit individuals' ability to consider alternative perspectives. In advertising and marketing, self-referencing is often used to create more memorable and effective messaging (Lee, Fernandez & Martin, 2002). Advertisers may use language or imagery that is personally relevant to the target audience, making it more likely that the audience will remember the ad and take action based on the message.

Australian eGovernment services could potentially benefit from using self-referencing on their services to improve the Chinese and Indian user experience and to increase user engagement. By creating a personalised experience for users, Australian eGovernment services can make it easier for migrants to access and use their services, which can increase adoption rates and satisfaction levels. Using self-referencing can also help Australian eGovernment services establish a sense of trust with Chinese and Indian users. When these migrant users see information, images of people like them or language relevant to their experiences, they are likelier to trust the information and feel that the service is designed with their needs in mind.

Australian eGovernment services are not advertisements. However, they provide an essential service to various cultural users. Their web pages do have to be relatable, understandable and acceptable to Chinese and Indian migrants.

In academic literature, several measures are commonly used to determine the usability of a digital service that incorporates images of people in a diverse and representative way. Measures such as user satisfaction (Alexander, Murray & Thompson, 2017), user preferences (Djamasbi et al. 2007), user interviews and surveys (Barnes et al. 2019) and content analysis of images (Mouttaki et al. 2022) have been used. This thesis uses a survey measuring a user's self-reported evaluation of the provided relatable content, user satisfaction and trust.

This thesis utilises a survey approach that measures a user's self-reported evaluation of images of people, user satisfaction, and trust, presenting several distinct benefits. These

include capturing subjective experiences, gauging user satisfaction, pinpointing areas for improvement, cultivating user trust, and enabling data-driven decision-making.

Self-reported evaluations from the survey illuminate the subjective experiences of Chinese and Indian users. Such insights offer an understanding of how these users perceive the relevance of the content in Australian eGovernment services, their reactions to it, and the general perception of the service.

The satisfaction of users is an indispensable metric in determining the success of a product or service. By employing a survey, it's possible to identify which aspects users find satisfactory and which require refinement.

Feedback gathered from these surveys can reveal areas that necessitate improvement. This invaluable information enables the enhancement of Australian eGovernment content, design, and service features, making them more adept at meeting the needs of Chinese and Indian users.

Trust is an integral part of fostering enduring relationships with users. By incorporating a measurement of user trust in the survey, Australian eGovernment services can discern areas that need to be strengthened to promote trust and credibility.

Finally, the survey results supply a wealth of data that can be rigorously analysed to inform decision-making. This empowers the Australian Government to focus on the most significant areas of improvement and guarantees that changes made are substantiated by actual user feedback.

Summary

The design and content of eGovernment services can significantly impact user satisfaction and trust in the service. One way to improve the user experience is by using relatable images of people on the service, mainly for diverse groups such as Chinese and Indian

migrants. Australian eGovernment services need to ensure that the images used accurately reflect the diversity of the audience to create a sense of inclusivity and ensure that the service is accessible and relevant to all users. Representing Chinese and Indian migrants in eGovernment services could help build trust between migrants and the Australian Government, making it more likely that they will engage with government services and participate in the community. Building trust between an eGovernment service and migrant groups can improve service delivery, increase participation, and enhance integration, efficiency, and public perception.

User Trust

Trust is crucial in a user's decision to use an eGovernment service and their overall satisfaction. Various factors influence user trust, such as the company's reputation, transparency and honesty in communication, product or service quality, and customer support. This thesis explores the different dimensions of trust and ways to measure it, including surveys, user behaviour, trust indicators, and customer loyalty. The thesis also explains why questionnaires were used to measure the trust of migrant users of eGovernment services, providing detailed information about users' perceptions, attitudes, and experiences related to eGovernment services.

User trust is the belief that a product or service will behave consistently and reliably and meet the user's expectations. Trust is an essential factor in a user's decision to use a product or service, as it can influence their willingness to engage with the product or service and their overall satisfaction with the product or service.

User trust is often influenced by several factors, such as the reputation of the company, organisation or government behind the service, the transparency and honesty of the

government in its communication with users, the quality and reliability of the service, and the level of customer support provided.

Trust is a complex and multifaceted construct defined in various ways by scholars. Teo, Srivastava & Jiang (2008) define trust as a shared set of anticipations held by individuals involved in an exchange. Alsaghier et al. (2009) describe trust as an expectation or belief that another entity will perform a valued action for them without their control over the entity's performance. Baier (1986) emphasises the personal vulnerability inherent in trust, as it involves uncertainty about the future behaviour of others and a belief that they will act in a way that does not harm us. Carter & Belanger (2005) define trust in the context of electronic marketing as the perception of confidence in the integrity and reliability of the marketer. Tan, Benbasat & Cenfetelli (2008) define trust as a subjective assessment by one party that another party will perform a particular transaction according to their confident expectations in an uncertain environment. Finally, Tolbert & Mossberger (2006) define trust as an evaluation of whether institutions or political authorities discharge their responsibility according to the normative expectations of the public. These definitions highlight trust's multidimensionality and its importance in various contexts.

Trust can be conceptualised in various ways, leading to different dimensions of trust. One type of trust is knowledge-based, based on familiarity and experience with the other party, reducing uncertainty (Lin, 2011). Another type is institution-based trust, which can be further divided into structural assurance and situational normality (McKnight et al. 2002). Structural assurance refers to guarantees, regulations, promises, legal resources, or other procedures in place to promote success, while situational normality refers to one's belief that the environment is in proper order and success is likely because the situation is normal (Abu-Shanab & Al-Azzam, 2012; Alsaghier et al. 2009; Srivastava & Teo, 2009). Calculative-based trust is based on people's calculations of the benefits and costs the other party will face if engaged in opportunistic behaviour (Dashti et al. 2010; Li et al. 2008). Relation-based trust is based on past relations between the trustor and trustee (Rousseau, 1998).

Personality-based trust is based on belief in the other party's specific attributes, such as competency, integrity, and benevolence (Lean et al. 2009). Cognitive-based trust is when people build trust in the trustee based on their first impression rather than previous interactions (Abu-Shanab & Al-Azzam, 2012; Karvonen, 1999; Li, 2008; Srivastava & Teo, 2009). Finally, disposition to trust refers to a general propensity to trust others based on generalised expectations about the trustee, regardless of information or experience (Rotter, 1971).

There are various ways to measure user trust, including surveys, user behaviour, trust indicators, and customer loyalty. Surveys or questionnaires can collect user feedback about their trust in a product or service. These surveys may inquire about factors like the user's confidence in the product or service, their perception of the company or organisation behind it, and their overall trust level.

Another way to measure user trust is by observing their behaviour. For instance, if users are comfortable entering sensitive information like personal or financial data into a product or service, it may indicate high trust. Additionally, if users consistently use a product or service over time, it may also suggest a high level of trust.

Trust indicators are specific cues or signals that help users determine whether a product or service is trustworthy. These indicators include security badges, privacy policies, and customer reviews. Measuring the presence and effectiveness of trust indicators can provide insight into a user's trust level in a product or service.

Customer loyalty is another metric for measuring user trust. Loyal customers are likelier to keep using a product or service even if they face issues or problems, indicating high trust.

This thesis used questionnaires to measure the trust of a migrant user of eGovernment services for several reasons. First, questionnaires directly collected user feedback about their level of trust in an eGovernment service. Detailed information was obtained by asking

questions about trust in users' perceptions, attitudes, and experiences related to eGovernment services.

Second, questionnaires could be designed to gather information about factors influencing user trust in eGovernment services. For example, questionnaires can ask about eGovernment services' security and privacy features, the quality of service provided, and the perceived credibility and reputation of the government agency providing the service. Collecting this information can provide insight into the factors that affect user trust and identify areas for improvement.

Third, questionnaires can be administered to many users, making obtaining a representative sample of the population possible. This is particularly important for eGovernment services intended to be used by diverse users with different backgrounds, experiences, and needs.

User trust has been measured in the use of eGovernment services. Evaluating user trust in these services is essential, as it can help governments understand how well they are meeting the needs and expectations of their citizens and identify areas for improvement.

There have been several studies that have measured user trust in eGovernment services. These studies have used various methods, including surveys, focus groups, and usability testing, to gather feedback from users about their level of trust in eGovernment services. Some common factors identified as necessary for user trust in eGovernment services include the security and privacy of the services, the transparency and honesty of the government in its communication with users, and the quality and reliability of the services.

Research has generally found that user trust in eGovernment services is positively correlated with using these services, with users who trust eGovernment services being more likely to continue using them and to recommend them to others. However, there is still room for improvement in many eGovernment services, and ongoing efforts are being made to increase user trust.

There are only a few studies on user trust in eGovernment services. Trust is an essential factor that can affect how users perceive and interact with a service, and it is crucial in the context of eGovernment services, which often handle sensitive information and transactions.

Studies on user trust in eGovernment services tend to focus on various aspects of trust, such as the perceived reliability of the service, the perceived security of the service, or the perceived integrity of the service. These studies use various methods to measure trust, such as surveys, interviews, or focus groups. Some examples of studies that have explored user trust in eGovernment services include a study by Alzahrani, Al-Karaghouli & Weerakkody (2017) that explored the critical factors that influence trust in eGovernment adoption from a citizens' perspective. The authors systematically reviewed the literature and proposed a conceptual framework identifying the key factors affecting citizen trust in eGovernment services. The article highlighted the importance of trust in eGovernment adoption and identified several critical factors, such as service quality, security and privacy, user satisfaction, and the role of government. The authors concluded that understanding and addressing these factors were essential for promoting trust in eGovernment services and encouraging citizen adoption.

Research by Kumar, Mukerji & Butt (2007) proposed a conceptual framework for successful eGovernment adoption. The authors reviewed the existing literature on eGovernment adoption. They identified several critical factors that affect its success, including citizen awareness and education, infrastructure and technology, government policies and regulations, and service quality. The article emphasised the importance of a user-centric approach in eGovernment adoption and proposed a framework incorporating these critical factors. The authors concluded that addressing these factors was essential for successful eGovernment adoption and recommended that governments focus on improving citizen awareness, infrastructure, and service quality to promote its adoption.

A study by Sulistyowati et al. (2020) proposed an extended Technology Acceptance Model (TAM) with trust to understand the factors contributing to eGovernment adoption in

Indonesia. The authors reviewed the existing literature on eGovernment adoption and identified several factors that influence it, such as perceived usefulness, ease of use, trust, and social influence. The article emphasised the role of trust in eGovernment adoption and proposed a conceptual framework that incorporates trust as a critical factor. The authors concluded that addressing trust-related issues was essential for promoting eGovernment adoption in Indonesia and recommended that governments focus on building trust by improving the security and privacy of eGovernment services and enhancing user education and awareness.

These studies used different methods and samples and focused on different aspects of trust. Still, they all sought to understand how trust influenced user behaviour and attitudes towards eGovernment services.

There are several criticisms surrounding the use of surveys to measure trust. These include response bias, social desirability bias, inaccurate measurement, lack of context, and limited predictive power. Response bias can affect the validity of survey results. Confident respondents may be more or less likely to complete the survey, which can lead to skewed results (Brown, 2017).

Social desirability bias is another criticism of trust surveys. Respondents may feel pressure to report higher levels of trust to present themselves positively, leading to inflated results (Krumpal, 2013). Inaccurate measurement is also a concern. Some trust measures may be too broad or vague, making it difficult for respondents to express their levels of trust accurately (Van Huffel & Vandewalle, 1991).

Additionally, the lack of context in trust measures can make it difficult for respondents to provide meaningful feedback or for researchers to interpret the results (Faniel et al. 2013). Lastly, trust measures may not accurately predict future behaviour, such as whether a customer will continue to do business with a company (Absher & Vaske, 2011).

Summary

User trust is critical in determining users' decision to engage with an eGovernment service, their overall satisfaction, and their likelihood of returning. Trust is affected by several factors, such as the company's transparency and honesty, the service's quality and reliability, and the level of customer support provided. User trust can be measured using surveys, observing user behaviour, trust indicators, and customer loyalty. There are different dimensions of trust, including knowledge-based trust, institution-based trust, calculative-based trust, relation-based trust, personality-based trust, cognitive-based trust, and disposition to trust.

Limitations of Previous Research

In this thesis, the limitations, constraints, and shortcomings of previous research on the provision of a culturally usable Australian eGovernment service for migrants whose first language is not English will be addressed. A knowledge gap has been identified in the existing literature on eGovernment, usability, and culture, which does not fully address how the inclusion of understandable language, icons, colours, and images of people on an eGovernment service can enhance its usability and increase user satisfaction and trust among migrants whose first language is not English. The limitations of previous research include a lack of standardisation, a limited focus on specific aspects of eGovernment, a limited geographical scope, limited consideration of context, and limited consideration of citizen perspectives. Additionally, limitations in eGovernment usability research include a limited focus on specific aspects of usability, bias in participant selection, and limited external validity. The following Table A presents a clear and concise overview of the various limitations in the respective research areas, facilitating easier understanding and comparison.

Table A - Limitations of Previous Research

Limitation Category	Specific Issues
eGovernment	**Lack of standardisation, limited focus on specific aspects, limited geographical scope, limited consideration of context, limited citizen perspectives**
Usability	**Limited focus on specific aspects of usability, bias in participant selection, limited external validity**
eGovernment Usability	**Focus on certain aspects, complexity of systems, difficulty assessing complex tasks**
Culture and Cultural Differences	**Difficulty in operationalising culture, challenges in interpreting results, limited focus on specific aspects, limited consideration of context, limited consideration of cultural change**
WCAG 2.2	**Limited focus on specific aspects of accessibility, lack of consideration of cultural differences, limited ability to detect latent issues, dependence on self-report measures**
Understandable and Readable Language	**Limited focus on specific aspects of language, limited consideration of context, limited consideration of cultural differences, not considering the writing process**
Icons	**Influence of icon design on results, subjectivity in interpretation, limited focus on specific aspects, minimal consideration of cultural differences**
Colour	**Limited focus on specific aspects of colour, not considering cultural differences, subjectivity in interpretation**
Representation and Diversity – Using images of people on a digital service	**Limited focus on specific aspects of representation and diversity, not considering cultural differences, lack of research into representation, not considering cultural context, subjectivity in interpretation**
User Trust	**Limited focus on specific aspects of trust, limited use of real-world data, not considering the specific context, not considering the development process**

Limitations of Understandable and Readable Language

Some research in the field of readable language has limited focus on specific aspects of language (unusual words, idioms, jargon, abbreviations, reading level). Many studies have focused on specific aspects of language, such as vocabulary or grammar, rather than considering a text's overall readability and understandability.

There has also been limited consideration of the context in some readable language studies. Many studies have not considered the context in which texts are being read, such as the readers' goals, motivations, and tasks, which can impact their understandability and readability.

Limited consideration of cultural differences has been a problem for some studies into readable language. These studies did not consider the impact of cultural differences on the understandability and readability of texts.

Other research in the field of readable language has not considered the writing process. Some studies have focused solely on the end product of written communication rather than considering the writing process and how it may impact the understandability and readability of a text.

Limitations of Icons

Studies in the field of webpage icons have had several common limitations. The icon designs

used in some studies may have influenced the results. For example, if the icons are not recognisable or are challenging to understand, it may be more difficult to conclude their effectiveness.

Subjectivity in the study of icons is a limitation of existing research. The interpretation of icon effectiveness can be subjective and vary from person to person. It can be challenging to draw objective conclusions about icon effectiveness.

Research has had a limited focus on specific aspects of icons. Many studies have focused on specific aspects of icons, such as their design or use in specific contexts, rather than considering the overall effectiveness of their use.

The consideration of cultural differences in the research is minimal. Some studies have not considered the impact of cultural differences on the understanding and use of icons.

Limitations of Colour

Research about colours used on web pages has had a limited focus on specific aspects of colour. Many studies have focused on specific aspects of colour, such as the psychological effects of specific colours or the use of colour in specific contexts, rather than considering the overall impact of colour on a webpage.

Some studies have not considered the cultural differences that apply to the use of colour. Those studies did not consider the impact of cultural differences on the understanding and use of colour on a webpage. The cultural context in which a webpage is offered can also impact the effectiveness of colours. Distinct cultures can have different associations with specific colours.

The interpretation of colour effectiveness can be subjective and is a limitation of some studies. Studies found that using colour and its effectiveness can be challenging to draw objective conclusions and are a limitation of previous research.

Limitations of Representation and Diversity – Using images of people on a digital service

Studies using images of people on digital services have had a limited focus on specific aspects of representation and diversity. Many studies have focused on specific aspects of representation and diversity, such as the impact of specific types of images or the use of images in specific contexts, rather than considering the overall impact of images on a digital service.

Some studies have considered cultural differences. These studies did not, however, consider the impact of cultural differences on the understanding and use of images of people on a digital service.

A limitation of previous studies in this field has been a lack of research into representation. The images used in the study should be representative of the intended audience for the service. If the images do not accurately reflect the target audience's diversity, the study's results may not be applicable.

A limitation exists in previous research where the cultural context in which the webpage is being viewed has not been considered, as cultural context can also impact the effectiveness of images of people. Different cultures can have different associations with specific types of images.

Previous research has a limitation due to the interpretation of the effectiveness of images of people, which is subjective and may vary from person to person. It can be challenging to draw objective conclusions about the effectiveness of such images.

Limitations of User Trust

In the literature, several studies have been conducted around trust in eGovernment in the fields of trust in government and trust on the internet. There has been a limited focus on specific aspects of trust. Many studies have focused on specific aspects of trust, such as the impact of local design elements or the use of specific technologies, rather than considering the overall trust of users in a website (Al-Hujran et al. 2015).

There is also limited use of real-world data in some studies. This has occurred because researchers have relied on artificial laboratory conditions or simulated tasks to study user trust in a website rather than using real-world data and tasks. Many researchers have relied solely on using theoretical models in the field of trust in eGovernment.

Many studies have not considered the specific context in which webpages are viewed, such as the users' goals, motivations, and tasks, which can impact their trust in a digital service.

Some studies conducted in the field of trust in eGovernment have not considered the development process of webpages. Some studies have focused solely on the end product of website development rather than considering the design and development process and how it may impact user trust in a digital service.

Based on the analysed limitations several hypotheses have been developed.

Group A - Hypotheses - Language Attributes - *Unusual Words*

1. Those exposed to the modified language attributes (unusual words) **will rate effectively communicable** attributes higher than those exposed to the control attributes.
2. Those exposed to the modified language attributes (unusual words) **will rate their understanding** of such attributes higher than those exposed to the control attributes.
3. Those exposed to the modified language attributes (unusual words) **will rate their satisfaction** with such attributes higher than those exposed to the control attributes.

Group B - Hypotheses - Language Attributes - *Reading Level*

4. Those exposed to the modified language attributes (reading level) **will rate their understanding** of readable text higher than those exposed to the control text.
5. Those exposed to the modified language attributes (reading level) **will achieve a higher reading efficiency** score than those exposed to the control attributes.
6. Those exposed to the modified language attributes (reading level) **will rate their satisfaction** with such attributes higher than those exposed to the control attributes.

Group C - Hypotheses - Cultural Elements - *Icons, Colour, Images of People*

7. Those exposed to modified cultural elements (icons, colour, images of people) on an Australian eGovernment service **will evaluate their perceived familiarity** with elements higher than those exposed to the control elements.

8. Those exposed to modified cultural elements (icons, colour, images of people) on an Australian eGovernment service **will rate their satisfaction** with such elements higher than those exposed to the control elements.

Group D – Hypothesis – Trust in eGovernment Service

9. Those exposed to modified language attributes and cultural elements used on an Australian eGovernment service **will rate their trust** in the Australian eGovernment service higher than those exposed to the control elements.

Summary

The limitations of previous research on eGovernment services for migrants whose first language is not English were discussed. These limitations included a lack of standardisation, limited focus on specific aspects of eGovernment, limited geographical scope, and limited consideration of citizen perspectives. Additionally, limitations in eGovernment usability research include a limited focus on specific aspects of usability, bias in participant selection, and limited external validity. The complexity of eGovernment systems is also a limitation, and the difficulty of assessing complex tasks is a challenge in usability studies. Cultural differences pose a challenge in operationalising and measuring culture in research studies, and limited consideration of context and cultural change has been identified in previous research. Finally, there are limitations in studies involving WCAG 2.2, readable languages, and understandable languages, such as limited consideration of cultural differences and context and a limited focus on specific aspects of accessibility and language.

Literature Review Summary

The exploration of culture and its implications spans a broad spectrum, from the most profound intricacies of human cognition and societal structures to the design and accessibility of eGovernment services. The fundamental complexity of culture, its impact on various facets of human life, and the contributions from distinguished scholars underscore the importance of understanding cultural differences. In eGovernment services, culture is equally significant, highlighting the necessity for cultural sensitivity, language accessibility, and user-centred design.

Throughout these studies, we encounter a shared recognition of limitations and areas that require improvement. Criticisms against cultural models — their oversimplification, essentialism, lack of empirical rigour, and potential ethnocentrism — underscore the need for nuanced exploration. Similarly, in eGovernment services, gaps and inconsistencies in research illuminate the urgent requirement for enhanced validity and generalisability of studies.

Each piece of literature offers a valuable contribution to the field. The insights provided are substantial, from an enriched understanding of culture, its implications, scholarly perspectives, and the limitations of existing models to the emphasis on the importance of cultural usability in designing eGovernment services.

The implications of these insights resonate strongly across their respective domains. Understanding culture and its myriad influences yields profound consequences for social and cultural analysis, communication, attitudes, behaviours, policy, and programming. In contrast, eGovernment services' design and implementation necessitate applying these cultural usability findings, enhancing their efficacy.

Despite the complex ideas presented, the literature communicates them with clarity and conciseness, rendering the understanding of culture and cultural usability in eGovernment services accessible. The logic of ideas' progression adds to the comprehensibility — from

the definition and implications of culture to critical contributions in cultural studies and concluding with the evaluation and critique of cultural models. Similarly, in the case of eGovernment services, the discussion logically progresses from introducing cultural usability to extracting key themes, identifying gaps, and suggesting future research directions.

The literature review thoroughly explains culture's wide-ranging implications — from human cognition to the effectiveness of eGovernment services — and the need for further nuanced explorations.

Chapter 3 Methodology

This research assesses the influence of modified language attributes and cultural elements on an Australian e-government service's communication effectiveness for Chinese and Indian migrants. The study adopts an experimental design, comparing responses between an independent control group and an independent treatment group. It focuses primarily on job-seeking migrants over 18 years old, residing in Melbourne, Australia, whose first language isn't English. Utilising Time-space sampling (TSS), a method that captures behaviour and characteristics within a specific space and time, this study gathers data from specific job centres frequented by the target demographic. The study stipulates a minimum sample size of 100 participants from each cultural group to ensure a statistically significant difference in results, maintaining a 10% margin of error, a confidence level of 95%, and a power of 80%. The data is collected using a combination of self-reported surveys and objective measurements. To address the research question, the research examines several independent and dependent variables related to language attributes, cultural elements, satisfaction and trust.

Research Design

This study will use an experimental design with measurements to investigate the impact of changes to language attributes and cultural elements used on an Australian eGovernment service. The intent behind selecting an experimental design with manipulations for this study was to establish a more definitive cause-and-effect relationship between variables. In this approach, the research was designed to manipulate certain elements (the independent variables) to observe the effect on other elements (the dependent variables). This method allows for greater control over external factors, thus providing more reliable and valid results.

The choice of an experimental design was driven by the need to compare responses from different groups under controlled conditions, enabling a clearer understanding of how specific changes or interventions influence outcomes. By integrating this design, the study aimed to yield more concrete and actionable insights, particularly relevant in understanding the dynamics of an eGovernment service's usability and effectiveness.

The type of research design that allows for this comparison is quantitative. The collection and analysis of numerical data derived from a questionnaire is used in this study. It is used to test hypotheses and evaluate relationships between variables. The results are analysed using the statistical technique, independent t-test.

Quantitative research design has many strengths and is widely used in various research contexts, but several criticisms have been raised about this approach (Ozkan & Kanat, 2011; Alenezi, Tarhini & Sharma, 2015; Choudrie, Alfalah & Spencer, 2017). Some of the main criticisms of quantitative research design include reductionism, rigidity, lack of context, generalisability and validity. Quantitative research design can be criticised for reducing complex social phenomena to numerical data, which may not capture the full complexity and context of the studied phenomena. Quantitative research design is often based on predetermined hypotheses and research questions, which may need more flexibility and adaptability in the research process. Quantitative research design may need to provide more context or depth of understanding of the studied phenomena, as it often focuses on measurable variables rather than broader social, cultural, or historical factors. The findings of quantitative research may not be generalisable beyond the specific sample and context of the study. Finally, there may be concerns about the validity of the quantitative research results, as the data may be subject to various sources of bias or error.

To minimise these weaknesses in quantitative research design, this study attempts to minimise reductionism by using a multi-dimensional approach that incorporates different variables that can help to explain the phenomenon under investigation. This was achieved by focusing on the language aspects of an eGovernment webpage and including the cultural

elements found on the same page. This helped to reduce the chances of oversimplification and provided a more comprehensive understanding of the problem. This study ensures that the research design considers the study's social and cultural context to avoid a lack of context. This was achieved by conducting a thorough literature review. To improve generalisability, this study uses a large sample size of Chinese and Indian job seekers and ensures the sample represents the studied population. To improve validity, this study uses an appropriate research design, collects reliable and valid data, and uses proper statistical techniques to analyse the data.

The research setting is in the field. The researcher approached respondents as they either entered or left an employment services provider in and around Melbourne, Australia's suburbs.

These objectives are specific and will guide the research process. These objectives are based on empirical evidence and are not influenced by personal biases or opinions. The goals have been derived from the research question and the literature in Chapter 2.

In this study, 50 independent Chinese respondents are given a questionnaire. All the variables are derived from the current language attributes and cultural elements found in an Australian eGovernment service (the Chinese control group). Another 50 independent Chinese respondents are given the same questionnaire. Still, all the variables have been changed based upon the literature in Chapter 2 that suggests such changes ought to enhance Chinese migrants' use of an eGovernment service (the Chinese treatment group). These two Chinese groups of respondents are independent of each other. The exact process and numbers of respondents are applied to Indian respondents (except that the cultural elements for the Indian treatment group reflect Indian culture). This study does not compare the Chinese results with the Indian results, nor does it compare either group with a local English-speaking Australian group. These studies can be performed at a later stage if required.

A review of the existing literature in Chapter 2 reveals a gap in knowledge about how eGovernment services ought to provide language attributes (Objectives Group A and B) on their services that can enhance a migrant's use of that service. Similarly, there is a gap in knowledge about how eGovernment services ought to provide cultural elements (Objective Group C) that can enhance a migrant's use of that service.

The research question and objectives will contribute to filling this gap in knowledge by identifying the specific areas that need to be addressed to improve migrants' use of Australian eGovernment.

The significance and relevance of the research question and objectives about cultural eGovernment lie in their ability to contribute to the broader field of eGovernment. This study could apply essential insights to various related topics, such as migrant integration, eGovernment, usability, eGovernment usability, culture, understandable readable language, icons, colour, diversity and user trust in eGovernment services.

The significance and relevance of the research question and objectives could also impact society. The research findings may have important implications for eGovernment policies, such as the rules, guidelines, and procedures developed by governments to provide online services to citizens and businesses. An improvement to these policies could aim to improve government efficiency, transparency, and accountability by using language attributes and cultural elements in technology to make government services more accessible and convenient to migrants.

Research Framework

The research framework (Figure 2) aligns with the thesis argument by elucidating how each research component contributes to the study's overall objective– to evaluate the cultural usability of Australian eGovernment services for Chinese and Indian migrants in Melbourne.

Fundamentally, the research framework is a structured plan that illustrates the entire research process, from formulating hypotheses or research questions to analysing data and presenting results. It provides a roadmap for conducting the research and serves as a tool to ensure that the study is systematically undertaken. The key processes include:

1. Research Design: The research adopts a quantitative approach to gather objective data, supporting the study's aim to evaluate language attributes and cultural elements in eGovernment services.

2. Sampling Method, Size, and Procedure: The study targets a specific demographic (Chinese and Indian migrants in Melbourne), directly addressing the research question about these groups' experiences with eGovernment services. The sample size and procedure ensure the data's representativeness and validity.

3. Data Collection Methods and Variables: The data collected includes user feedback on various elements of eGovernment services, such as language attributes (unusual words, reading level) and cultural elements (icons, colour, images of people), aligning directly with the research objectives.

4. Questionnaire Design and Construction: The questionnaire is specifically designed to collect data on the defined variables, including user satisfaction and trust, thus providing direct evidence to support or refute the thesis argument.

5. Data Analysis: The analysis would test the hypotheses that change in language attributes and cultural elements can improve communication, understandability, and user satisfaction with eGovernment services for migrants.

6. Validity, Reliability, and Ethical Considerations: The framework incorporates strategies to ensure the validity and reliability of the data, enhancing the study's credibility and ethical standards.

7. Limitations: Recognising and outlining potential limitations of the research framework helps address possible weaknesses in the study and provides context for interpreting the results.

In this research framework, every stage has been meticulously planned to address the thesis argument, ensuring that the data collected and analysed will provide valuable insights into the cultural usability of Australian eGovernment services among the chosen demographic.

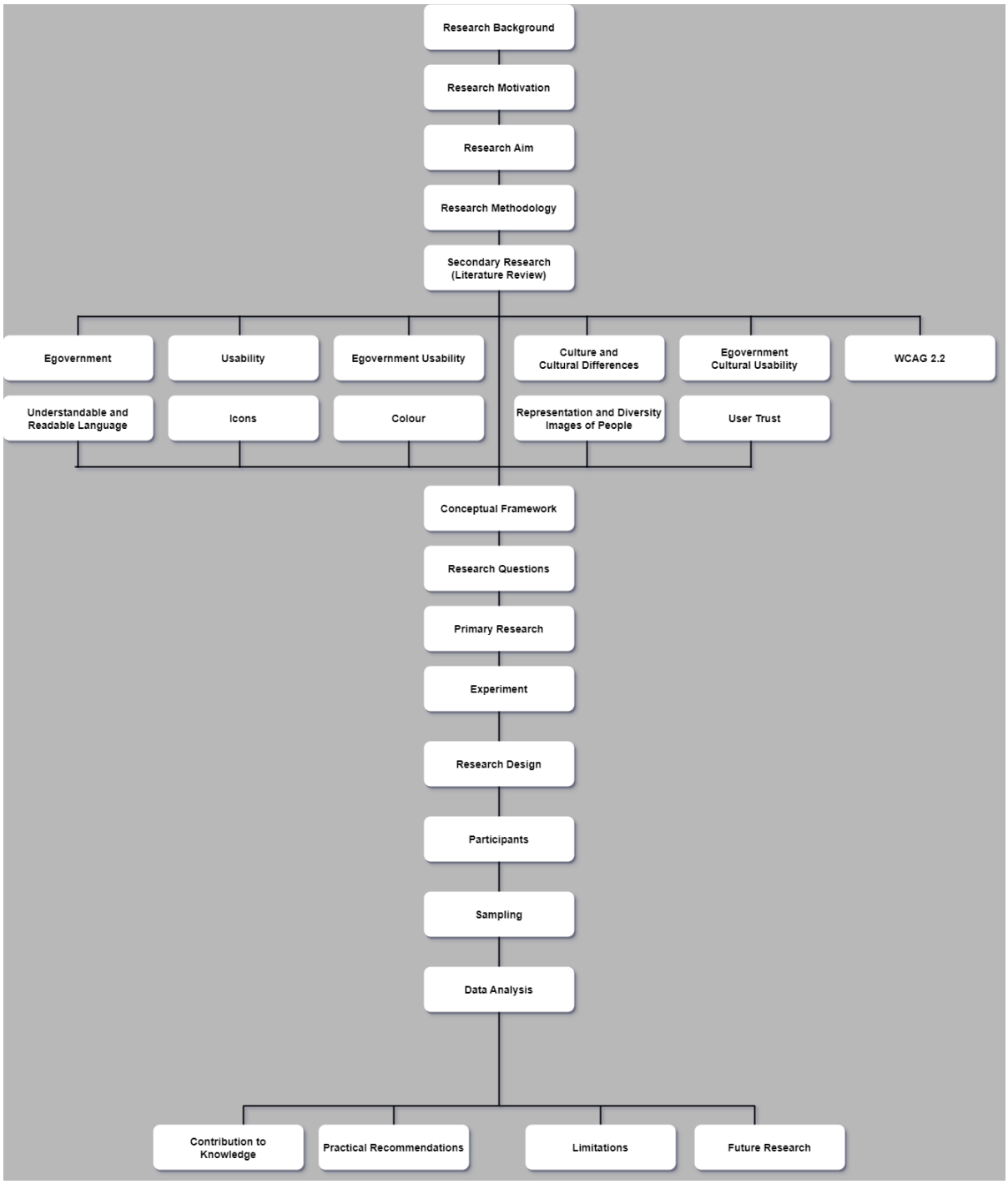

Figure 2 Research Framework

Participants - Chinese and Indian Migrants in Melbourne, Australia

The history of migrant settlement in Melbourne has been significantly shaped by Chinese and Indian communities. Arriving initially during the mid-19th century gold rushes, these

groups contributed to Melbourne's cultural and economic life through various industries. Chinatown in Melbourne, established in the late 19th century, became a vital center for the Chinese community. Similarly, the Indian community has played a crucial role in the city's multicultural landscape, celebrating festivals like Diwali and forming cultural organizations.

Australia, with a migrant population of around 29.5%, has seen significant contributions from these communities. Melbourne, in particular, has a rich migrant history, being home to diverse groups from Anglo-Celtic, Southern European, and Asian backgrounds. As of mid-2021, 44% of Melbourne's population were migrants, with significant populations from England, India, China, New Zealand, and Vietnam. Chinese and Indian migrants, the focus of this thesis, are notably present in Melbourne's central and outer suburbs.

Nationally, as of June 2021, the top five migrant populations in Australia were from England, New Zealand, China, India, and the Philippines. This thesis specifically explores the experiences of the Indian and Chinese communities, the largest non-English speaking migrant groups in Australia. The research data includes insights from these groups within Melbourne and its suburbs, reflecting their unique experiences and contributions to Australian society.

Sampling Method

The target populations for this study are job-seeking Chinese and Indian migrants whose first language is not English, over 18 years of age, in Melbourne, Australia. The study uses Time-space sampling (TSS) to sample individuals from a specific population based on their location and the time they spend in that location. This sampling method is commonly used in studies investigating a population's behaviours or characteristics within a specific space and time. In this study, time-space sampling involved identifying job centres where Chinese

migrants were likely to go to find employment and then sampling individuals who were leaving the job centres during specific periods.

This technique is used to sample hard-to-reach populations. Semaan (2010, p.60) described TSS as a “probability-based strategy for recruiting members of a target population congregating at specific locations and times”. TSS is primarily used to produce probability estimates of hard-to-reach populations, especially when sampling frames do not exist or are difficult to construct. This study collected ethnographic data for Indian and Chinese migrants within Melbourne and its suburbs. It was found that the Indian enclaves at Laverton, Williams Landing, Glen Huntly and Albion had Indian migrant populations of 15%, according to the Australian Bureau of Statistics. Similarly, Chinese migrant enclaves were identified in the areas of Box Hill (22%), Clayton (18%), and Melbourne City (13%).

To ensure a random sample was obtained, every third person who entered a job centre was approached and asked if they would participate in the survey.

Sample Size

It was calculated that the study would need to survey at least 100 Chinese and at least 100 Indian migrants leaving the job centres to detect a statistically significant difference of 10% between the proportion of employed and unemployed Chinese and Indian migrants, with a margin of error of 10%, a confidence level of 95%, and a power of 80%.

The calculation used to determine the number of respondents included a margin of error of 10% for the population proportion of 35% (the proportion of unemployed Chinese and Indian migrants as determined by the ABS) and an expected difference of 10%, the sample size required to achieve a 95% confidence level with a power of 80% was calculated using the formula:

$$n = (Z^2 * p * (1-p)) / (E^2 * d^2)$$

Where:

- Z is the Z-score associated with the desired confidence level (in this case, Z=1.96 for a 95% confidence level)
- p is the estimated proportion of Chinese / Indian migrants in the population (p = 0.35)
- E is the desired margin of error (E = 0.10)
- d is the expected difference between the proportion of employed and unemployed Chinese migrants

Plugging in these values, we get:

n = (1.96^2 * 0.35 * (1-0.35)) / (0.10^2 * 0.10^2)

Solving for n, we get:

n = 96.04

Based on this calculation, the study rounded up the respondents to 100.

100 Chinese migrants were surveyed, 50 were given a control questionnaire, and 50 were given the Chinese treatment questionnaire. The same procedure was applied to Indian migrants, except 50 were given the Indian treatment questionnaire.

Sampling Procedure

The sampling procedure involved approaching every third person leaving a job centre, identifying whether they were Chinese or Indian, and including individuals who met specific criteria, such as being a migrant from China or India, over 18 years old, and seeking employment. The following steps were taken to minimise bias in the selection process.

Random selection of starting point: Instead of starting with the first person leaving the job centre, an arbitrary starting point was chosen to reduce the likelihood of bias in the selection process.

Consistency in approach: The same procedure was taken with every third person leaving the job centre to ensure consistency in the selection process. This helped to minimise the potential for bias in the selection.

Use of a standard identification process: A formal identification process was used to identify whether an individual was of Chinese or Indian descent. This involved asking individuals to self-identify as either born in China or India.

Verification of eligibility criteria: Before including individuals in the sample, efforts were made to verify that the respondents met the eligibility criteria, such as being a migrant from China or India over 18 years old. This involved asking individuals for identification in a driver's license or other appropriate form.

Monitoring of the sampling process: The sampling process was monitored to ensure that it was being carried out as intended and that bias was not introduced at any stage. This involved regularly reviewing the sampling procedure and adjusting as needed.

By taking these steps, it was possible to minimise bias in the selection process and increase the representativeness of the final sample. These steps increased the generalisability of the results to the larger population of Chinese and Indian migrants seeking employment.

Sampling Validity

Some potential sources of bias that may be present in the sampling procedure may have included non-response bias, sampling bias, measurement bias, selection bias and confirmation bias.

Approaching only every third person leaving a job centre may have led to non-response bias if individuals who chose not to participate in the survey differed systematically from those who did participate. For example, if individuals more likely to be employed or had better language skills were more likely to participate, this could bias the results. To minimise non-response bias, efforts were made to encourage participation by ensuring that the survey was conducted in a format that was accessible to all participants.

Using a job centre as a sampling frame might have introduced sampling bias if it did not represent the entire population of Chinese and Indian migrants seeking employment. For example, if the job centre only served a particular geographic area or demographic group, this could bias the sample. To minimise sampling bias, a multi-stage sampling approach was used. A random sample of job centres was selected from within each migrant enclave, and individuals were sampled from within those centres.

Identifying individuals as either Chinese or Indian may have introduced measurement bias if individuals self-identified or were classified incorrectly. Using a single identification method may not have captured the complexity of ethnic identity, which could have affected the accuracy of the sample. Multiple identification methods were used to minimise measurement bias, such as self-identification, country of origin, driver's license and language spoken.

Efforts were also made to ensure that identification was carried out consistently and objectively.

The inclusion criteria of being a migrant from China or India, over 18 years old, and seeking employment may have introduced selection bias if individuals who meet these criteria differed systematically from those who do not. For example, if highly skilled individuals with higher education levels were more likely to seek employment, this could bias the sample. To minimise selection bias, efforts were made to broaden the inclusion criteria to capture a more diverse range of individuals. For example, the age range was expanded to include all individuals over 18 and those searching for work at any time.

Efforts to verify eligibility criteria might have introduced confirmation bias if they were not carried out neutrally and objectively. For example, if individuals who appeared to be of Chinese or Indian descent were subject to more scrutiny than others, this could bias the sample. To minimise confirmation bias, eligibility criteria were verified using a standard and objective process, such as checking a driver's license or other appropriate identification documents. Efforts were made to ensure that verification was carried out in a neutral and non-discriminatory manner.

Data Collection

This study aims to collect and analyse data to evaluate the cultural usability of eGovernment. This section describes the methods used to collect data on the use of language attributes and cultural elements found in eGovernment services. The data collection process involved a combination of self-report surveys and objective measurements, such as the time taken to complete a task. In addition, this section outlines the procedures used to ensure the quality and reliability of the data collected, as well as any limitations of the data collection methods used.

Data Collection Methods

The data collection method used in this research used a combination of experiments and surveys to gather information and data for the study. The experiments manipulated variables in a controlled environment to observe their effects on a dependent variable. Surveys in the form of digital questionnaires were used on a sample of Chinese and Indian migrants to collect information on their attitudes, beliefs, behaviours and demographics (Appendix F). The experiments and surveys were conducted at employment job centres in and around Melbourne, Australia.

Primary data were collected at job centres in Chinese and Indian enclaves around Melbourne, Australia. There was no need to go through a process of selecting and training interviewers as the sole researcher of this study gathered all the data personally.

The use of experiments and surveys in a field setting is a suitable data collection method for this research as it allows for the collection of quantitative data, which can provide a more comprehensive understanding of the attitudes, beliefs, behaviours and demographics of Chinese and Indian migrants in Melbourne, Australia.

The advantages of this method are that the use of experiments allowed for the manipulation of variables in a controlled environment. Surveys in the form of digital questionnaires are a cost-effective and efficient way to collect large amounts of data from a diverse sample of respondents. Conducting experiments and surveys in a field setting can help ensure that the data collected is more representative of the target population and allows for data collection in a natural environment.

The disadvantages of this method are that experiments may not fully capture the complexity of real-world situations and may limit the generalisability of the findings. Digital questionnaires may not be suitable for those who may not be comfortable with digital

devices, which can result in a biased sample. Conducting all the data collection personally as the sole researcher may introduce bias or influence the participants' responses.

Alternative methods that were considered include interviews. Interviews may have been considered as an alternative method to collect qualitative data. Interviews could have provided more in-depth information and would have allowed for follow-up questions to be asked. However, interviews can be time-consuming and may not be feasible if a large sample size is required.

Observational studies may also have been considered as an alternative to experiments. Observational studies could have provided a more naturalistic view of behaviour but may not allow for the manipulation of variables to establish causality. Finally, randomised controlled trials (RCTs) may have been considered an alternative to experiments. RCTs could have provided a high level of internal validity and could help establish cause-and-effect relationships between variables. However, RCTs can be expensive and may not be feasible if a large sample size is required.

Initial contact was made with a potential respondent as they exited a job centre. A greeting was made, and an invitation to participate in the survey was offered. If the respondent wished to participate, they were asked two qualifying questions. These questions determined if they were suitable participants. The first question asked, "Are you a Chinese (or Indian, based upon appearance) migrant?". The second qualifying question asked, "Have you sought any type of employment in Australia?". They were asked to continue with the questionnaire if they met the requirements to proceed. A respondent would then be seated, and the questionnaire would begin. The questionnaire was provided in digital form on a laptop computer. The respondent interacted with the digital questionnaire privately. The researcher was available to assist if any issues were raised. The researcher provided a fold-up table and chair at each job centre location.

The respondent's responses were recorded automatically by Qualtric's survey software (2019, July version). This software was used to construct the questionnaire. Qualtrics is a web-based survey software platform that provides various survey and research tools to create and distribute surveys, collect and analyse data, and generate reports. Qualtrics allowed the creation of the questionnaires with multiple question types, including 5-point Likert questions as required by Hypotheses 1,2,3,4,6,7,8,9. Qualtrics provided a feature that allowed the survey to be conducted offline, within a web browser, during the data collection process and recorded all responses for later online analysis. Qualtrics also offered tools for collecting and tracking respondent behaviour, such as response times and completion rates, as required for Hypothesis 5 (those exposed to the modified language attributes (reading level) will achieve a higher reading efficiency score than those exposed to the control attributes).

A decision to use 'smiley faces' as a digital response on a Likert rather than text-based options scale was rooted in several reasons.

Firstly, visual representations like 'smiley faces' are universally understood symbols that transcend language barriers. This is particularly useful in multicultural settings where the audience might have varying language proficiency. It makes the process of collecting feedback more inclusive and effective.

Secondly, emoticons like 'smiley faces' capture emotional responses intuitively, which might be more difficult to articulate through text-based responses, especially when evaluating user experience and satisfaction. People often find it easier to relate their experiences or feelings to a visual scale, especially when they relate to subjective elements such as satisfaction or ease of use.

Lastly, graphical elements add a user-friendly, interactive element to the feedback process. They can make feedback seem less daunting and more engaging, improving response rates.

However, ensuring that the choice of graphical elements was culturally appropriate and universally understood was important. Cultural differences can influence how different emoticons are interpreted, so it was an important consideration when designing the Likert scale for a culturally diverse audience.

At the termination of the interview, the researcher thanked the respondent for their participation and advised that the survey results would be available at Victoria University upon request. All data collected from the questionnaires were kept in the researcher's private safe. No identities were collected from any respondents.

Response errors such as researcher errors, interviewer errors and respondent errors were minimised by using computer-assisted questionnaires. The researcher was not involved in asking any questions apart from the two qualifying questions. Each step of the questionnaire required an answer before proceeding to the next question—every person who began a questionnaire completed the task. There were no gaps in the data collected (there could be no gaps due to the questionnaire design).

Before beginning a questionnaire, respondents were given forms that gave information about the study and were asked to read consent forms offered in English, Simplified Chinese or Hindi. A sample of each type of form is provided in the Appendix. (Appendix A is a Hindi 'Information about the Study' form, and Appendix B is a 'Simplified Chinese Consent Form'). Certification of the translations was also sought and appeared in the Appendix (Appendix C certifies the Hindi translation of each form, and Appendix D certifies the Simplified Chinese translation of each form).

Variables and Hypotheses

To answer the research question, "How can language attributes and cultural elements in an Australian eGovernment service be enhanced to improve communication for migrant users

whose first language is not English?" several independent variables, dependent variables, and hypotheses have been formed based upon the literature in Chapter 2.

The study uses hypotheses to guide its investigation into how the usability of Australian eGovernment services can be enhanced for migrant users who speak English as a second language. Hypotheses allow for systematic exploration and testing of theories gathered from previous literature, providing a structured approach to understanding the relationship between the independent variables (the language attributes and cultural elements in an eGovernment service) and the dependent variable (the usability and communication efficiency of the service for non-native English speakers).

Building upon prior research in the field of eGovernment such as that conducted by Carter & Belanger (2004, 2005), Tan, Benbasat & Cenfetelli (2008), Colesca & Dobrica (2008), Lee, Kim & Ahn (2011), and Alshehri, Drew & AlGhamdi (2013), these hypotheses serve to both validate and challenge existing knowledge. They bridge theory and empirical findings, allowing for focused data collection, analysis and interpretation. Further details on the formulation and testing of these hypotheses are found in the literature review section.

The independent variables in this study are the use of unusual words, reading level, icons, colour and images of people. In contrast, the dependent variables are effectiveness, understanding, satisfaction, efficiency, perceived familiarity, and trust.

To test the hypotheses, we conducted a survey using a 5-point Likert scale, with responses ranging from 'Strongly Disagree' to 'Strongly Agree'. The independent variable in this study is the type of language attributes, cultural elements and trust and the dependent variables are the effectiveness of communication, understanding of the language, and satisfaction with the language attributes. Independent sample t-tests were used to compare the responses of the two groups.

Description of the Likert Scale

The Likert scale used in this study is a 5-point scale with the following options:

1 = Strongly Disagree

2 = Disagree

3 = Neither Agree nor Disagree

4 = Agree

5 = Strongly Agree

Participants were asked to rate their agreement with a series of statements related to the effectiveness, understanding, and satisfaction of the language, cultural and trust attributes they were exposed to. This scale was chosen for its simplicity and effectiveness in measuring attitudes and perceptions.

Explanation of the T-test

To analyse the data, independent sample t-tests were employed. This statistical method is used to compare the means of two independent groups to determine if there is a statistically significant difference between them. In our study, the t-tests were applied to compare the mean responses of the group exposed to unusual words and the control group for each of the nine hypotheses. The test provides a t-value, which indicates the difference between the two groups in terms of the standard error, and a p-value, which helps in determining the significance of the results. A p-value less than 0.05 was considered to indicate a statistically significant difference between the groups.

Questionnaire Design

This study aims to collect and analyse data to evaluate the cultural usability of eGovernment. To achieve this goal, three questionnaires were developed to collect data from a sample of Chinese and Indian migrants. The questionnaire design followed established principles of survey research, including the use of closed-ended questions and a 5-point Likert scale to measure attitudes and behaviours.

A structured or fixed-response questionnaire was developed, presenting respondents with predetermined questions and responses. This design helped collect precise, standardised data that could be easily compared across different groups.

The questionnaire consisted of eight main sections: (1) Demographic Information, (2) Understanding of Idioms, Jargon, (3) Understanding of Abbreviations, Initialisms / Acronyms, (4) Reading Level, (5) Icons, (6) Colours, (7) Images of People, and (8) Trust in EGovernment.

The first section of the questionnaire collected demographic information, including age, gender, verification of being a Chinese or Indian migrant, confirmation of receiving a current Australian Government benefit, and the number of monthly jobs sought using the digital jobsearch service each month. This information was used to ensure that the sample was representative of the population of interest.

The second section of the questionnaire assessed the participants' understanding of Idioms and Jargon. This section included seven 5-point Likert questions about idioms and seven 5-point Likert questions about jargon. Respondents were asked three questions to rate their satisfaction with each attribute.

The third section of the questionnaire assessed participants' understanding of Abbreviations, Initialisms/Acronyms. This section included seven 5-point Likert questions about

abbreviations and seven 5-point questions about initialisms/acronyms. Respondents were asked three questions to rate their satisfaction with each attribute.

The fourth section of the questionnaire assessed participants' understanding of the Readable text. This section included seven 5-point Likert questions about a text they had been given to read. Respondents were asked three questions to rate their satisfaction with the reading material. The time that it took for a respondent to read a text was also recorded in this section.

The fifth section of the questionnaire assessed the participants' understanding of Icons. This section included seven 5-point Likert questions about icons. Respondents were asked three questions to rate their satisfaction with icons used on an eGovernment service.

The sixth section of the questionnaire assessed the participants' understanding of Colour. This section included seven 5-point Likert questions about colour. Respondents were asked three questions to rate their satisfaction with the colour used on an eGovernment service.

The seventh section of the questionnaire assessed the participants' understanding of Images of People. This section included seven 5-point Likert questions about images of people. Respondents were asked three questions to rate their satisfaction with images of people used on an eGovernment service.

The eighth section of the questionnaire assessed the participants' Trust in an eGovernment service. This section included three 5-point Likert questions about trust.

The questionnaire was pre-tested with a small sample of participants to ensure it was clear, concise, and easy to understand. The pre-test results were used to refine the questionnaire before administering it to the total sample.

Questionnaire Construction

A questionnaire was administered to participants, wherein they were asked to complete either a control questionnaire (text and images taken directly from the jobsearch web page)

or a treatment questionnaire (text and images modified for either a Chinese or Indian respondent). After reading and viewing the assigned text and images, participants were required to provide ratings and evaluations based on Likert scales for various statements. Additionally, they were asked to rate their satisfaction and understanding of the text or image provided.

The Likert scale ratings were utilised to gather subjective responses on participants' beliefs, feelings, and confidence levels in understanding and interpreting the main ideas presented in the texts or images. The statements within each group of questions captured participants' perspectives on the text or image's effectiveness, the content's alignment with the web page's objectives, and the level of communication between the web page and the participants.

This questionnaire-based study aimed to gather insights into participants' experiences with the control and treatment texts or images, assessing their perceptions of clarity, satisfaction, and understanding. The data collected through this research will contribute to a better understanding of how textual variations and communication strategies can impact readers' evaluations and interpretations of informational content.

Three questionnaires were constructed for this study. The first questionnaire was the control, utilising the currently used text and images from an eGovernment service. As the questionnaires were constructed using 3rd party on-line software and are no longer viable, a portable document format of the Control questionnaire is available in Appendix F.

The second questionnaire was designed as a treatment questionnaire specifically targeted towards Chinese respondents. It incorporated more straightforward language and culturally familiar elements tailored to enhance understanding and engagement. The intention was to gauge the effectiveness of adapting the content to better align with the preferences and needs of Chinese participants.

Similarly, the third questionnaire served as another treatment questionnaire, but this time targeted at Indian respondents. It mirrored the approach of the second questionnaire, incorporating simplified language and culturally appropriate elements that resonated with Indian participants. The goal was to evaluate the impact of such adaptations in enhancing comprehension and engagement among Indian respondents.

By constructing these three questionnaires, this study aimed to compare the responses and perceptions of participants exposed to the control version versus those exposed to the treatment questionnaires targeting Chinese and Indian respondents. The findings will provide valuable insights into the effectiveness of tailoring content to specific cultural and linguistic contexts within eGovernment services.

The following sections describe the control and treatment stimuli developed for the questionnaires. For each stimulus, we present the Likert scale questions included in the questionnaire.

We used a control video from a job search website regarding the Images of People section. Additionally, we created two videos specifically for Chinese and Indian respondents. You can access these videos at the following link:
https://www.dropbox.com/scl/fo/d03lvxv0ms2yncgepu4zo/h?dl=0&rlkey=jxmw6unth2zyfkbk6g3ii4x0v

Question Development

Numerous established questionnaires and evaluation methods populate the realm of user interface satisfaction and usability analysis.

Developed in 1988, the QUIS (Questionnaire for User Interface Satisfaction), designed by Chin *et al.*, consists of 27 questions that measure user satisfaction with the interface. This was followed closely by the PUEU (Perceived Usefulness and Ease of Use) questionnaire in 1989 by Davis, which features 12 questions to evaluate users' views on a system's usefulness and ease of use.

The work of Nielsen (1993) is also prominent in this area. In 1993, he introduced two distinctive tools, NAU (Nielsen's Attributes of Usability) and NHE (Nielsen's Heuristic Evaluation). While the former identifies five key usability attributes without providing specific questions, the latter uses ten heuristics for system usability evaluation.

Following this, in 1995, Lewis developed the PSSUQ (Post-Study System Usability Questionnaire) and the ASQ (After Scenario Questionnaire). Containing 19 questions, the PSSUQ is designed to measure system usability following a user study. Conversely, the ASQ comprises only three questions and collects user feedback after participating in specific scenarios.

The late '90s saw two additional tools, the PHUE (Practical Heuristics for Usability Evaluation) by Perlman in 1997 and the PUTQ (Purdue Usability Testing Questionnaire) by Lin et al. in the same year. The PHUE introduces 13 heuristic points for usability evaluation, while the PUTQ, with its extensive 100 questions, gathers user feedback during usability testing.

In 2001, Lund proposed the USE questionnaire (Usefulness, Satisfaction, Ease of use) containing 30 questions to evaluate a system's perceived usefulness, satisfaction, and ease of use.

Two more tools should also be mentioned. First, the SUS (System Usability Scale) by Brooke in 1986, a widely used 10-question scale for assessing overall system usability, and second, the SUMI (System Usability Measurement Inventory) by Kirakowski in 1994, a 50-question inventory to gauge various aspects of system usability.

Together, these questionnaires and inventories provided a comprehensive toolkit for this thesis, allowing data collection to gain insights into user interface satisfaction, perceived usefulness, ease of use, and general system usability.

The questions asked in this thesis are relevant as they focus on the user's perception of the clarity, readability, quality, and comprehension of the texts or information provided. These questions align with user satisfaction, perceived usefulness, and ease of use, which are central to the questionnaires. These questions have been reformulated based on the original work of the researchers mentioned and are used in the language attributes section of the questionnaire.

Question 1: "The provided texts were very clear in their message."

This question reflects the importance of clarity in user interface satisfaction. It relates to the QUIS questionnaire, which measures user satisfaction with the interface and the clarity of its messages.

Question 2: "The provided texts were easy to read."

This question addresses the ease of use aspect of the user experience. It aligns with the PUEU questionnaire, which assesses users' perceptions of the ease of use of a system, including the readability of the texts.

Question 3: "I found that the provided texts were well-written."

This question highlights the quality of the texts and their impact on user satisfaction. It resonates with the QUIS questionnaire, which aims to measure user satisfaction with the interface, including the quality of the content presented.

Question 4: "I found that the provided texts were interesting to read."

This question touches upon the user's engagement and satisfaction with the texts. While not explicitly covered by the discussed questionnaires, user engagement and interest can influence perceived usefulness and overall system usability.

Question 5: "It is clear from the provided texts that the authors of the jobsearch web page write in a manner that maximizes my comprehension of their message."

This question emphasizes the importance of effective communication between the web page and the user. It aligns with the idea behind Nielsen's Attributes of Usability (NAU), which focuses on usability attributes, including communication effectiveness.

Question 6: "It is clear from the provided texts that the main message is mostly about helping new businesses."

This question pertains to the user's understanding of the main message conveyed in the texts. While not directly related to a specific questionnaire, understanding the central message aligns with the general goal of user interface satisfaction and perceived usefulness.

Question 7: "I can tell from the provided texts that it is essential for the jobsearch web page to communicate well with me."

This question emphasises the significance of effective communication for the success of the job search web page. It echoes the purpose of various questionnaires and inventories discussed, which aim to assess and improve the communication and usability aspects of a system.

Unusual Words - Satisfaction

The statements in this section express satisfaction with understanding the texts the jobsearch web page provides. They align with the concept of user satisfaction and the

purpose of questionnaires like QUIS, PUEU, and PSSUQ, which focus on assessing user satisfaction with the interface, usefulness, and ease of use.

Unusual Words - Understanding

The statements used in this section demonstrate confidence and comprehension of the main ideas presented in the text. They relate to the user's understanding and align with the goal of the discussed questionnaires and inventories, which aim to evaluate and enhance the user's understanding and comprehension of the system or interface.

The questions and statements used in this thesis reflect various aspects of user interface satisfaction, perceived usefulness, and ease of use, which are pertinent for assessing system usability and user satisfaction.

Icons, Colour and Images of People

The questions about the icons focus on users' comprehension and interpretation of the icons used on the web page. These questions align well with measures in the QUIS (Questionnaire for User Interface Satisfaction), which assesses user satisfaction with the interface. Furthermore, the PUEU (Perceived Usefulness and Ease of Use) was relevant here, as understanding icons contributes to the perceived ease of use.

Satisfaction with the icons on the web page echoes the themes explored in Lewis's PSSUQ (Post-Study System Usability Questionnaire) and ASQ (After Scenario Questionnaire), which assess user satisfaction and feedback after an interaction.

The questions regarding the colour scheme of the web page align with aspects of the USE (Usefulness, Satisfaction, Ease of use) questionnaire, which aims to evaluate user satisfaction and perceived ease of use. Questions about colour appropriateness for culture might indicate the influence of Nielsen's Attributes of Usability, emphasising the importance of matching the interface to the user's cultural context and expectations.

The "Images of People" questions connect to Nielsen's Heuristic Evaluation and Perlman's PHUE (Practical Heuristics for Usability Evaluation); they focus on the representativeness and cultural appropriateness of the images. These aspects are critical components of a heuristic evaluation, highlighting the importance of matching system design to the real world (Nielsen's heuristic) and cultural and linguistic appropriateness (Perlman's heuristics).

Satisfaction with the images of people on the web page and in the video resonates with the purpose of SUMI (System Usability Measurement Inventory), assessing user satisfaction with various aspects of system usability.

The questions in the thesis reflect several dimensions of the user interface and usability evaluation methods discussed earlier. They provide comprehensive feedback on icons, colours, and images of people, targeting aspects such as representativeness, cultural appropriateness, and overall user satisfaction.

Trust

Trust is a crucial aspect of website quality and user perception, and several studies in the table emphasise its importance.

Various studies highlight trust as a dimension of website quality. For example, Barnes & Vidgen (2002) include trust as part of service interaction quality, Palmer (2002) associates trust with responsiveness and feedback mechanisms, and Parasuraman, Zeithaml & Malhotra (2005) consider trust as a factor related to privacy protection and guarantees.

The relevance and appropriateness of the trust-related questions in this thesis can be argued based on their alignment with these dimensions and factors. The questions specifically address users' trust in Australian eGovernment services, their perception of trustworthiness, and privacy protection while using such services.

The questions on trust align with the importance of trust as a dimension of website quality. They address users' trust-related concerns and the perceived trustworthiness of Australian eGovernment services, making them appropriate and relevant to the thesis.

Table B offers an overview of the measurements and the number of questions asked for each language attribute and cultural element.

Table B – Overview of Data Collection

Measurements					**No. of Questions**	**No. of Questions**	**No. of Questions**
A) Words	**Idioms**	**Jargon**	**Abbreviations**	**Initialisms / Acronyms**	**Chinese**	**Indians**	**Total**
A1 Perception	7	7	7	7	28	28	**56**
A2 Understanding	3	3	3	3	12	12	**24**
A3 Satisfaction	3	3	3	3	12	12	**24**
B) Reading Level	**Readability**						
B4 Perception	7				7	7	**14**
B5 Reading Efficiency	Observed						
B6 Satisfaction	3				3	3	**6**
C) Cultural Elements	**Icons**	**Colours**	**Images of People**				
C7 Relatable	7	7	7		21	21	**42**
C8 Satisfaction	3	3	3		9	9	**18**
D) Trust	Language	Cultural Elements	Egov Service				
D9 Trust	1	1	1		3	3	**6**
TOTAL					**95**	**95**	**190**

Notes:

- The 'Measurement Type' column provides a brief description of what each measurement item represents.

- The 'Chinese' and 'Indian' columns indicate the number of questions or measurement items for each group.
- The 'Total' column sums up the total number of questions or measurement items across both groups.
- For B5, "Observed" indicates that this measurement is based on observation rather than a set number of questions.

Control Text: Green highlight shows the idioms used on the jobsearch web page (jobsearch 2019).

Treatment Text: Blue highlight shows a more straightforward alternative than the idiom.

Control Text

1. NEIS provided the perfect opportunity to get their business off to a great start by providing training and financial support to get them up and running.

2. Which is why it's important for leaders to look beyond their employees' specific roles and find those underlying qualities that could very well be the driving force into an even brighter future.

3. When looking at résumés, don't just take things at face value, but consider how experience or skills that seem unrelated might fit your business needs either now or in the future.

4. But you could also screen interviewees with a phone call before the face-to-face interview.

5. This means ensuring you are in line with hiring laws, which you can find via the Fair Work Ombudsman.

Treatment Text

1. NEIS provided the perfect opportunity to get their business off to a great start by providing training and financial support to get them working properly.

2. Which is why it's important for leaders to look beyond their employees' specific roles and find those underlying qualities that could very well be the motivation for an even brighter future.

3. When looking at résumés, don't just accept things without further examination, but consider how experience or skills that seem unrelated might fit your business needs either now or in the future.

4. But you could also screen interviewees with a phone call before the direct contact interview.

5. This means ensuring you are in accordance with hiring laws, which you can find via the Fair Work Ombudsman.

Statements used on the questionnaire are based on literature discussed on pages 191-195 - Unusual Words - Idioms (Rate)

Based upon the five sentences that I previously read…

1. The provided texts were ***very clear in their message*.**

2. The provided texts were ***easy to read*.**

3. I found that the provided texts were ***well-written*.**

4. I found that the provided texts were ***interesting to read*.**

5. It is clear from the provided texts that the authors of the jobsearch web page write in a manner that ***maximises my comprehension*** of their message.

6. It is clear from the provided texts that the ***main message*** is mostly about helping new businesses.

7. ***I can tell*** from the provided texts that it is essential for the jobsearch web page to communicate well with me.

Unusual Words - Idioms (Satisfaction)

1. I am ***pleased*** to be able to understand the texts provided by the jobsearch web page.

2. I am ***content*** with understanding the text the jobsearch web page provides.

3. I am ***satisfied*** that I can understand the texts from the jobsearch web page.

Unusual Words - Idioms (Understanding)

1. I clearly understood the main ideas presented in the text.

2. I could effectively relate the information from the text to real-world scenarios.

3. I am confident in my understanding of the text to explain its main concepts to others.

Questionnaire -Unusual Words - Jargon

Control Text: Green highlight shows the jargon used on the jobsearch web page.

Treatment Text: Blue highlight shows a more straightforward alternative than the jargon.

Control Text	In this stage of the process, creativity and out of the box thinking is key.
Treatment Text	In this stage of the process, creativity and novel thinking are key.

Control Text	Having experienced several different workshops targeted at 'getting women into tech', Ally found that the top down approach most companies used was ineffective and even counterproductive.
Treatment Text	Having experienced several different workshops targeted at 'getting women into tech', Ally found that passing decisions down the management levels that most companies used were ineffective and even counterproductive.

Control Text	Apple needs no introduction. It is one of the most well-known brands in the world. Why? Because they've nailed your experience at every 'touch point'.
Treatment Text	Apple needs no introduction. It is one of the most well-known brands in the world. Why? Because they've nailed your experience at every consumer interaction.

Control Text	Many people think that entrepreneurs fly by the seat of their pants, but all successful business owners will tell you they still had to dot the i's and cross the t's when it came to setting up their business.
Treatment Text	Many people think that entrepreneurs fly by the seat of their pants, but all successful business owners will tell you they still had to make sure that every minor detail was completed when it came to setting up their business.

Control Text	This includes accelerators, which aim to take an already formed business idea and rapidly double down on its success, and incubators, which take a newly hatched idea and help build this into a business.
Treatment Text	This includes accelerators, which aim to take an already formed business idea and significantly increase its success, and incubators, which take a newly hatched idea and help build this into a business.

Unusual Words - Jargon (Rate)

Based upon the five sentences that I previously read…

1. The provided texts were *very clear in their message*.

2. The provided texts were *easy to read*.

3. I found that the provided texts were *well-written*.

4. I found that the provided texts were *interesting to read*.

5. It is clear from the provided texts that the authors of the jobsearch web page write in a manner that *maximises my comprehension of their message*.

6. It is clear from the provided texts that the *main message is mostly about helping new businesses*.

7. *I can tell* from the provided texts that it is essential for the jobsearch web page to communicate well with me.

Unusual Words - Jargon (Satisfaction)

1. I am ***pleased*** to be able to understand the texts provided by the jobsearch web page.
2. I am ***content*** with understanding the text the jobsearch web page provides.
3. I am ***satisfied*** that I can understand the texts from the jobsearch web page.

Unusual Words - Jargon (Understanding)

1. I clearly understood the main ideas presented in the text.
2. I could effectively relate the information from the text to real-world scenarios.
3. I am confident in my understanding of the text to explain its main concepts to others.

Questionnaire -Unusual Words – Abbreviations

Control Text: Green highlight shows the abbreviation used on the jobsearch web page.

Treatment Text: Blue highlight shows the whole word.

Control Text	This is a great option for an org or start-up with multiple products or services as it gives the full picture.
Treatment Text	This is a great option for an organisation or start-up with multiple products or services as it gives the full picture.

Control Text	There's no attempt to try and cram a ton of info into a sound bite – rather the focus is on the why, the what and the how, so users are clear on what they're getting and can relate to the message.
Treatment Text	There's no attempt to try and cram a ton of information into a sound bite – rather the focus is on the why, the what and the how, so users are clear on what they're getting and are able to relate to the message.

Control Text	Ally Watson's idea for her venture, 'Code Like A Girl', was born out of personal frustration as a young woman working in the male-dominated tech industry, and a desire to build a network of female coders.
Treatment Text	Ally Watson's idea for her venture, 'Code Like A Girl', was born out of personal frustration as a young woman working in the male-dominated technology industry, and a desire to build a network of female coders.

Control Text	Taj showcases his product well with high res images, video footage and gives various opportunities to connect with Fiftysix through workshops and direct contact with the organisation.
Treatment Text	Taj showcases his product well with high-resolution images, video footage and gives various opportunities to connect with Fiftysix through workshops and direct contact with the organisation.

Control Text	When you log in to the app using your MyGov credentials you'll be asked to create a MyGov PIN.
Treatment Text	When you log in to the application using your MyGov credentials you'll be asked to create a MyGov PIN.

Unusual Words - Abbreviations (Rate)

Based upon the five sentences that I previously read…

1. The provided texts were ***very clear in their message***.

2. The provided texts were ***easy to read***.

3. I found that the provided texts were ***well-written***.

150

4. I found that the provided texts were ***interesting to read***.

5. It is clear from the provided texts that the authors of the jobsearch web page write in a manner that ***maximises my comprehension*** *of their message*.

6. It is clear from the provided texts that the ***main message*** *is mostly about helping new businesses*.

7. ***I can tell*** from the provided texts that it is essential for the jobsearch web page to communicate well with me.

Unusual Words - Abbreviations (Satisfaction)

1. I am ***pleased*** to be able to understand the texts provided by the jobsearch web page.

2. I am ***content*** with understanding the text the jobsearch web page provides.

3. I am ***satisfied*** that I can understand the texts from the jobsearch web page.

Unusual Words - Abbreviations (Understanding)

1. I clearly understood the main ideas presented in the text.

2. I could effectively relate the information from the text to real-world scenarios.

3. I am confident in my understanding of the text to explain its main concepts to others.

Questionnaire -Unusual Words – Initialisms / Acronyms

Control Text: Green highlight shows the initialisms/acronyms used on the jobsearch web page.

Treatment Text: Blue highlight shows the whole word(s).

Control Text	Nationally, Young Social Pioneers is available to entrepreneurs 29 and under Australia-wide through the Foundation for Young Australians, and on, CSIRO's sci-tech accelerator program.
Treatment Text	Nationally, Young Social Pioneers is available to entrepreneurs 29 and under Australia-wide through the Foundation for Young Australians, and on the Commonwealth Scientific and Industrial Research Organisation's sci-tech accelerator program.

Control Text	What is a business name? and how do I get one (go to the) ASIC.
Treatment Text	What is a business name? and how do I get one (go to the) Australian Securities and Investments Commission.

Control Text	Tax Basics for your small business (go to the) ATO.
Treatment Text	Tax Basics for your small business (go to the) Australian Taxation Office.

Control Text	Providing services - what do I need to know? (go to the) ACCC.
Treatment Text	Providing services - what do I need to know? (go to the) Australian Competition and Consumer Commission.

Control Text	A lightbulb moment: How NEIS helped Michael start up his own business.
Treatment Text	A lightbulb moment: How the New Enterprise Incentive Scheme helped Michael start his own business.

Unusual Words – Initialisms / Acronyms (Rate)

Based upon the five sentences that I previously read…

1. The provided texts were ***very clear in their message***.

2. The provided texts were ***easy to read***.

3. I found that the provided texts were ***well-written***.

4. I found that the provided texts were ***interesting to read***.

5. It is clear from the provided texts that the authors of the jobsearch web page write in a manner that ***maximises my comprehension*** *of their message*.

6. It is clear from the provided texts that the ***main message*** *is mostly about helping new businesses*.

7. ***I can tell*** from the provided texts that it is essential for the jobsearch web page to communicate well with me.

Unusual Words - Initialisms / Acronyms (Satisfaction)

1. I am ***pleased*** to be able to understand the texts provided by the jobsearch web page.
2. I am ***content*** with understanding the text the jobsearch web page provides.
3. I am ***satisfied*** that I can understand the texts from the jobsearch web page.

Unusual Words – Initialisms / Acronyms (Understanding)

1. I clearly understood the main ideas presented in the text.
2. I could effectively relate the information from the text to real-world scenarios.
3. I am confident in my understanding of the text to explain its main concepts to others.

Control Text: The control text was taken from the jobsearch web page.

Treatment Text: The treatment text was rewritten for lower-grade-level readers as detailed in Table 1.

Control Text

Kaileb McKenzie is at the start of an exciting new career as a chef, following his participation in a successful Transition to Work program on Queensland's Gold Coast.

Transition to Work (TtW) services provide intensive, pre-employment support to improve the work-readiness of young people aged 15 to 21 years and help get them into work, apprenticeships, traineeships or education.

Gen-Z Employment is a TtW provider on Gold Coast and worked with Kaileb to identify and achieve his employment goals.

Kaileb had been working on a casual basis but was keen to find a suitable full-time job. With help from a Gen-Z Youth Development coach, Kaileb realised he had an interest in cooking. He completed a Cert III in Hospitality and undertook a successful work placement as a kitchen hand.

Kaileb's coach supported him in successfully applying for an apprenticeship, and he is now employed as an apprentice chef with Central Lounge and Dining.

Carmen Auer, General Manager at Gen-Z Employment, believes the innovative, flexible service improves employment outcomes for disengaged and disadvantaged young people.

'Transition to Work focuses on building a young person's skills, confidence and readiness to enter employment,' Carmen said. 'We help them set and achieve their employment and education goals by focusing on the strengths and abilities they already have.'

Gen-Z fosters strong employer networks to give participants opportunities to meet businesses in their local area, have career conversations and undertake work experience.

'The young people visit local businesses for an orientation, they have career conversations with managers, and see all the different aspects of that business,' Carmen said. 'They see the operational side of the business, but importantly it gets them to open their eyes to what work is like and the opportunities that are available. They get hands-on experience too.'

The Department of Jobs and Small Business funds TtW, which is delivered by a network of 43 providers throughout Australia.

For more information on TtW providers, visit the jobactive web page and Find a Provider.

Treatment Text

Kaileb McKenzie is starting a fine new career as a chef. He was in a successful Transition to Work program on Queensland's Gold Coast.

Transition to Work (TtW) services provide thorough, pre-work support. This improves the work skills of young people (aged 15 to 21). This also helps them to work, apprenticeships, traineeships or study.

Gen-Z Employment is a TtW provider on Gold Coast. They worked with Kaileb to find and achieve his work goals.

Kaileb had been working on a casual basis. He was keen to find a good full-time job. With help from a Gen-Z Youth Development coach, Kaileb found he had a flare for cooking. He did a Cert III in Hospitality. This began a new work placement as a kitchen hand.

Kaileb's coach backed him to apply for an apprenticeship. He is now employed as an apprentice chef with Central Lounge and Dining.

Carmen Auer, General Manager at Gen-Z, believes the new, flexible service improves work outcomes for young people.

'Transition to Work centres on building a young person's skills. It also builds confidence and readiness to enter work,' Carmen said. 'We help them set and achieve their work and study goals. We do this by focusing on the strengths and skills they already have.'

Gen-Z fosters strong employer networks. This provides a chance for young people to meet businesses in their local area. Career chats and work placements are possible outcomes.

'The young people visit local businesses to get a lay of the land. They have career chats with managers and see all the different aspects of that business,' Carmen said. 'They see the working side of the business. Importantly, it gets them to open their eyes as to what work is like and the prospects for them out there. They get hands-on training too.'

The Department of Jobs and Small Business funds TtW. TtW is delivered by a network of 43 providers throughout Australia.

For more info on TtW providers, visit the jobactive web page and Find a Provider.

The control text was rewritten to produce the treatment text, as detailed in Table 1. The Table illustrates significant improvements in the readability and accessibility of the treatment text compared to the original control text. This enhancement is vital for several reasons, mainly when the text is meant to interface between government services and a diverse population.

Firstly, the numerous readability metrics (Flesch Reading Ease score, Gunning Fog, Flesch-Kincaid Grade Level, etc.) consistently show that the treatment text is easier to read than the control text. This is crucial as complex, difficult-to-read text could deter users, impair comprehension, and ultimately obstruct the utilisation of eGovernment services. By lowering the readability level to around sixth to ninth grade, the treatment text caters to a broader audience, improving inclusivity and accessibility.

Secondly, the treatment text has a higher percentage of single-syllable words and fewer words with three or more syllables, indicating more straightforward vocabulary and less complex sentence structures. This can further enhance understanding and readability, particularly for users whose first language may not be English or who may have lower literacy levels.

Thirdly, the treatment text has a higher number of sentences but a lower average word count per sentence. This implies shorter, more straightforward sentences that are generally easier to read and comprehend. This can particularly benefit users who might feel overwhelmed by longer, denser sentences.

Finally, despite its improved readability, the treatment text maintains a similar total word count and percentage of unique words as the control text, suggesting that it conveys a similar amount of information and diversity of content. This shows that making a text more readable doesn't necessarily mean simplifying the content but instead presenting it in a more accessible way.

Rewriting the eGovernment text into a more user-friendly format is critical to ensure that the intended services are accessible, inclusive, and usable by the broadest possible audience. This is especially important in eGovernment services, where the information provided often has significant implications for users' lives and well-being. By improving readability, the treatment text can potentially increase engagement, comprehension, and satisfaction among users, thereby enhancing the effectiveness and reach of these services.

Table 1 Text Usability - Readability

Text Usability - Readability				
	Control Text	Control Grade Level	Treatment Text	Treatment Grade Level
Flesch Reading Ease score	43.8 (text scale)	Difficult to read	72.6	Fairly easy to read
Gunning Fog	15.3 (text scale)	Hard to read	7.6	Fairly easy to read
Flesch-Kincaid Grade Level	12.4	Twelfth Grade	6	Sixth Grade
The Coleman-Liau Index	12	Twelfth Grade	9	Ninth Grade
The SMOG Index	12.3	Twelfth Grade	6.8	Seventh Grade
Automated Readability Index	12.9	18-19 yrs. old (college-level entry)	5.5	10-11 yrs. Olds (Fifth and Sixth graders)
Linsear Write Formula	15.2	College	6.1	Sixth Grade
Text Statistics				
Total # of words	341		345	
Total # of unique words:	192 (56% of the total text)		189 (55% of the total text)	
Total # of repeat words	149 (44% of the total text)		156 (45% of the total text)	
Average # of words per sentence	21		12	
Total # of sentences	16		30	
Total # of characters	1717		1548	
Average # of characters per word	5		4.5	
Average # of syllables per word	2		1	
Total syllables in the text	564		493	
Total # of words with double syllables	55		66	
Per cent of double syllables in the text	16%		19%	
Total # of words with single syllables	214		240	
Per cent of single syllables in the text	63%		70%	
Per cent of 3+ syllables in the text	21%		11%	
Total # of words with 3+ syllables	72		39	

Reading level (Rate)

Based upon the text I previously read…

1. The provided text was ***very clear in its message***.

2. The provided text was ***easy to read***.

3. I found that the provided text was ***well-written***.

4. I found that the provided text was ***interesting to read***.

5. It is clear from the provided text that the authors of the jobsearch web page write in a manner that ***maximises my comprehension*** of their message.

6. It is clear from the provided text that the ***main message*** is primarily about 'Transition to Work'.

7. ***I can tell*** from the provided texts that it is essential for the jobsearch web page to communicate well with me.

Reading level (Satisfaction)

1. I am ***pleased*** to be able to understand the text provided by the jobsearch web page.

2. I am ***content*** with understanding the text provided by the jobsearch web page.

3. I am ***satisfied*** that I can understand the text provided by the jobsearch web page.

Control Icons:	The control icons in Figure 3 were taken from the jobsearch webpage.
Treatment Icons:	The icons in Figures 4 and 5 were created for the Indian and Chinese questionnaires. The treatment icons closely represented the meaning of the control icons.

Icons – Control Group

The eight eGovernment icons were taken from the main landing page of the jobsearch webpage. It is clear from the headings used for each of the two groups of four icons that this main page for jobsearch is the gateway for job seekers and employers. Amongst the eight symbols, two are used twice.

An icon depicting a group of three people with the “find a provider” button in the job seekers category is also used in the employer’s category. It is unclear whether the largest of the three people within the icon is a job service provider with access to job seekers or whether all three people are jobseekers.

The second icon is used twice in the “find out now” button, which is used in job seekers and employer categories. This circular icon has five horizontal bars, some with arrowheads pointing to the right. What these five bars represent or what they are pointing toward is unclear. The message provided underneath this icon in the job seekers category asks a website user to “take part in an internship with a local business”. The same icon in the employer’s category asks a user of the website to “host an internship and trial a young person in your business”. It is unclear how this icon represents participating in or hosting an internship.

The jobseeker’s collection of icons also includes an image of an apple, possibly as a functional symbol to directly represent the activity of harvesting. The button for this icon is described as “find harvest work”. Another icon within the jobseekers collection is that of a magnifying glass. The button under the magnifying glass reads, “Find a job”. Unlike all other

symbols found amongst the eight, the magnifying glass icon is the only icon with a physical resemblance relationship between itself and its meaning. The remaining eGovernment icons in the employer's category include what appears to be a stopwatch with a button described as "find staff fast" and a tick icon that somehow represents "advertise a job".

The stopwatch icon has a descriptor beneath: "Job-ready candidates are online right now". No attempt has been made to represent an image of a job-ready candidate. The focus of this icon appears to imply that employers can find staff quickly, and an image of a stopwatch represents that. It could be argued that the eGovernment website, in this instance, places more importance on an employer finding staff quickly rather than finding a suitable job-ready candidate.

The tick icon has a descriptor placed beneath it that reads, "Advertise to thousands of candidates at no cost to you". Again, no attempt has been made to represent an image of a job-ready candidate. A simple tick is all that appears in this icon. As a pictorial symbol, it is difficult to argue that a tick represents either an advertisement to thousands of candidates as the descriptor implies, nor does it represent the text which appears on the button placed beneath "advertise a job". The tick is not a functional symbol. An example of a functional symbol may be an image of a tent. The tent can represent a campground. The image of a tick is not a conceptual symbol. For example, it does not directly represent a concept related to the represented feature. An example of a conceptual symbol may be a dollar sign. Conceptually the dollar sign could represent an ATM (automatic teller machine). The tick icon could be considered a conventional symbol because it is associated primarily with the English-speaking world, indicating "yes". Recently arrived migrants whose first language is not English may find that they do not have an intuitive relationship with using a tick to represent what the eGovernment website has used (advertise to thousands of candidates).

Icons – Treatment Group India

Eight Indian treatment icons (Figure 4) were created for use within the Indian questionnaire. The background colour blocks the icons sit upon are the same for Indian and Chinese icons. Similar to the government questionnaire, two icons were used twice. The government's "find a provider" icon (an image of three people) is now represented as a group of Indian people in the jobseekers category and the government's "find a provider" icon in the employer's category. Also, the government's "find out now" icon (circle with five horizontal bars) is now represented as an Indian intern in the jobseekers category and the "advertise your internship" icon in the employer's category.

The apple icon, which represented "find harvest work" in the government questionnaire, has been replaced by a culturally enhanced icon that shows several stages of either rice or wheat harvesting. The new icon shows what appears to be an Indian worker in several different stages of harvesting. An apple icon may not best represent the concept of harvesting to an Indian national. India has several major harvest festivals, and it is difficult to argue that any of them focus on apples. India has the Makara Sankranti in January, Holi in February–March, Baisakhi in April, Rongali Bihu in April, Hareli Festival in July-August, Onam in August–September, Nuakhai in August–September, Diwali Festival in October-November, Kut Festival in November and the Tokhu Emong in November.

The group of three people used in the government questionnaire to represent "find a provider" has been replaced in the Indian questionnaire with an icon that has a central Indian character similar to the government icon but surrounded by five individuals, all of the Indian appearance.

The magnifying glass used in the government questionnaire has been replaced with one incorporating India's national flag colours. It has been strongly argued that people tend to have strong positive associations with the colours of their national flag (Akcay et al. 2011).

The circle with five horizontal lines within it, some with arrowheads pointing to the right in the government questionnaire, has been replaced by an image of an Indian man who appears to be performing many simultaneous business tasks just as an image of a stereotyped intern would perform.

The stopwatch in the government questionnaire, which represented “find staff fast”, has been replaced in the Indian questionnaire with two Indian caricatures of job-ready candidates. One female and one male character. These characters represent actual job-ready candidates rather than an image that represents time. Stuenkel (2011) reported that George Tanham, an American scholar, had earlier argued that there is an “absence of strategic planning” in India. Tanham blamed such a lack of planning on “the Hindu concept of time, or rather the lack of a sense of time.” Tanham argued, “Indians view life as an eternal present, with neither history nor future.”

The tick that was used in the government questionnaire has been replaced with an image of many Indian people that represent the thousands of candidates that employers can “advertise to at no cost”.

Icons – Treatment Group China

Eight Chinese treatment icons (Figure 5) were created for use within the Chinese questionnaire. The background colour blocks that the icons sit upon are the same for both the government icon presentation and the Chinese icon presentation. Similar to the government questionnaire, two icons were used twice. The government’s “find a provider” icon (an image of three people) is now represented as a group of Chinese people in the jobseekers category and the government’s “find a provider” icon in the employer’s category. Also, the government’s “find out now” icon (circle with five horizontal bars), is now represented a female Chinese intern in the jobseekers category and the “advertise your internship” icon in the employer’s category.

The apple icon, representing “find harvest work” in the government questionnaire, has been replaced by a culturally enhanced icon showing a gender-neutral figure harvesting a ground-level crop. The new icon appears to be a Chinese worker wearing a conical rice hat, harvesting rice, wheat, sorghum, millet or barley. An apple icon may not best represent the concept of harvesting to a Chinese national. China has a major harvest festival, and it is difficult to argue that it focuses on apples. The Mid-Autumn Festival, also known as the Moon Festival or Harvest Moon Festival in China, celebrates three fundamental concepts. Those concepts are closely connected and celebrate gathering, thanksgiving and praying.

The group of three people used in the government questionnaire to represent “find a provider” has been replaced in the Chinese questionnaire with an icon that has a central Chinese character similar to the government icon but surrounded by five individuals, all of the Chinese appearance.

The magnifying glass used in the government questionnaire has been replaced with one incorporating China’s national flag colours of red and yellow. It has been strongly argued that people tend to have strong positive associations with the colours of their national flag (Akcay et al. 2011).

The circle with five horizontal lines within it, some with arrowheads pointing to the right in the government questionnaire, has been replaced by an image of a young Chinese female caricature who appears to be waving at an observer. An image of a potential intern may give an eGovernment user a more relatable image of the provided service.

The stopwatch in the government questionnaire, which represented “find staff fast”, has been replaced in the Chinese questionnaire with two Chinese caricatures of job-ready candidates. One female and one male character. These characters represent actual job-ready candidates rather than an image that represents time. Li (2008, p.64), after analysing the unique values of Chinese traditional cultural time orientation when compared to Western cultural time orientation, found that “unlike the Western time orientation that accentuates the

objectiveness, absoluteness, and fixation of time, the Chinese traditional cultural time orientation conceives time to be subjective, relative, and flexible". The stopwatch image may not have conveyed the intended message that the eGovernment icon aimed to achieve.

The tick used in the government questionnaire has been replaced with an image of many young Chinese people representing the thousands of candidates that employers can "advertise to thousands of candidates at no cost to you".

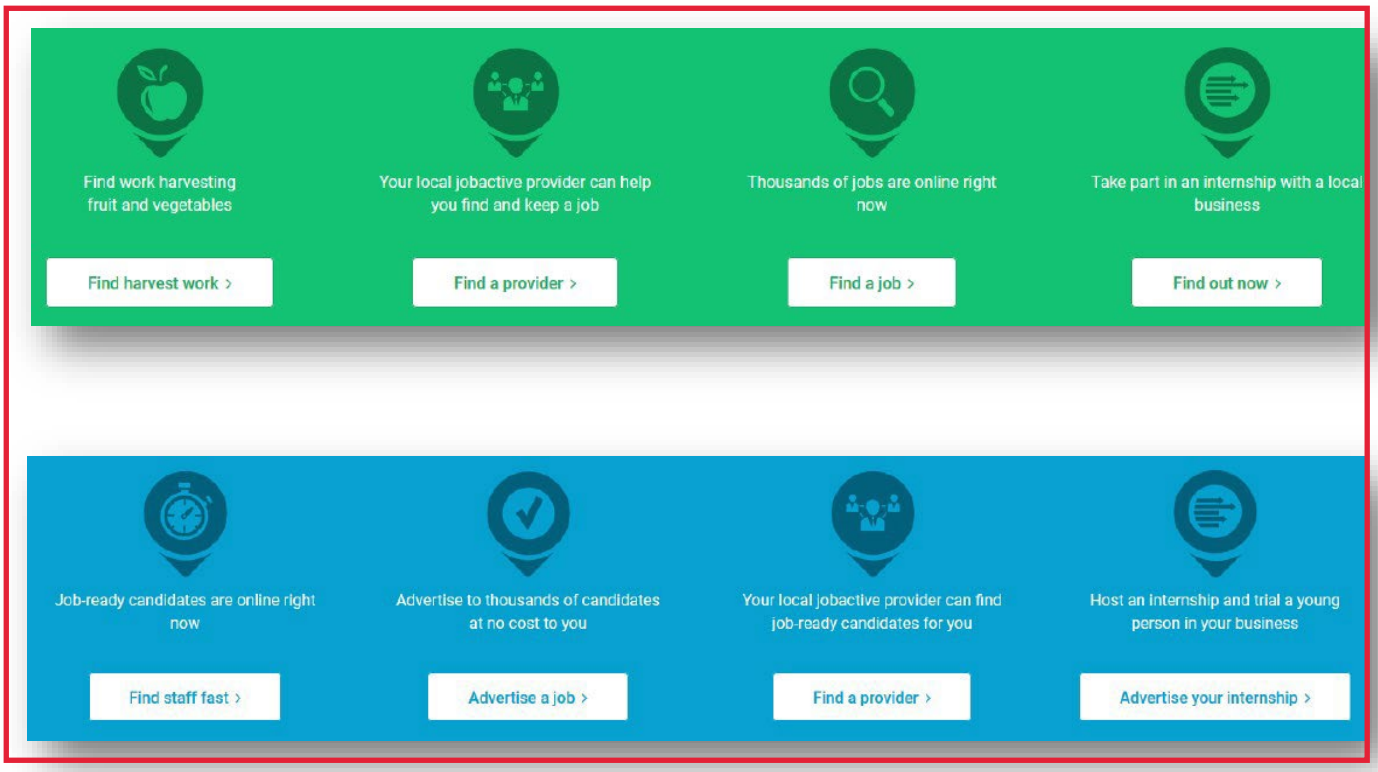

Figure 3 Control Icons

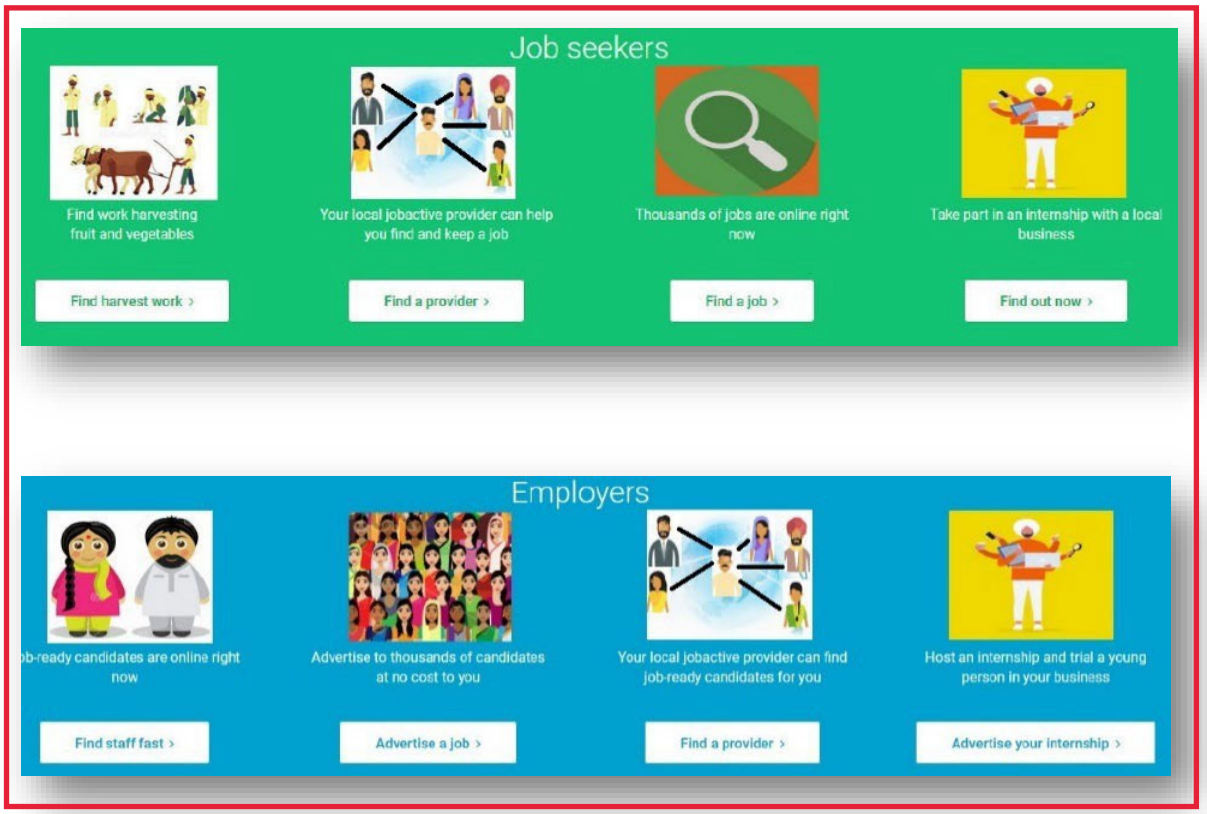

Figure 4 Treatment Icons (India)

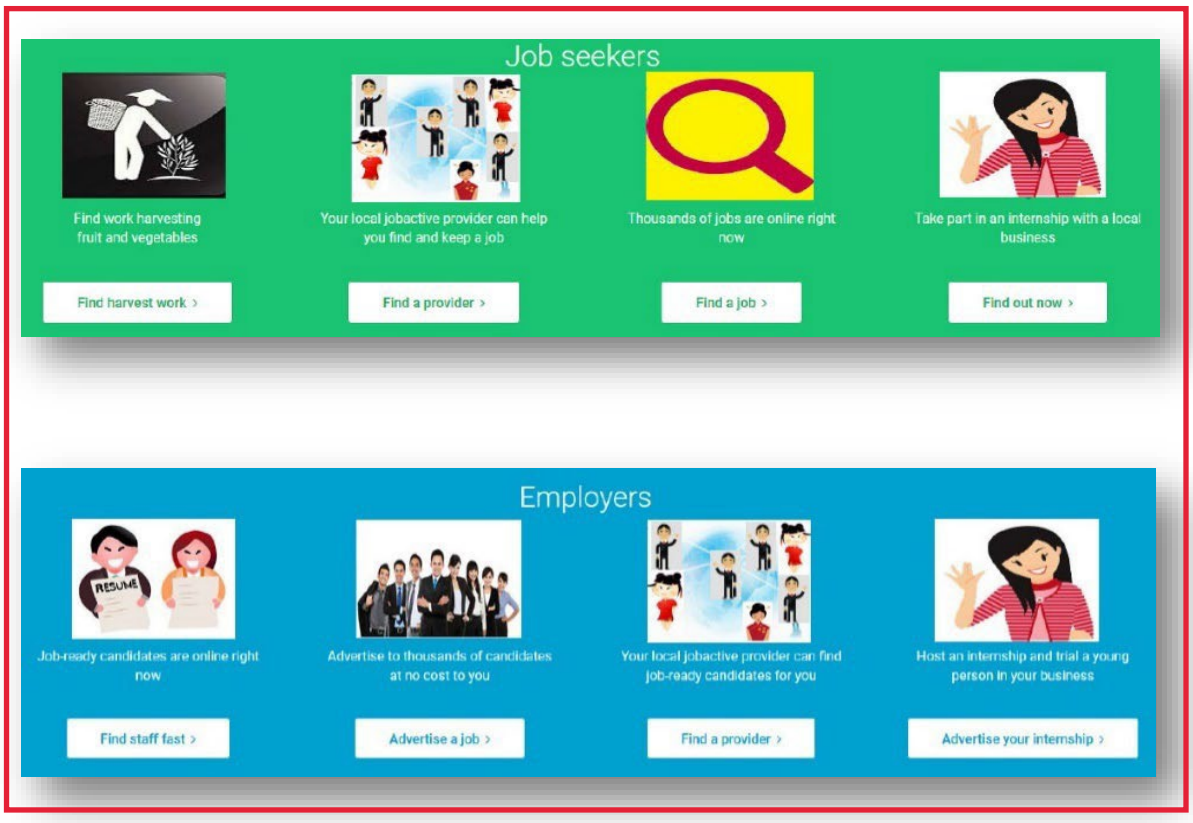

Figure 5 Treatment Icons (China)

Icons (Rate)

Based upon the icons I previously viewed…

1. I believe that the “Find harvest work icon” represents the activity of harvesting.

2. I believe that the “Find a provider icon” represents the activity of finding a job service provider.

3. I recognised that the “Find a job icon” targeted my culture.

4. I can associate the “Find out now icon” with new internships.

5. The “find staff fast icon” targets my culture.

6. I can connect the “Advertise a job icon” to reach many job seekers.

7. I believe that the icons presented enhance the usability of the jobsearch web page.

Icons (Satisfaction)

1. I am *pleased* to be able to understand the icons used on the jobsearch web page.

2. I am *content* with understanding the icons used on the jobsearch web page.

3. I am *satisfied* that I understand the icons on the jobsearch web page.

NOTE: During the pilot testing phase of the questionnaires, there was a specific effort to ensure that participants from India and China correctly understood the meanings of the icons used in the questionnaires. This verification was done to avoid any cultural misunderstandings or misinterpretations of the icons by individuals from these two countries. This highlights a step taken to ensure clarity and accuracy in the responses from Indian and Chinese participants.

Control Colour:	The control colours were taken from the jobsearch web page.
Treatment Colour:	The treatment colours were used for the Indian and Chinese questionnaires. The colour treatments did not change the control layout.

Colour – Control Group

Very few colours are used on an Australian eGovernment jobsearch webpage (Figure 8). The primary background colour surrounding the "find a job" section at the top of the webpage is dark blue. Below this section are six rectangular boxes that, when clicked, take job seekers to different sections of the jobsearch website. Each of those six boxes has a title in white text on a *blue* background. The remainder of each of the six boxes is coloured in *grey*. The side panels of the leading information area are presented in a *very light grey* colour.

Bellizzi et al. (1983) observed that colour was essential to studying signs, symbols and their interpretations. The colours used on the Australian eGovernment webpage carry both important symbolic and associative messages "and act as a potent cue for conferring meaning" to the services offered by the government (Schmitt & Pan 1994; Garber et al. 2000).

Aslam (2005) conducted a cultural review of colour and found that colours represent different meanings and aesthetic appeals in different cultures. For example, blue is perceived as cold and evil in East Asia and black and grey colours are associated with dullness and stupidity in Indian culture (Schmitt 1995; Kreitler & Kreitler, 1972, cited in Grossman & Wisenblit 1999). The main jobsearch webpage used to start an employment search consists of only blue, grey and white. Chinese and Indian jobseekers must use this webpage to begin a job search.

Colour – Treatment Group India

I constructed the culturally enhanced Indian webpage using Adobe Photoshop image editing software (Figure 9). The only element of the webpage changed from the original eGovernment source was colour. The colours chosen for the Indian webpage were the colours of the Indian national flag. Akcay et al. (2011) argued that people have a strong positive association with the colours of their national flag. The colours of the Indian national flag include green, white and orange. The Indian flag can be viewed in Figure 6.

Figure 6 Flag of India

It was decided that the main "find out job" search area should be green and that the six rectangular boxes underneath should combine green and orange. The eGovernment webpage used only blue highlights for these six boxes, and it was for no other reason than aesthetics that the orange and green colours were alternated. The colours of the Indian national flag were also used on the side panels of the webpage. The search button was changed from blue to green on the Indian questionnaire. All grey areas within the eGovernment webpage were replaced with red on the Indian questionnaire. Aslam (2005) identified red as associated with ambition and desire for Indian nationals. Ambition is certainly a quality that is required when seeking employment.

Colour – Treatment Group China

I constructed the Chinese culturally enhanced webpage (Figure 10). Again, Adobe Photoshop was used to create the Chinese webpage. No other element other than colour was changed from the original eGovernment webpage. The colours chosen for the Chinese webpage were the colours of the Chinese national flag. Akcay et al. (2011) found that people have a strong positive association with the colours of their national flag. The colours of China's national flag are red and yellow. The Chinese national flag can be viewed in Figure 7.

Figure 7 Flag of the People's Republic of China

It was decided that the main "find out job" search area should be black, which Aslam (2005) found to represent power, expense and high quality amongst Chinese nationals. The six rectangular boxes underneath should be a combination of red and yellow. The eGovernment webpage used only blue highlights for these six boxes, and it was for no other reason than aesthetics that the red and yellow colours were alternated. The colour red from the Chinese national flag was also used on the side panels of the webpage. The search button was changed from blue to yellow on the Chinese questionnaire. All grey areas within the eGovernment webpage were replaced with black on the Chinese questionnaire. Yellow on the Chinese culturally enhanced webpage is sparingly used. Aslam (2005) identified that yellow was associated with being pleasant and authoritative for Chinese nationals. A job search website that had both these associations may benefit Chinese migrants when seeking employment.

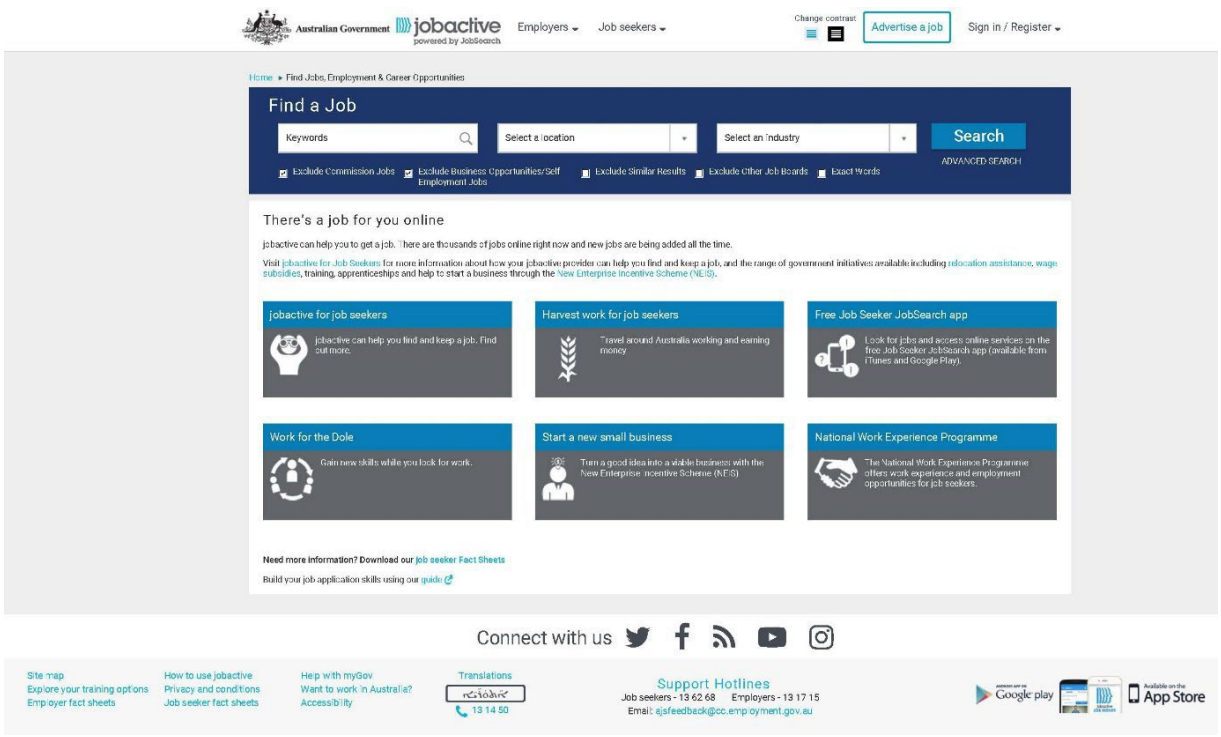

Figure 8 Control Colour

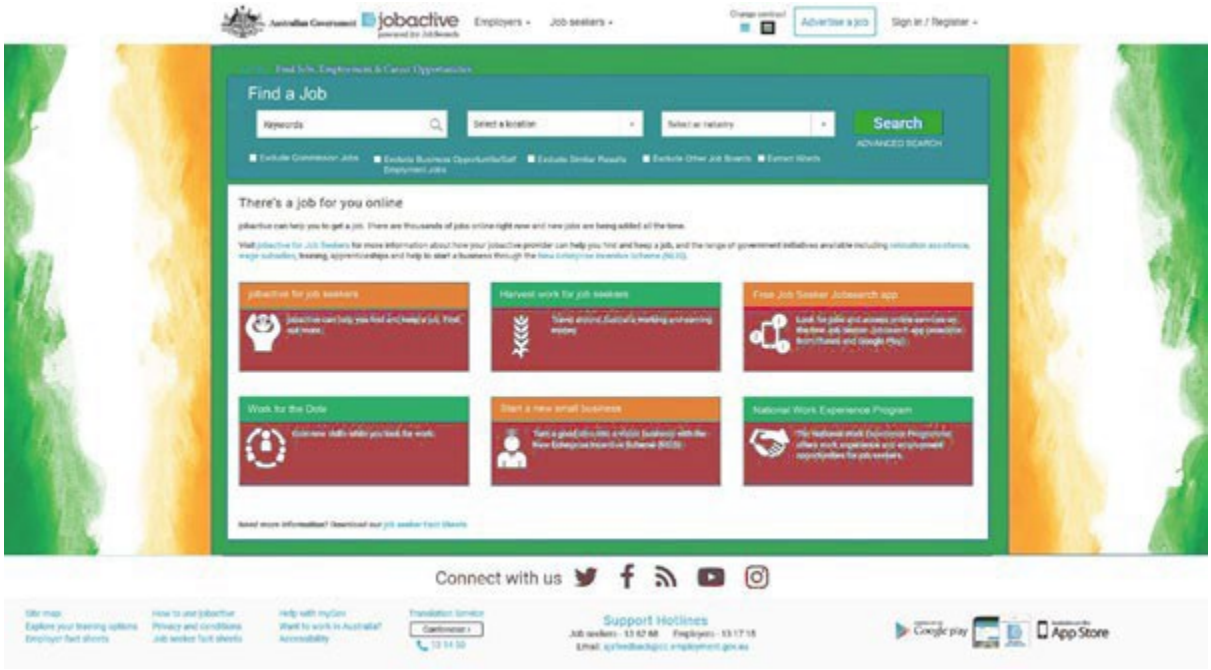

Figure 9 Treatment Colour (India)

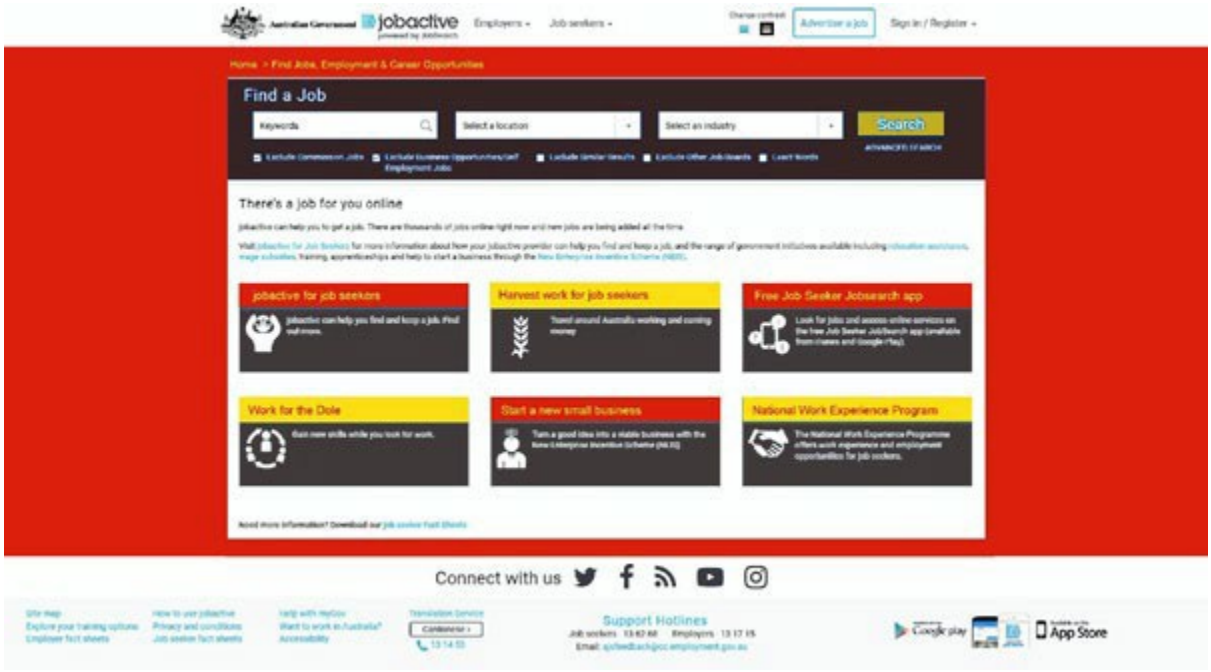

Figure 10 Treatment Colour (China)

Colour (Rate)

Based upon the colours I previously viewed…

1. The colours on the web page ***are pleasing***.
2. ***I like*** the colours on the web page.
3. The colours on the web page ***are appropriate*** for my culture.
4. The colours used on the web page ***are emotionally appealing***.
5. The colours used on the web page ***are attractive***.
6. The colours used on the web page ***are visually harmonious***.
7. The colours used to make the web page ***look well-designed***.

Colour (Satisfaction)

1. The web page colours ***completely fulfil my expectations***.
2. This web page ***satisfies my needs*** well.
3. This web page was ***satisfactory overall***.

Questionnaire -Images of People

Control Images of People: The control images of people and videos were taken from the jobsearch web page.

Treatment Images of People: The treatment images of people and videos were used for the Indian and Chinese questionnaires. The treatments did not change the control layout.

Images of People

To gather the required data, respondents were asked to view the jobsearch webpage that was either extracted from the jobsearch website (the control, Figure 11) or created (Indian treatment, Figure 12 or Chinese treatment, Figure 13). Respondents were also asked to view an eGovernment video (control video Figure 14 and Appendix F) from the jobsearch webpage titled, “How to Dress for an Interview Part 1”, or one of the two videos created for each migrant group (Indian video Figure 15 or Chinese video Figure16, and Appendix F). The control questionnaire used the original Jobsearch webpage as a basis for questions (Figure 11). The control webpage was presented in the questionnaire precisely as it had appeared on the jobsearch website. So too, was the government-produced video. No alterations were made to either original. The treatment questionnaires provided a culturally enhanced (by images of immigrants) version of the government webpage and video. The webpages were digitally enhanced with Adobe Photoshop image editing software, and the videos were created with Adobe Premiere Pro video editing software.

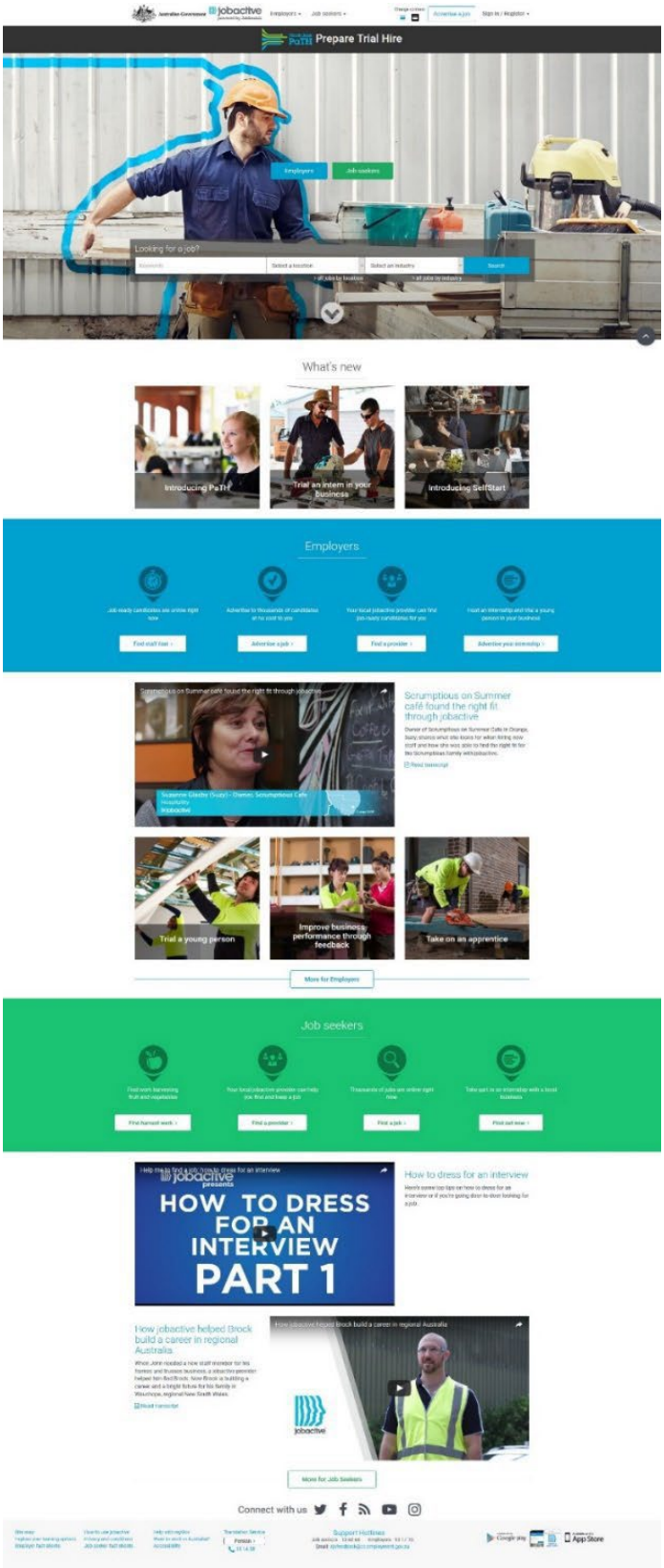

Figure 11 Control Images of People

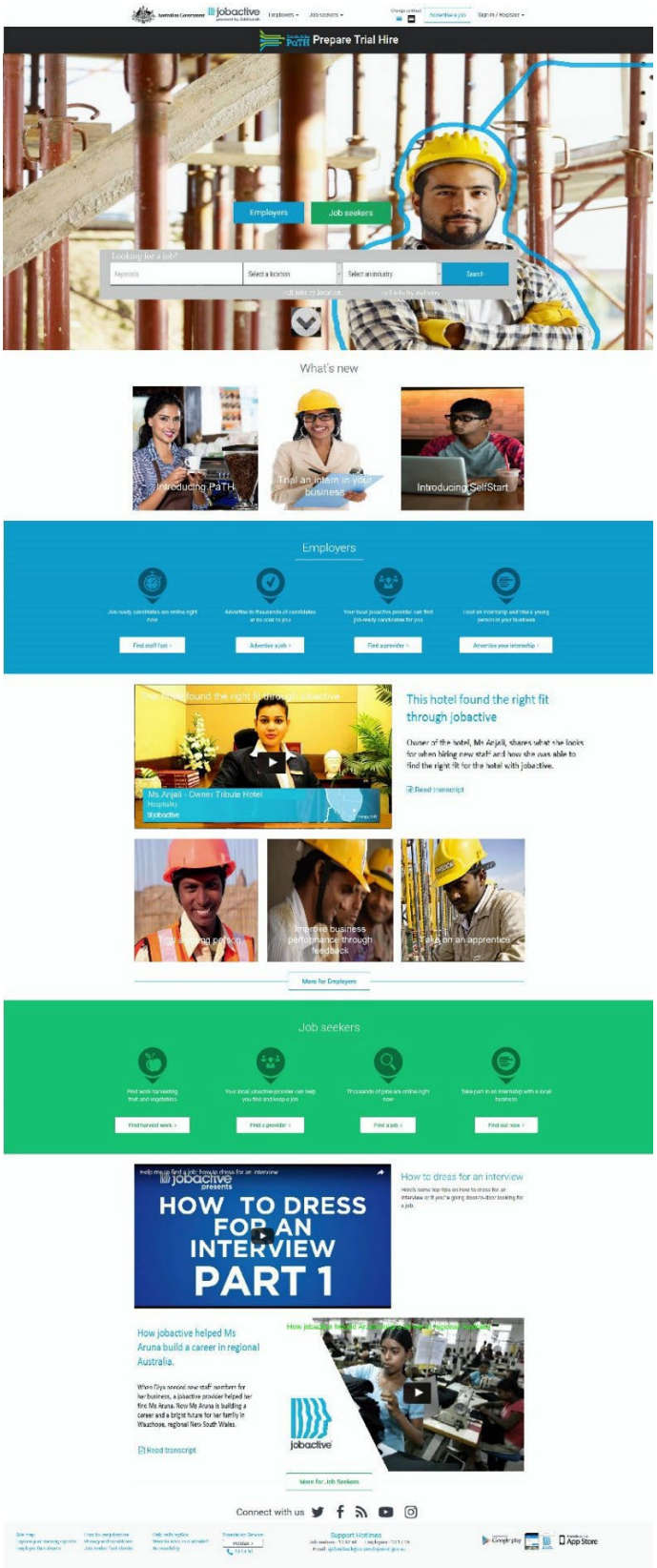

Figure 12 Treatment Images of People (India)

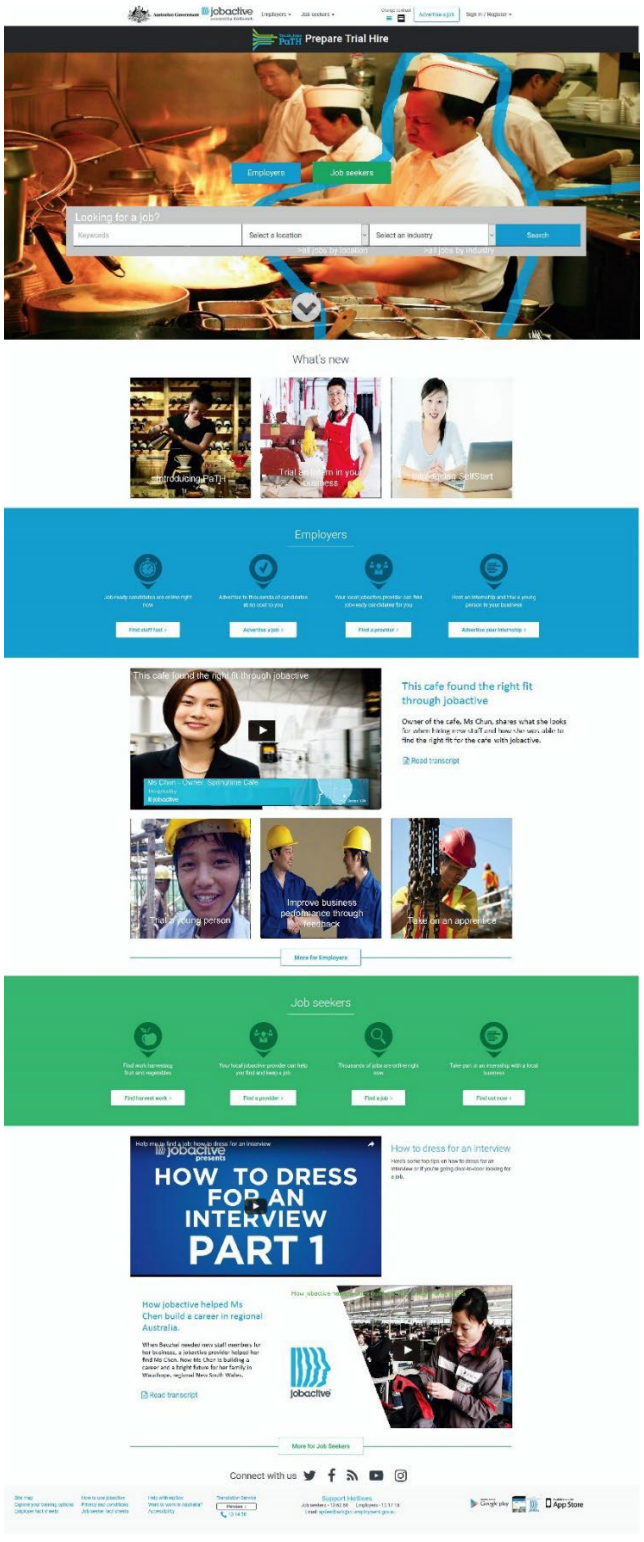

Figure 13 Treatment Images of People (China)

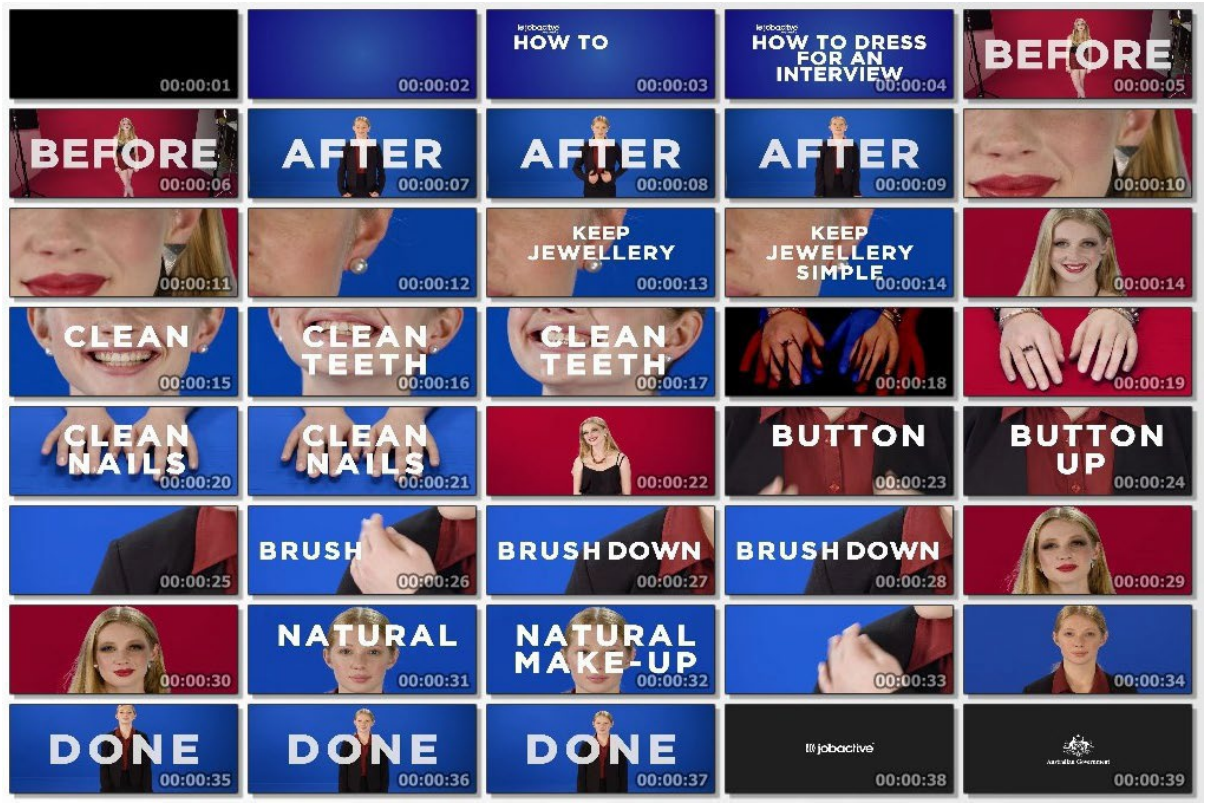

Figure 14 Control Images of People Video

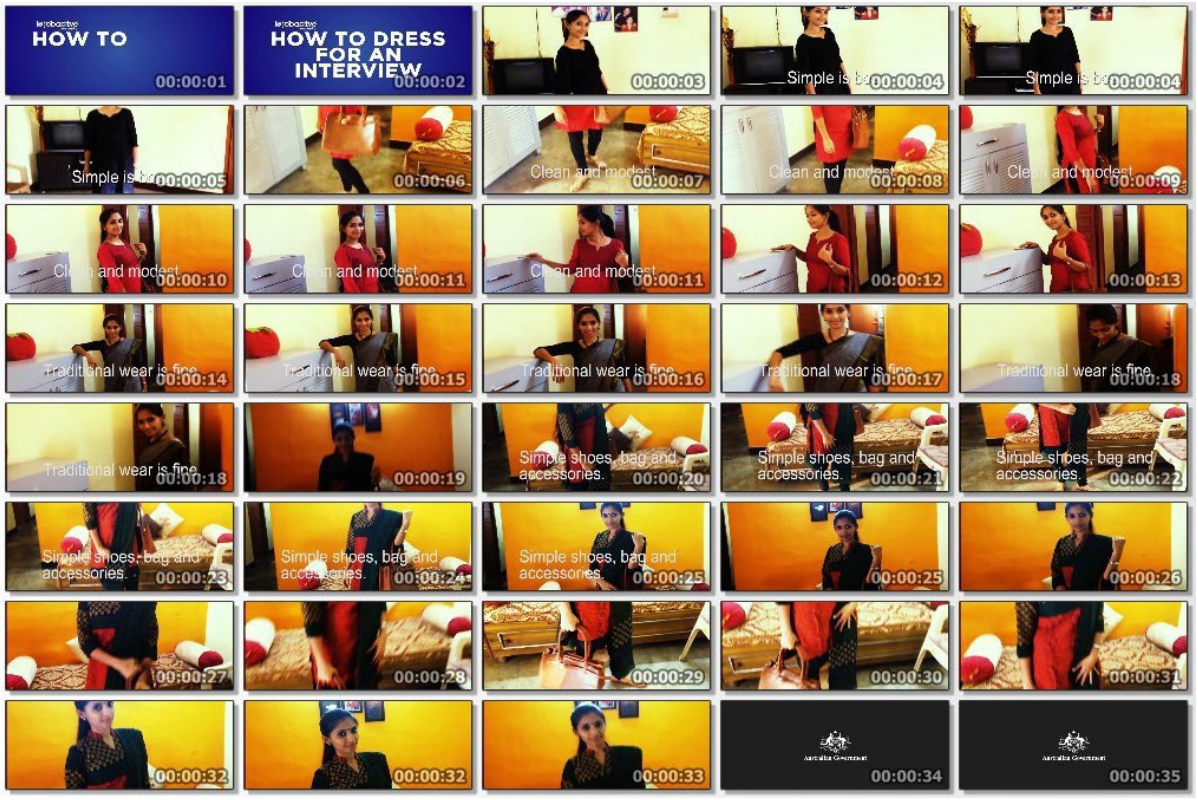

Figure 15 Treatment Images of People Video (India)

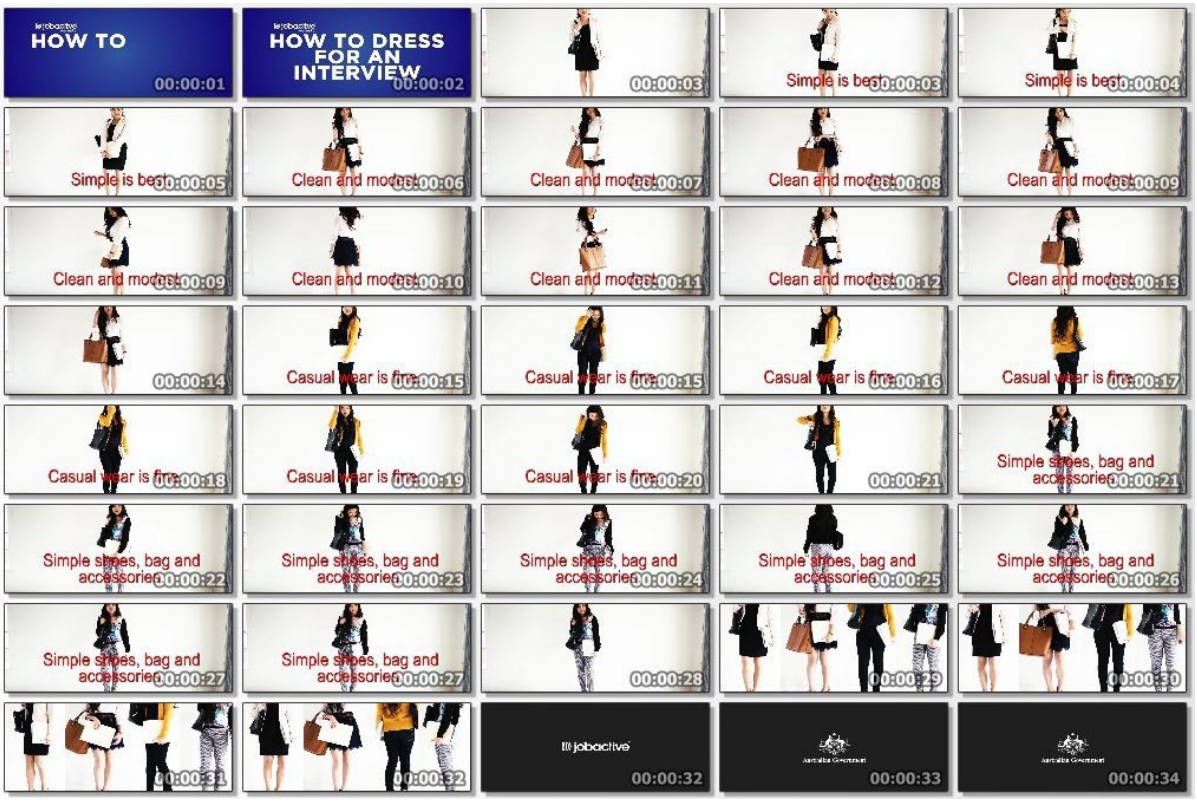

Figure 16 Treatment Images of People Video (China)

Images of People (Rate)

Based upon the pictures and video of people that I previously viewed…

1. The images of people on the web page ***represent my culture***.

2. The images of people on the web page ***represent the activities of employed people***.

3. I recognise that images of people on the web page target ***my culture***.

4. I can ***associate the images of people*** on the web page with ***seeking employment***.

5. The “How to Dress for an Interview” video I watched targeted ***my culture.***

6. I can ***connect the images of people*** in the “How to Dress for an Interview” video to the concept of ***migrants dressing appropriately*** for a job interview.

7. I believe that the images of people in the “How to Dress for an Interview” video ***enhance the usability*** of the jobsearch web page.

Images of People (Satisfaction)

1. The images of people on the web page ***completely fulfil my expectations***.

2. The images of people in the “How to Dress for an Interview” video ***completely fulfil my expectations***.

3. Using this web page was ***satisfactory overall***.

Trust

Rate the following statements based on your interaction with language attributes and cultural elements in today’s survey.

1. I can trust an Australian eGovernment service.

2. An Australian eGovernment service is trustworthy.

3. The Australian Government will protect my privacy whilst using the eGovernment service.

Data Analysis

The statistical data analysis technique used in this study is the independent samples t-test. This is the most appropriate statistical approach when the two groups being compared are independent, meaning that the individuals in one group are unrelated to those in the other group.

A justification for using independent t-tests can be made based on the following reasons.

Suitable for comparing two groups: Independent t-tests are appropriate when comparing two independent groups. This is the case in this research, where the Chinese Control and Treatment groups are compared (Indian respondent groups are treated similarly).

Measures continuous data: Independent t-tests assume that the data being compared is continuous and normally distributed, which is often the case for attitude, belief, and behaviour data that are collected using surveys.

Relatively simple to conduct and interpret: Independent t-tests are relatively simple to operate and interpret. The results report the statistical significance of the difference between the means of the two groups.

Provides information on the significance of the difference: Independent t-tests give a p-value that indicates the statistical significance of the difference between the means of the two groups. This is important as it allows the researcher to determine whether the difference between the two groups is statistically significant.

The use of independent t-tests is a justifiable statistical method to analyse the data gathered because it is appropriate for comparing two independent groups, measures continuous data, is relatively simple to conduct and interpret, and provides information on the significance of the difference between the means of the two groups.

The assumptions underlying the independent t-test are:

1. Independence: The observations in each group must be independent.
2. Normality: Each group's outcome variable's distribution should be approximately normal. The normality assumption can be relaxed if the sample size is large (e.g., greater than 30).
3. Equal variances: The variances of the outcome variable should be equal in both groups.

Other statistical methods that can be used to compare means and t-tests include ANOVA, Welch's t-test, Mann-Whitney U test, Kruskal-Wallis test, Wilcoxon signed-rank test, and the Friedman test. None of these were selected as the choice of statistical method depends on the type of data and the research question being investigated. Choosing a method appropriate for the data and the research question was essential to obtain valid and reliable results.

Missing data and outliers can affect the validity of t-tests, lead to biased estimates of the mean and standard deviation, and inflate the Type I error rate. There are different ways to handle missing data and outliers when conducting t-tests, depending on the extent of the missing data and the degree of the outliers.

This research did not have to handle missing data because respondents had to use a Likert scale for their responses. They could only proceed to the next question if it had been answered. Similarly, this research did not have to handle outliers as they are less likely than in continuous data because Likert scales are typically ordinal or categorical and have a limited range of responses.

Validity and Reliability

To ensure the validity and reliability of the study, the survey questionnaire was pre-tested with a sample of Chinese and Indian migrants to identify any ambiguities or confusing questions. Senior academics at Victoria University also reviewed the survey to ensure the questions were relevant and meaningful.

Several potential threats to the validity and reliability of survey questionnaires include measurement error, response bias, social desirability bias, and sampling bias. To minimise these threats, this study took the following steps.

1. Pilot testing: To ensure the validity and reliability of a study surveying Chinese and Indian migrants, a detailed pilot test was designed. The test involved selecting a diverse sample of 10 individuals from each community, representing varied ages, genders, and socio-economic backgrounds. These participants were given the survey, which they completed before providing feedback on the clarity of questions, relevance of content, and any cultural sensitivities. In addition to this participant feedback, senior academics at Victoria University, specialising in multicultural studies, language, and survey design, reviewed the survey. Their review aimed to ensure cultural sensitivity, linguistic appropriateness, and relevance to the research objectives. Analysis of the pilot test data focused on identifying patterns of misunderstanding or consistently skipped questions. Based on this analysis and the collected feedback, the survey underwent revisions, including rephrasing questions and adjusting the survey structure. A second review by a smaller group or the senior academics ensured the effectiveness of these changes. This rigorous pilot test process, emphasising cultural sensitivity and relevance, was crucial for ensuring that the survey would yield reliable, valid, and insightful data for the study, enhancing the response rate and the overall quality of the research.

2. Randomisation: To minimise selection bias, the sample was selected using random sampling techniques to ensure that everyone in the population had an equal chance of being included in the study.
3. Questionnaire design: The questionnaire minimises measurement error and response bias. This was achieved by using unambiguous language, avoiding leading or loaded questions, and using multiple items to measure a construct to increase reliability.
4. Control for social desirability bias: Social desirability bias occurs when respondents give answers they think are socially acceptable rather than their genuine opinions. To minimise social desirability bias, questions were framed neutrally.
5. Statistical analysis: Statistical techniques such as Cronbach's alpha were used to assess the reliability of the questionnaire.
6. Data cleaning: This was optional as there was no possibility of missing data or outliers.

The study's internal validity, which refers to the extent to which it measures what it intends to measure, was maximised by taking the following steps.

1. Randomisation: Study participants were randomly assigned to treatment and control groups to minimise selection bias.
2. Control groups: A control group was included in the study design to provide a baseline against which to compare the treatment group.
3. Standardized procedures: The study procedures and measures were standardised to minimise variability and measurement error.
4. Statistical analysis: Appropriate statistical methods were used to control for potential confounding variables and ensure the study results were valid.

The study's external validity, which refers to how the findings can be generalised to other populations or settings, was maximised by following steps.

1. Generalisability checks: This study used statistical methods to assess the generalisability of the survey results to other populations.
2. Representative samples: This study used random sampling techniques to ensure that the study sample represents the population being studied.
3. Real-world conditions: This study was conducted under real-world conditions to increase the generalisability of the results.
4. Multiple measures: This study used multiple measurements of the same construct to increase the generalisability of the results.

Ethical Considerations

Victoria University Human Research Ethics Committee approved an ethics application for, Application ID HRE17-036 on 28/02/2017 for the research 'An evaluation of the cultural usability of Australian eGovernment'.

The research was assigned to the Low-Risk Research Ethics Committee as a low-risk study.

Limitations of the Data Collection Process

There are several potential limitations to a study into the usability of eGovernment by Chinese and Indian migrants.

1. Sample Bias: This study's findings may not represent the broader population of Chinese and Indian migrants due to sampling bias. If the sample is too small or unrepresentative of the more general population, it may not be possible to generalise the findings to other Chinese and Indian migrants.

2. Language Barrier: Chinese and Indian migrants may have difficulty understanding eGovernment language attributes and cultural elements due to language barriers. If the study did not consider this, it might underestimate the usability of eGovernment.
3. Cultural Differences: Cultural differences between the participants and the researchers may lead to miscommunication and misunderstandings, which may affect the accuracy of the findings.
4. Technical Literacy: The study may have assumed that all Chinese and Indian migrants had the same level of technical literacy, which may not have been the case. Some migrants may have had more experience with technology than others, which may affect their ability to use eGovernment effectively.
5. Limited Access: This study may not have considered the limited access to technology and the Internet among Chinese and Indian migrants. Without access to the necessary technology and infrastructure, participants may not be able to use eGovernment at all.
6. Generalisability: The study's findings may not be generalisable to other migrant groups or cultures beyond the Chinese and Indian respondents. EGovernment may be used differently in other countries, and migrants from other cultures may have different experiences using Australian eGovernment web services.
7. Social Desirability Bias: The participants may have responded to questions in a way that they felt was socially desirable rather than giving their genuine opinions. This may affect the accuracy of the findings.

Methodology Summary

This comprehensive study utilises an experimental design to explore the impact of language attributes and cultural elements in an Australian eGovernment service on migrant users whose first language is not English. The participants, Chinese and Indian migrants, were identified through Time-space sampling at job centres, ensuring the sample size met the pre-

calculated parameters for robust statistical analysis. The data collection process consisted of self-report surveys and performance measurements underpinned by carefully designed experiments and surveys. The questionnaire used captured the participants' attitudes, behaviours, and demographics. Additionally, it investigated several independent and dependent variables, forming distinct hypothesis groups related to language attributes, cultural elements, and trust in the eGovernment service.

Efforts were made to ensure validity and reliability through pre-testing of the questionnaire and review by academic experts. However, the study acknowledges potential limitations, including sample bias, language barrier, cultural differences, technical literacy, limited access to technology, generalisability, and social desirability bias. The results will provide valuable insights into enhancing the cultural usability of eGovernment, though these must be interpreted considering the identified potential biases and limitations.

Chapter 4 Results

Introduction

Language and cultural elements are critical in shaping user perceptions and engagement with eGovernment services. The following hypotheses, formulated as part of a comprehensive study, explore how modified language attributes and cultural elements influence user perception, satisfaction, understanding, and trust in an Australian eGovernment service.

These hypotheses fall into four groups, namely Group A, B, C, and D. Group A and B explore how modified language attributes such as unusual words and reading level, respectively, impact various aspects like communication, understanding, and satisfaction. Group C is interested in cultural elements, investigating how modifications in icons, colours, and images of people affect the users' perceived familiarity and satisfaction. Finally, Group D encapsulates the culmination of these modifications, exploring whether they enhance trust in the Australian eGovernment service.

Participants in this study were from two migrant communities in Victoria, Australia. The migrant communities of Chinese and Indians were divided into treatment and control groups. Treatment groups were exposed to modified language attributes and cultural elements, while the control groups encountered unmodified stimuli.

The results, captured through a series of 5-point Likert questions, have been tabulated and will be analysed to determine how the treatment influenced the user experience, satisfaction and trust in the Australian eGovernment service.

By examining the effects of these linguistic and cultural modifications, this study aims to provide insights that can help improve the design of eGovernment services and potentially enhance their adoption and efficacy across various cultural contexts.

Descriptive Statistics

Chinese Respondents (Descriptive)

The average respondent in the study's control and treatment groups was a female who arrived in Australia between the ages of 20-24 (Table 2). The predominant migrant type in both groups was "skilled," followed by "permanent" migrants. Before arriving in Australia, the most common highest non-school qualification obtained was a "Certificate," closely followed by a "Bachelor degree or higher" and "Advanced Diploma/Diploma." None of the respondents obtained a non-school qualification since their arrival in Australia.

Both groups reported that they spoke English "not well" when they first arrived in Australia, with only a minority saying they spoke English "well" or "very well." Current proficiency in spoken English is also predominantly rated as "not well" in both groups. Regardless of their English proficiency, all respondents reported that English was mainly spoken on arrival.

The primary source of household income for most respondents in the control group was from government pensions or allowances, whereas for the treatment group, it was from wages or salaries. Most respondents were unemployed, some were employed part-time, and only a few worked full-time. All respondents reported that they had looked for a job since their arrival in Australia.

Most respondents preferred Standard Mandarin, Cantonese and Portuguese when searching for a job. Language difficulties were the most cited challenge when finding their first job in Australia. The primary source of help for job search was reported to be Centrelink or a Job Network agency/Job Services Australia provider, with some also seeking help from educational institutions and friends or family.

Table 2 Chinese Demographics

Category	Control Group	Treatment Group
Sex		
1 = Male	24	23
2 = Female	26	27
Age group on arrival (years)		
1 = 15–19	7	7
2 = 20–24	20	19
3 = 25–34	15	18
4 = 35–44	8	6
5 = 45–54	0	0
6 = 55 and over	0	0
Recent migrants type		
1 = Australian citizen	7	7
2 = Permanent	13	16
3 = Skilled	23	17
4 = Family	6	7
5 = Humanitarian	1	3
6 = Other/n.f.d.	0	0
Level of highest non-school qualification obtained before arrival		
1 = Bachelor's degree or higher	13	13
2 = Advanced Diploma/Diploma	13	15
3 = Certificate	15	12
4 = Did not obtain a non-school qualification before arrival	9	10
Level of highest non-school qualification obtained since arrival		
1 = Bachelor's degree or higher	0	0
2 = Advanced Diploma/Diploma	0	0
3 = Certificate	0	0
4 = Has not obtained a non-school qualification since arrival	50	49
Proficiency in spoken English when first came to live in Australia		
1 = Not at all	21	25
2 = Not well	17	16
3 = Well	11	7
4 = Very well	1	2
English mainly spoken on arrival	6	6
1 = Yes	44	44
2 = No	0	0
Current proficiency in spoken English		
1 = Not at all	0	0
2 = Not well	34	34
3 = Well	13	13
4 = Very well	3	3
The primary source of household income		
1 = Wage/Salary	10	16

2 = Government pension or allowance	40	34
Current employment status		
1 = Employed Full time	3	6
2 = Employed Part time	16	15
3 = Unemployed	29	25
4 = Not in the labour force	2	4
Has had a job since arrival in Australia		
1 = Already had job arranged prior to arrival in Australia	1	1
2 = One month or less	4	3
3 = Two or three months	13	12
4 = Four to six months	14	17
5 = Seven to twelve months	12	11
6 = More than twelve months	5	5
7 = Has not had a job since arrival in Australia	1	1
Has looked for a job		
1 = Yes	50	50
2 = No	0	0
Preferred language when searching for a job in Australia		
1 = Hindi	0	0
2 = English	0	0
3 = Bengali	0	0
4 = Telugu	0	0
5 = Marathi	0	0
6 = Tamil	0	0
7 = Urdu	0	0
8 = Other	0	0
9 = Standard Mandarin	34	35
10 = Cantonese	14	12
11 = Portuguese	2	3
12 = Mongolian	0	0
13 = Haixi	0	0
14 = Korean	0	0
15 = Tibetan	0	0
All difficulties finding first job held in Australia		
1 = Language difficulties	31	30
2 = Lack of Australian work experience/references	6	3
3 = Lack of local contacts/networks	10	10
4 = Skills or qualifications not recognised	1	3
5 = No jobs or vacancies in locality/line of work	2	4
6 = Other difficulty	0	0
All sources of help finding first job held in Australia		
1 = Centrelink or Job Network agency/Job Services Australia provider	30	29
2 = Educational institution	10	9
3 = Friends or family	6	8
4 = Migrant association/refugee settlement organisation/church/community group	2	3
5 = Other source	2	1

Indian Respondents (Descriptive)

The average respondent in both the control and treatment groups was a male who arrived in Australia between the ages of 20-34 (Table 3). The most common migrant types were "skilled" and "family." Before arriving in Australia, the respondents in the control group most often had a "Bachelor's degree or higher." In contrast, the treatment group most frequently held a "Certificate" as their highest non-school qualification. After arriving in Australia, none of the respondents obtained a non-school qualification.

Both groups reported that they spoke English "not well" when they first arrived in Australia, with a minority reporting that they spoke English "well" or "very well." Over time, their proficiency in spoken English improved, with more respondents reporting their proficiency as "well." Regardless of their English proficiency, most respondents reported that English was mainly spoken on arrival.

Most respondents' primary household income was government pensions or allowances, although some also received wages or salaries. The majority of respondents were unemployed, with a small proportion employed part-time. All respondents had looked for a job since their arrival in Australia.

When searching for a job, the most preferred language was Hindi, followed by English. Language difficulties were the most cited challenge when finding their first job in Australia. Most respondents sought job search assistance from Centrelink or a Job Network agency/Job Services Australia provider. Others also used educational institutions, friends or family, and migrant associations or community groups for help.

Table 3 Indian Demographics

Category	Control Group	Treatment Group
Sex		
1 = Male	26	26
2 = Female	24	24
Age group on arrival (years)		
1 = 15–19	7	7
2 = 20–24	17	16
3 = 25–34	17	15
4 = 35–44	8	11
5 = 45–54	1	1
6 = 55 and over	0	0
Recent migrants type		
1 = Australian citizen	3	5
2 = Permanent	9	12
3 = Skilled	19	19
4 = Family	19	14
5 = Humanitarian	0	0
6 = Other/n.f.d.	0	0
Level of highest non-school qualification obtained before arrival		
1 = Bachelor's degree or higher	15	10
2 = Advanced Diploma/Diploma	12	14
3 = Certificate	12	17
4 = Did not obtain a non-school qualification before arrival	11	9
Level of highest non-school qualification obtained since arrival		
1 = Bachelor's degree or higher	0	0
2 = Advanced Diploma/Diploma	0	0
3 = Certificate	0	0
4 = Has not obtained a non-school qualification since arrival	50	50
Proficiency in spoken English when first came to live in Australia		
1 = Not at all	5	5
2 = Not well	34	31
3 = Well	7	10
4 = Very well	4	4
English mainly spoken on arrival	9	10
1 = Yes	41	40
2 = No	0	0
Current proficiency in spoken English		
1 = Not at all	0	0
2 = Not well	28	27
3 = Well	18	19
4 = Very well	4	4
The primary source of household income		
1 = Wage/Salary	14	11

2 = Government pension or allowance	36	39
Current employment status		
1 = Employed Full time	0	0
2 = Employed Part time	10	7
3 = Unemployed	37	40
4 = Not in the labour force	3	3
Has had a job since arrival in Australia		
1 = Already had job arranged prior to arrival in Australia	1	2
2 = One month or less	2	0
3 = Two or three months	13	12
4 = Four to six months	22	22
5 = Seven to twelve months	9	11
6 = More than twelve months	3	3
7 = Has not had a job since arrival in Australia	0	0
Has looked for a job		
1 = Yes	50	50
2 = No	0	0
Preferred language when searching for a job in Australia		
1 = Hindi	30	33
2 = English	8	9
3 = Bengali	7	3
4 = Telugu	4	3
5 = Marathi	1	1
6 = Tamil	0	1
7 = Urdu	0	0
8 = Other	0	0
9 = Standard Mandarin	0	0
10 = Cantonese	0	0
11 = Portuguese	0	0
12 = Mongolian	0	0
13 = Haixi	0	0
14 = Korean	0	0
15 = Tibetan	0	0
All difficulties finding first job held in Australia		
1 = Language difficulties	35	31
2 = Lack of Australian work experience/references	4	5
3 = Lack of local contacts/networks	5	8
4 = Skills or qualifications not recognised	3	4
5 = No jobs or vacancies in locality/line of work	3	0
6 = Other difficulty	0	2
All sources of help finding first job held in Australia		
1 = Centrelink or Job Network agency/Job Services Australia provider	30	34
2 = Educational institution	12	10
3 = Friends or family	3	2
4 = Migrant association/refugee settlement organisation/church/community group	1	1
5 = Other source	4	3

Descriptive Results

This study's first set of results about idioms, as seen in Table 4, has been included in the main chapter as they presented distinct findings. However, the remaining results, which encompassed jargon, abbreviations, initialisms, reading level, icons, colours, and images of people, exhibited similar trends and did not reveal any significant outliers. Therefore, these results have been moved to the Appendix to maintain conciseness and avoid redundancy in the main chapter. Interested readers can refer to Appendix E for detailed data and analysis of the Chinese treatment variables. By presenting these results separately, the focus remains on the critical findings while ensuring transparency and accessibility of all relevant information for further examination.

Table 4 Unusual Words - Idioms (Descriptive)

China Control Group						**China Treatment Group**					
Idioms	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**		**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**
Q1	2.42	2.5	2	0.87	3		4	4	4	0.69	2
Q2	2.42	2.5	2	0.71	3		4.08	4	4	0.67	3
Q3	2.63	3	2	0.77	3		4.03	4	4	0.84	3
Q4	2.42	2.5	2	0.71	3		4.03	4	4	0.66	2
Q5	2.53	2.5	2	0.62	2		4.03	4	4	0.56	2
Q6	2.43	2.5	2	0.63	2		4.08	4	4	0.65	2
Q7	2.38	2	2	0.71	3		4	4	4	0.67	2
Cronbach's Alpha			0.917898122			**Cronbach's Alpha**			0.942824565		

1. Central Tendency: The mean, median, and mode provide measures of central tendency, indicating the typical or central values within each group for each item (Q1-Q7). In the China Control Group, the mean and median scores range from 2.38 to 2.63, with modes predominantly at 2. The China Treatment Group's mean and median scores range from 4.0 to 4.08, with modes consistently at 4.

2. Dispersion: The standard deviation and range describe the dispersion or variability of responses within each group for each item. The standard deviations in the China Control Group range from 0.62 to 0.87, indicating relatively low variability. The range values are consistent at 3, suggesting a limited spread of responses. The standard deviations in the China Treatment Group range from 0.56 to 0.84, indicating low variability. The range values are consistently at 2, indicating a narrower spread than the control group.

3. Cronbach's Alpha: Cronbach's Alpha is a measure of internal consistency or reliability of a scale. In the China Control Group, Cronbach's Alpha is 0.918, suggesting high internal consistency among the items in the questionnaire. In the China Treatment Group, Cronbach's Alpha is 0.943, indicating even higher internal consistency.

Based on these analyses, the China Treatment Group generally exhibits higher mean ratings, lower variability, and higher internal consistency than the China Control Group.

Inferential Statistics

The thesis uses inferential statistics, specifically hypothesis testing and t-tests, to analyse and evaluate the impact of various eGovernment strategies. This statistical approach allows for generalised conclusions about the population of interest based on data collected from selected samples. Hypothesis testing facilitates a systematic exploration of the proposed claims about the effectiveness of the implemented strategies.

T-tests directly compare the mean responses between the treatment and control groups, thereby discerning if significant differences are attributed to the strategies in question. The rationale behind this approach was its potential to provide robust, quantifiable evidence of the strategies' effects on user engagement and satisfaction.

It enabled the estimation of the effect size, offering a more detailed understanding of the practical implications of the findings. The statistical significance may only sometimes translate into practical relevance. Thus, the results will be interpreted within the larger context of the research objectives and the real-world applicability of these strategies.

The inferential statistical analysis of the research findings is depicted in the presented tables. These data provide insight into the effect of specific language attributes and cultural elements on aspects such as communicability, satisfaction, understanding, reading efficiency, and trust in an eGovernment service context, as perceived by users from China and India.

Inferential Results

Inferential analysis plays a crucial role in evaluating the effectiveness and impact of unique treatments. These treatments are designed to offer alternative approaches to current eGovernment services. Analysing inferential results allows for meaningful conclusions to be made based on statistical evidence.

The following results are to be interpreted within the following context and methodology:

Null Hypotheses and Testing Criteria: The results presented are in the context of testing specific null hypotheses, which posited that there would be no significant difference in the impact of language treatments between the treatment and control groups within Chinese and Indian migrant populations. The criteria for rejecting these null hypotheses were based on a significance level of 0.05 (*), with a stronger significance level of 0.01 (**) indicating a higher confidence in rejecting the null hypothesis. An overview of the results is presented below in Table C.

Table C – Overview of Results

Measurements					**No. of t-tests**	**No. of t-tests**	**No. of t-tests**
A) Words	**Idioms**	**Jargon**	**Abbreviations**	**Initialisms / Acronyms**	**Chinese**	**Indians**	**Total**
A1 Perception	xx	xx	xx	xx	4	4	**8**
A2 Understanding	xx	xx	xx	xx	4	4	**8**
A3 Satisfaction	xx	xx	xx	xx	4	4	**8**
B) Reading Level	**Readability**						
B4 Perception	xx				1	1	**2**
B5 Reading Efficiency	xx				1	1	**2**
B6 Satisfaction	xx				1	1	**2**
C) Cultural Elements	**Icons**	**Colours**	**Images of People**				
C7 Relatable	xx	xx	xx		3	3	**6**
C8 Satisfaction	xx	xx	xx		3	3	**6**
D) Trust	Language	Cultural Elements	Egov Service				
D9 Trust	xx	xx	xx		3	3	**6**

$p < 0.05$* $p < 0.01$**

Methodology of t-Tests: The interpretation of results is grounded in the methodology of independent sample t-tests. These tests were employed to compare the mean scores between the treatment and control groups for each type of language treatment. The t-tests were two-tailed, assuming equal variances, and were conducted separately for each migrant group. Before conducting these tests, assumptions such as the normality of data and homogeneity of variance were verified to ensure the validity of the test results.

Study Design Context: The sample size, group assignment, and treatment administration methods also form a crucial part of the interpretation context. The study included a specific number of participants from Chinese and Indian migrant backgrounds, who were randomly assigned to either the treatment or control groups. The way treatments were administered to these groups is also essential for understanding the scope and applicability of the results.

Treatment Results

Table 5 t-Test Results for Treatments

Treatments		China			India	
Hypotheses	**Measure**	**Treatment**	**Control**		**Treatment**	**Control**
Group A - 1	Unusual Words - Idioms	27.78**	17.44		29.80**	14.26
Group A - 1	Unusual Words - Jargon	30.12**	16.30		31.74**	14.88
Group A - 1	Unusual Words - Abbreviations	30.98**	15.52		31.42**	16.70
Group A - 1	Unusual Words - Initialisms / Acronyms	29.88**	15.78		30.62**	15.90
Group B - 4	Reading Level	28.86**	19.46		29.18**	17.04
Group C - 7	Icons	27.84**	14.58		28.28**	15.70
Group C - 7	Colour	30.44**	9.54		29.52**	12.60
Group C - 7	Images of People	24.64**	19.48		27.40**	20.24

$p < 0.05$* $p < 0.01$**

Hypothesis Group A - 1: *Those exposed to the modified language attributes (unusual words) will **rate** communicable attributes higher than those exposed to the control attributes.*

From the data in Table 5, the treatment group exposed to unusual words (idioms, jargon, abbreviations, initialisms/acronyms) consistently rated higher than the control group in China and India. This indicates that Hypothesis Group A - 1 is supported. The unusual words appear to have enhanced effective communication.

Hypothesis Group B - 4: *Those exposed to the modified language attributes (reading level) will **rate** their use of readable text higher than those exposed to the control text.*

Table 5 shows that the treatment group rated reading comprehension of the readable text (reading level) higher than the control group in China and India, supporting Hypothesis Group B -4. It suggests that modifying language attributes can positively impact the understanding of readable text.

Hypothesis Group C - 7: *Those exposed to modified cultural elements (icons, colour, images of people) on an Australian eGovernment service will **rate** their perceived familiarity with features higher than those exposed to the control elements.*

Table 5 shows that for icons, colours, and images of people, the treatment groups in China and India rated higher than their control groups. This suggests that exposure to modified cultural elements can increase relatability. Thus, Hypothesis Group C -7 is also supported.

In summary, for both China and India, the groups exposed to the modified language attributes and cultural elements rated higher across all measures, supporting all three hypotheses. This suggests that modifying language attributes and using culturally appropriate features can enhance communication effectiveness and understanding and increase relatability in an eGovernment service context.

Satisfaction Results

Table 6 t-Test Results for Satisfaction

Satisfaction		China			India	
Hypotheses	**Measure**	**Treatment**	**Control**		**Treatment**	**Control**
Group A - 3	Unusual Words - Idioms	13.54**	6.20		13.18**	6.38
Group A - 3	Unusual Words - Jargon	13.20**	6.16		13.18**	6.54
Group A - 3	Unusual Words - Abbreviations	12.92**	5.68		12.86**	6.40
Group A - 3	Unusual Words - Initialisms / Acronyms	13.70**	6.22		13.64**	5.74
Group B - 6	Reading Level	12.24**	6.64		12.74**	7.62
Group C - 8	Icons	11.92**	6.32		11.92**	6.80
Group C - 8	Colour	12.74**	4.98		12.60**	5.44
Group C - 8	Images of People	11.08**	8.36		11.62**	8.62

$p < 0.05$* $p < 0.01$**

Hypothesis Group A - 3: *Those exposed to modified language attributes (unusual words) will rate their **satisfaction** with such attributes higher than those exposed to the control attributes.*

According to Table 6 results, the treatment group exposed to unusual words (idioms, jargon, abbreviations, initialisms/acronyms) consistently rated their level of satisfaction higher than the control group in both China and India. This suggests that Hypothesis Group A -3 is supported – the modified language attributes appear to increase satisfaction.

Hypothesis Group B - 6: *Those exposed to modified language attributes (reading level) will rate their **satisfaction** with such attributes higher than those exposed to the control attributes.*

The treatment group exposed to the modified reading level rated their satisfaction higher than the control group in both countries (Table 6). This supports Hypothesis Group B -6, indicating that changing the reading level increases satisfaction.

Hypothesis Group C - 8: *Those exposed to modified cultural elements (icons, colour, images of people) used on an Australian eGovernment service will rate their* ***satisfaction*** *with such features higher than those exposed to the control elements.*

The data supports this hypothesis as well. For all three cultural elements (icons, colour, images of people), the treatment groups in both countries consistently rated their satisfaction higher than the control groups (Table 6). This suggests that incorporating culturally appropriate modifications in these elements increases satisfaction.

In summary, for both China and India, the groups exposed to the modified language attributes and cultural elements rated their satisfaction higher across all measures, supporting all three hypotheses. This implies that modifying language attributes and incorporating culturally appropriate elements can enhance satisfaction in the context of an eGovernment service.

Understanding Results

Table 7 t-Test Results for Understanding

Understanding		China			India	
Hypothesis	**Measure**	**Treatment**	**Control**		**Treatment**	**Control**
Group A - 2	Unusual Words - Idioms	12.48**	6.40		12.60**	8.42
Group A - 2	Unusual Words - Jargon	12.36**	6.46		11.66**	6.60
Group A - 2	Unusual Words - Abbreviations	12.82**	6.24		12.04**	6.88
Group A - 2	Unusual Words - Initialisms / Acronyms	12.82**	7.58		12.68**	6.74

$p < 0.05$* $p < 0.01$**

Hypothesis Group A - 2: *Those exposed to modified language attributes (unusual words) will rate their **understanding** of such attributes higher than those exposed to the control attributes.*

From the data in Table 7, the hypothesis is supported. In each case (idioms, jargon, abbreviations, initialisms/acronyms), the treatment group rated their understanding of the unusual words significantly higher than the control group. This is true for both China and India. This suggests that exposure to these modified language attributes can improve understanding.

Reading Time Results

Table 8 t-Test Results for Reading Time

Reading Time		China			India	
Hypothesis	**Measure**	**Treatment**	**Control**		**Treatment**	**Control**
Group B – 5	Reading Time	125.36**	135.96		109.30**	126.50

$p < 0.05$* $p < 0.01$**

Hypothesis Group B – 5: *Those exposed to modified language attributes (reading level) will achieve a higher reading efficiency score than those exposed to the control attributes.*

A lower reading time is interpreted as higher reading efficiency in the table context.

From the data in Table 8:

1. For China, the treatment group has a lower reading time (125.36) than the control group (135.96). This difference is statistically significant, as indicated by ** ($p < 0.01$). Therefore, for the Chinese participants, exposure to the modified reading level did increase reading efficiency, as per the hypothesis.

2. Similarly, for India, the treatment group has a lower reading time (109.30) than the control group (126.50). This difference is also statistically significant, further supporting the hypothesis.

These results suggest that exposure to modified reading levels improved reading efficiency, as evidenced by the decreased reading times in both countries. Therefore, the hypothesis is supported by this data.

Trust Results

Table 9 t-Test Results for Trust

Trust		**China**			**India**	
Hypothesis	**Measure**	**Treatment**	**Control**		**Treatment**	**Control**
Group D – 9	Language Attributes	12.08**	6.18		12.08**	6.88
Group D – 9	Cultural Elements	13.38**	4.72		12.40**	4.46
Group D – 9	Egov Service	10.80**	8.34		11.68**	8.64

$p < 0.05$* $p < 0.01$**

Hypothesis Group D – 9: *Those exposed to modified language attributes and cultural elements used on an Australian eGovernment service will rate their trust in the Australian eGovernment service higher than those exposed to the control elements.*

The data in Table 9 shows that the treatment groups in both countries (China and India) consistently rated their trust higher across all measures (Language Attributes, Cultural Elements, and Egov Service) than the control groups. This difference is statistically significant, as indicated by ** ($p < 0.01$), suggesting strong support for the hypothesis.

Specifically:

1. Language Attributes: The treatment groups in both countries rated their trust significantly higher than the control groups. This suggests that modifying the language attributes positively impacted trust levels.

2. Cultural Elements: The treatment groups in both countries rated their trust significantly higher than the control groups, suggesting that modifying the cultural elements positively impacted trust levels.
3. EGovernment Service: The treatment groups in both countries rated their trust in the Australian eGovernment service significantly higher than the control groups, indicating that exposure to modified language attributes and cultural elements increased confidence in the service.

This suggests that modifying language attributes and incorporating cultural elements in an Australian eGovernment service can effectively enhance trust among users from different cultural backgrounds.

Discussion of Findings

The descriptive results provide valuable insights into the impact of various language attributes and cultural elements on user experience in an eGovernment service context. The findings highlight the effects of modifying language attributes such as unusual words (idioms, jargon, abbreviations, initialisms/acronyms) and reading level, as well as incorporating cultural elements like icons, colours, and images of people.

The first descriptive results, focusing on idioms, revealed significant differences between the treatment and control groups. The China Treatment Group had the highest ratings on all seven questions compared to the China Control Group, indicating a more positive overall experience. Similarly, the India Treatment Group had higher ratings than the India Control Group, although the difference was less pronounced. These results suggest that the treatment had a more influential impact on Chinese than Indian participants.

Moving to the hypotheses, the inferential statistical analysis supported the proposed claims and revealed significant differences between the treatment and control groups across various measures.

For Hypothesis Group A, which examined the impact of modified language attributes (unusual words), the treatment groups consistently rated communicability attributes higher than the control groups in China and India. This suggests that exposure to uncommon terms enhanced effective communication.

Hypothesis Group B explored the effect of modified language attributes (reading level) on user understanding. The treatment groups rated their knowledge of readable text higher than the control groups, supporting the hypothesis and indicating that modified reading levels can improve performance.

Regarding Hypothesis Group C, which investigated the impact of modified cultural elements (icons, colour, images of people), the treatment groups consistently rated their perceived familiarity with features higher than the control groups. This suggests that exposure to modified cultural elements can increase relatability and improve user experience.

Hypothesis Group D examined the effect of modified language attributes and cultural elements on user trust in the eGovernment service. The treatment groups consistently rated their trust higher than the control groups across all trust measures, indicating that such modifications can effectively enhance trust among users from different cultural backgrounds.

The findings from the satisfaction analysis (Table 6) further support the hypotheses. The treatment groups consistently rated their satisfaction higher than the control groups for all measures, indicating that modifying language attributes and incorporating cultural elements can significantly improve user satisfaction in an eGovernment context.

Similarly, the understanding analysis (Table 7) showed that the treatment groups rated their knowledge of the modified language attributes significantly higher than the control groups, confirming that exposure to these modifications can enhance user understanding.

The reading time analysis (Table 8) revealed that the treatment groups exhibited lower reading times than the control groups, indicating improved reading efficiency resulting from exposure to modified reading levels.

Lastly, the trust analysis (Table 9) demonstrated that the treatment groups consistently rated their trust higher than the control groups across all measures. This suggests modifying language attributes and cultural elements can enhance confidence in an eGovernment service.

Comparing the findings with existing literature and theoretical frameworks, the results align with previous research emphasising the importance of clear and understandable communication in user experience design. The positive impact of modifying language attributes, such as using familiar idioms or adjusting reading levels, is consistent with studies highlighting the significance of tailored language for user engagement and comprehension.

The findings also align with theories of cultural design and user experience. Incorporating culturally appropriate elements, such as icons, colours, and images of people, can enhance relatability and satisfaction among users from diverse cultural backgrounds. These findings support the notion that culturally inclusive design can improve user experience and contribute to building trust in eGovernment services.

While the findings provide valuable insights, it is essential to acknowledge the study's limitations. The research focused on two countries, China and India, and the results may not be generalisable to other cultural contexts. Additionally, the study only examined specific language attributes and cultural elements, and other factors that may influence user experience were not considered. Future research could explore additional variables and include a broader range of cultural backgrounds to provide a more comprehensive understanding of the impact of language and cultural elements on user experience in eGovernment services.

The findings of this study suggest that modifying language attributes and incorporating culturally appropriate elements can significantly enhance communicability, satisfaction, understanding, reading efficiency, and trust in an eGovernment service context. The results support the hypotheses and are consistent with existing literature and theoretical frameworks. These findings have implications for the design and development of eGovernment services, highlighting the importance of tailored communication strategies and culturally inclusive design to improve user experience and build trust among users from diverse cultural backgrounds.

Results Summary

The findings in the results chapter align with the research objectives of evaluating the cultural usability of the Australian eGovernment by Chinese and Indian migrants in Melbourne, Australia. The study focused on language attributes (unusual words and reading level) and cultural elements (icons, colour, images of people) to assess their impact on communication, understanding, satisfaction, and trust among migrant users.

The results related to language attributes (Objectives Group A and B) indicate that modifying language attributes, such as using unusual words or adjusting reading levels, can enhance communication, understanding, reading efficiency, and satisfaction among migrant users. The treatment groups consistently rated higher than the control groups across these measures, supporting the hypotheses and suggesting the effectiveness of these modifications.

Regarding cultural elements (Objective Group C), the findings suggest that incorporating culturally appropriate features, such as icons, colours, and images of people, can improve relatability and satisfaction among migrant users. The treatment groups consistently rated higher than the control groups, supporting the hypotheses and highlighting the significance of these modifications in enhancing user experience.

The study explored the impact of language attributes and cultural elements on user trust (Objective Group D). The results indicate that modifying these elements can effectively enhance trust among migrant users. The treatment groups consistently rated higher than the control groups regarding trust, supporting the hypothesis and emphasising the importance of these modifications in building trust in eGovernment services.

The findings demonstrate that thoughtfully modifying language attributes (unusual words and reading level) and incorporating culturally appropriate elements (icons, colour, images of people) can significantly enhance communication, understanding, reading efficiency, satisfaction, and trust among Chinese and Indian migrants using Australian eGovernment services. These findings contribute to the field of cultural usability and provide valuable insights for designing inclusive eGovernment strategies that cater to the needs of diverse cultural backgrounds.

By addressing the research objectives, this study provides empirical evidence of the impact of specific modifications on user experience, offering practical implications for improving the cultural usability of eGovernment services. However, it is essential to consider the study's limitations, such as the specific sample and context and potential biases associated with self-reported data. Future research can build upon these findings by expanding the sample size, including additional cultural backgrounds, and considering other relevant variables to further enhance the understanding of cultural usability in eGovernment contexts.

Chapter 5 Discussion

Introduction

This thesis explores the importance of enhancing language attributes and incorporating cultural elements in Australian eGovernment services to address the cultural challenges faced by Asian migrants whose first language is not English. It discussed how these enhancements could minimise cultural barriers and improve this demographic's communication, comprehension, and user experience. The research findings presented in this thesis provide valuable insights into the impact of culturally friendly attributes and elements on subjective rating, understanding, satisfaction, relatability, and objective reading efficiency for migrant users. Incorporating these insights into eGovernment services and relevant guidelines aims to foster inclusivity, accessibility, and better integration for migrants whose first language is not English in Australia. The implications of this research extend to various areas, including language barriers, cultural challenges, extant cultural frameworks, user trust, Australian eGovernment services, WCAG, and migrant integration.

eGovernment services are crucial in facilitating government-citizen interactions and improving public service delivery. As governments increasingly adopt digital platforms to provide services, it becomes essential to understand how these services can effectively cater to the needs of diverse user groups, including migrants whose first language may not be English. This thesis discussed the research question and findings on the impact of language attributes and cultural elements on communication in eGovernment services for migrant users.

The research findings contribute to the existing eGovernment theory by providing insights into the role of language attributes and cultural elements in enhancing subjective ratings, understanding, satisfaction, relatability, and objective reading efficiency for migrant users. The study emphasised the importance of a user-centric approach that considers the specific

needs and preferences of migrant users, highlighting the significance of tailoring language attributes and cultural elements to improve communication and user experience. Trust-building mechanisms and the challenges faced by migrant users with limited English proficiency are also examined, underscoring the need for inclusivity and bridging the digital divide in eGovernment services.

The implications of the research findings extend beyond theory and can influence eGovernment policies and guidelines. The empirical evidence provided by the research supports the effectiveness of incorporating culturally friendly attributes and elements, emphasising the importance of language accessibility and cultural considerations in service design and delivery. Furthermore, the research contributes to usability theory by emphasising user-centred design principles and cultural sensitivity in improving the usability of eGovernment services. The findings highlight the impact of language attributes and cultural elements on subjective ratings, understanding, satisfaction, relatability, and objective reading efficiency, as well as the role of trust in user satisfaction and acceptance.

The research sheds light on the cultural differences and the importance of cultural adaptation in designing effective eGovernment services. By tailoring language attributes and cultural elements specific to different contexts, the study demonstrated the significance of considering cultural values, beliefs, and communication styles. The research findings highlight the importance of contextualisation, localisation, and cultural competence in addressing cultural differences and improving communication for migrant users.

The research contributes to knowledge by providing new insights into the impact of enhanced language attributes and cultural elements on communication in an Australian eGovernment service. The findings can inform the development of theories or models related to language attributes, cultural elements, and communication in eGovernment services. The study confirms existing theories and provides empirical evidence supporting the positive effects of incorporating culturally friendly attributes and aspects in improving communication and user satisfaction among migrant users.

While the research study provides valuable insights, it is essential to consider its limitations, such as the sample representativeness, limited cultural diversity, and context specificity. Subjective measures and excluding external factors that may influence user experiences and perceptions are additional limitations that warrant further investigation. Future research can build upon these limitations and explore diverse samples, different eGovernment contexts, and a combination of subjective and objective measures to enhance our understanding of language attributes, cultural elements, and their impact on communication experiences for migrant users.

The research findings presented in this thesis have implications for current eGovernment theory, usability theory, culture and cultural differences theory and can contribute to knowledge in the field. Furthermore, the practical recommendations discussed can guide the development of interventions, collaborations with stakeholders, dissemination of research outcomes, and outreach activities to improve communication and user experience in eGovernment services for migrant users. The possibilities for further research include replication studies, exploration of additional language attributes and cultural elements, refinement of existing features, investigation of broader practical applications, and the development of new theoretical frameworks.

Implications for Theory

The research presented in this thesis aggressively delves into the concept of 'cultural usability of eGovernment', a theory gaining increasing pertinence in our multicultural and interconnected world. This theory advocates that integrating language and cultural elements in the design of eGovernment services can significantly shift user perceptions, understandings, relatability, satisfaction, and trust. This notion, synthesised from various studies and theories, forms the core of the thesis.

In the realm of eGovernment services, the complexity of language plays a pivotal role. Studies by Mikolov et al. (2013), Cowie & Mackin (1975), and Irujo (1986) have highlighted the challenges idioms pose in language processing, particularly for non-native speakers. This complexity necessitates a simplification of language in eGovernment services and an avoidance of idiomatic expressions. Further, research by Anawati & Craig (2006) and Kagawa-Singer & Blackhall (2001) demonstrates how jargon can obscure meaning, reinforcing the need for clear communication. The findings of Mirabela & Ariana (2009), Diamond (2005), and Pakhomov, Pedersen & Chute (2005) suggest that abbreviations, initialisms, and acronyms can create barriers to understanding, especially for groups with learning disabilities or those with limited English proficiency.

The impact of visual elements on user experience is also significant. Research by Knight, Gunawardena & Aydin (2009) and on colour by Aslam (2006), Elliot & Maier (2014), and Birren (2016) highlights the necessity for culturally appropriate design in eGovernment services. The importance of representation and diversity in images, as underscored by Lee, Fernandez & Martin (2002), is crucial for enhancing user satisfaction and trust.

Trust and cultural sensitivity are integral to eGovernment. Aligning language attributes to increase trust among migrants is supported by Alzahrani, Al-Karaghouli & Weerakkody (2017), Kumar, Mukerji & Butt (2007), and Sulistyowati et al. (2020).

This demonstrates the crucial role of cultural sensitivity in building trust in eGovernment services. The gap in eGovernment research, identified by Palvia & Sharma (2016) and Beynon-Davies & Williams (2003), concerning culturally friendly services, highlights the need for more inclusive and culturally aware eGovernment solutions.

Regarding usability and accessibility for migrants, the study adds a vital dimension to the HCI field, as discussed by Rosson & Carroll (2002) and Rogers, Sharp, & Preece (2023). The research findings indicating the language barriers faced by Asian migrants in accessing Australian eGovernment services point to a critical need for language inclusivity and clear communication.

The study suggests that the WCAG 2.2 should incorporate guidelines to improve communication for migrant users with limited English proficiency, indicating a shift towards a more inclusive approach to web accessibility.

This thesis provides robust support for the theory of 'cultural usability of eGovernment'. It emphasises the essential integration of language and cultural elements in the design of eGovernment services to cater effectively to a diverse user base, enhancing user experience, ensuring effective communication, building trust, and facilitating access to essential services for migrants and non-native English speakers. This approach is instrumental in creating eGovernment platforms that are truly inclusive, accessible, and user-friendly for all members of a multicultural society.

Implications for Practice

This comprehensive analysis underscores the theory of 'cultural usability of eGovernment' and its vital implications for the practice of eGovernment services. The research collectively highlights the transformative power of integrating language and cultural elements in the design of eGovernment services, profoundly impacting user perceptions, understanding, relatability, satisfaction, and trust. The study advises against the use of complex idioms,

particularly for non-native English speakers, a point underscored by Irujo (1986) and Seidl & McMordie (1978), stressing the importance of clear and universally understandable language in today's globalised context. Additionally, the necessity to minimise jargon is highlighted to enhance communication effectiveness, especially crucial in fields like oncology and aviation safety as noted by Back et al. (2005) and Merritt & Maurino (2004), and in culturally sensitive areas like end-of-life care, as Kagawa-Singer & Blackhall (2001) emphasise.

The research also stresses the importance of inclusive language and visual design in eGovernment services. It highlights the need for careful use of abbreviations, initialisms, and acronyms in digital services to ensure accessibility for all user groups, including migrants. The selection and use of icons must be carefully considered for their design and cultural appropriateness, as discussed by Bourges-Waldegg & Scrivener (1998), to positively influence user experience. Moreover, cultural variations in colour perception should be considered to avoid negative experiences, reinforcing the importance of culturally sensitive design, as supported by Cyr, Head & Larios (2010).

The study also points to the significant role of enhancing trust and satisfaction in eGovernment services. Incorporating diverse representation in images can foster connection and trust, suggesting that eGovernment services should include images reflecting users' cultural backgrounds. Culturally friendly attributes and features are shown to significantly enhance user trust, understanding, satisfaction, and reading efficiency, necessitating a focus on cultural inclusivity.

Addressing the specific needs of migrants and non-English speaking populations in eGovernment service design is crucial. This involves proactive inclusion to address barriers like language, digital literacy, and cultural differences, as discussed by Kluzer, Hache & Codagnone (2008) and Rojas & Palma (2014). The design of eGovernment services should be adaptable and flexible, reflecting dynamic cultural nuances and aligning with the need for cultural understanding in policymaking.

The findings suggest practical changes to WCAG 2.2, including specific guidance on language attributes and the incorporation of cultural elements that resonate with diverse cultural groups. This would make eGovernment services more accessible and inclusive.

This research supports a theory of 'cultural usability of eGovernment', advocating for the integration of language and cultural elements in eGovernment service design. This approach is instrumental in creating eGovernment platforms that are inclusive, accessible, and user-friendly, meeting the diverse needs of a global user base, especially migrants. It underscores the necessity of cultural sensitivity and linguistic clarity in an era where eGovernment services are a crucial interface between governments and citizens.

Implications for Method

This discussion centres on the methodological implications within the realm of cultural usability of eGovernment services, supporting a theory that is increasingly relevant in our multicultural world. This theory suggests that the integration of language and cultural elements in eGovernment service design can lead to significant shifts in user perceptions, understandings, relatability, satisfaction, and trust. The research underscores a methodological shift towards a more inclusive, culturally sensitive approach in eGovernment service design and evaluation, driven by the need to accommodate diverse user groups, particularly migrants, and to address linguistic and cultural barriers.

The study highlights the challenges posed by idioms in data collection and analysis, echoing the concerns raised by Minkler & Chang (2013). It suggests a need for methodologies that account for linguistic diversity and the potential for miscommunication caused by idioms, especially in multilingual settings, as advocated by Zhu (2009), Kohrt & Hruschka (2010), and Rasmussen et al. (2011). The disparities in the impact of jargon, discussed by Wu, Li, and Wang (2019),

call for context-specific research methodologies to understand its role in creating communication barriers. Adams et al. (1997) also emphasise the need for inclusive language in digital services, particularly for second language learners or migrants.

The study's focus on the unique challenges migrants face in understanding complex linguistic forms indicates the need for further research and strategies to enhance the clarity and accessibility of digital content for non-native speakers and migrants. This focus provides a significant contribution to the existing literature and points to a shift in research methodologies to accommodate the changing societal and technological landscapes. Additionally, the research offers a nuanced understanding of cultural differences in colour associations, highlighting the necessity of informed colour choices in design, extending the notions of Wan et al. (2014) and Yu (2014). This methodology contrasts with typical usability research by focusing on the unique usability needs of migrants, advocating for a more inclusive understanding of usability in a multicultural context.

Despite criticisms, the use of questionnaires provided direct insights from users, highlighting the need for more comprehensive methods to measure trust in diverse demographics. The study aligns with the broader literature on eGovernment but emphasises the importance of focused research on migrants, suggesting a shift in methodology to include diverse populations in the evaluation of eGovernment services. The research acknowledges the need for a comprehensive approach that balances traditional usability factors with multicultural considerations.

The methodology also emphasises the importance of considering cultural norms, values, and expectations in eGovernment services, suggesting a comprehensive approach to address these cultural challenges. This approach requires a nuanced understanding of different migrant communities and their unique challenges, tailoring eGovernment services to specific cultural groups. The recommendation to expand WCAG 2.2 guidelines reflects a methodological shift in web content accessibility, advocating for inclusivity that encompasses cultural and linguistic diversity, not just disability.

The research supports the theory of 'cultural usability of eGovernment', constituted by language and cultural elements in design, affecting user perceptions, understandings, relatability, satisfaction, and trust. It calls for a methodological overhaul in eGovernment service design and evaluation, emphasising the need for cultural sensitivity, linguistic clarity, and inclusivity. This approach is crucial in ensuring that eGovernment services are accessible, user-friendly, and effective for diverse populations, particularly migrants.

Discussion Summary

The collection of studies and research presented here cohesively supports the development of a theory of 'cultural usability of eGovernment'. This emerging theory strongly advocates for integrating language and cultural elements in the design of eGovernment services, with a particular emphasis on significantly influencing user perceptions, understanding, relatability, satisfaction, and trust. This is especially pertinent for migrants and non-native English speakers.

The research highlights the challenges that idioms present in language comprehension within eGovernment services, particularly for non-native English speakers. This points to the need for practical and methodological adjustments in language usage to adapt to societal and technological changes in the digital age. Furthermore, the synthesis of various studies provides a deeper understanding of the role of jargon in communication. It underscores the importance of its judicious use and the necessity for explicit explanations to foster better understanding and inclusivity in diverse communication contexts.

Additionally, the study contributes to the existing body of knowledge by identifying specific challenges posed by language attributes such as idioms, jargon, abbreviations, initialisms, and acronyms in communication. This is particularly relevant in digital services and for vulnerable user groups, calling for more inclusive language practices and further research to enhance communication accessibility and effectiveness. The analysis also delves into how icons, colour, and images impact the user experience in eGovernment services, stressing the importance of cultural appropriateness and inclusivity in design. This aspect is crucial for enhancing user satisfaction, trust, and engagement in a globalised world.

The research provides insightful perspectives on how user trust and the concept of eGovernment interact, particularly in the context of migrant populations in Australia. It highlights the significance of cultural appropriateness and inclusivity in building trust and ensuring the effectiveness of eGovernment services. The research also emphasises the

need for inclusive and culturally sensitive design practices in eGovernment services, contributing significantly to the discourse on usability and culture in the digital age. This approach is essential for developing eGovernment services that cater to a diverse range of user needs.

The analysis further underscores the importance of optimising eGovernment services to support migrant integration. This includes focusing on the challenges faced by specific migrant groups and the importance of cultural and linguistic inclusivity in service design and delivery. Additionally, the study argues for the optimisation of eGovernment services to address cultural challenges faced by migrant populations. It suggests enhancing the W3C's WCAG 2.2 guidelines to improve communication for migrants, advocating for a more inclusive approach to web content accessibility.

In summary, this comprehensive body of research forms a solid foundation for the theory of 'cultural usability of eGovernment'. It underscores the critical need to integrate language and cultural elements in the design of eGovernment services to effectively cater to the diverse needs of global communities. This approach is vital for ensuring that eGovernment services are accessible, user-friendly, and efficient in fostering an inclusive digital society, particularly focusing on migrants and non-native English speakers.

Chapter 6 Conclusion

In the concluding chapter of this thesis, we pivot from a mere recapitulation of results to a more nuanced synthesis that highlights how our findings contribute to the broader understanding of cultural usability in Australian eGovernment services. The research embarked upon an exploration of the interplay between language attributes and cultural elements, culminating in a richer understanding of how these facets directly enhance communication for migrant users whose first language is not English.

The core of this thesis was to unravel the complexities and opportunities embedded within the eGovernment framework, particularly in tailoring it to meet the needs of a linguistically and culturally diverse user base. The findings illuminate the path towards an eGovernment service that is not only functionally robust but also culturally resonant and linguistically accessible. By systematically manipulating and examining various language attributes – idioms, jargon, abbreviations, initialisms, and acronyms – this study demonstrated significant improvements in communication clarity and user comprehension among migrant groups, particularly from China and India. These improvements were not just statistical notations; they represented real shifts in how migrant users interacted with and perceived the eGovernment services.

The research delved into the realm of cultural elements, such as icons, colours, and images of people. The modifications in these areas were shown to profoundly enhance the relatability and satisfaction of the services among the migrant users. This underscores a pivotal revelation: cultural usability in eGovernment services transcends mere translation or basic linguistic adjustments. It requires a deep-seated integration of culturally relevant symbols, an understanding of colour semantics, and the use of imagery that reflects and respects the diversity of users.

The concept of trust, which is paramount in any government-citizen interaction, was also found to be positively influenced by these language and cultural enhancements. This aligns with the emerging understanding in eGovernment research that trust is not solely built on the functionality and security of services but also on how culturally and linguistically inclusive they are.

This research has not only confirmed several hypotheses about enhancing eGovernment services for non-native English speakers but, more importantly, it has laid down a foundational understanding of cultural usability in the Australian eGovernment context. It proffers that cultural usability is an intricate tapestry woven from the threads of language simplicity, cultural resonance, and trust enhancement. These findings contribute significantly to the field, offering practical insights for policymakers and eGovernment service designers, and set a precedent for future research in culturally inclusive government services worldwide.

In the culmination of this thesis, it is imperative to revisit and directly address the central research question: "How can language attributes and cultural elements be enhanced in an Australian eGovernment service to improve communication for migrant users whose first language is not English?" This research has transcended beyond merely confirming hypotheses; it has ventured into a deeper realm of understanding what constitutes cultural usability in the context of Australian eGovernment.

This study has systematically dissected and analysed how specific alterations in language attributes – including the simplification of idioms, jargon, abbreviations, and initialisms/acronyms – can make a profound difference in the accessibility and comprehensibility of eGovernment services for migrants. These language modifications were not just theoretical conjectures; they were empirically tested and shown to significantly enhance the clarity of communication for migrants, particularly from Chinese and Indian backgrounds. This directly responds to the first part of the research question by

demonstrating the tangible effects of refined language attributes on improving communication.

In addition, the exploration into cultural elements – such as the use of culturally relevant icons, the thoughtful application of colour schemes, and the inclusion of diverse images of people – has illuminated the intricate ways in which these factors contribute to the usability of eGovernment services. Our findings illustrate that cultural usability goes beyond the surface-level language translation. It involves a deep understanding of cultural nuances, a sensitivity to visual representation, and an acknowledgment of the diverse identities of users. This aspect of the research directly addresses the second part of the research question, illustrating how cultural elements, when thoughtfully integrated, can significantly enhance the user experience, making eGovernment services more relatable and satisfactory for migrant users.

Therefore, in answering the research question, this thesis establishes that the enhancement of language attributes and cultural elements in Australian eGovernment services is a multifaceted process. It requires not only linguistic adjustments but also a comprehensive integration of cultural understanding. The research findings here contribute to a more nuanced definition of cultural usability in eGovernment, which encapsulates ease of communication, cultural resonance, and user satisfaction. These aspects are crucial in crafting eGovernment services that are not only functional but also culturally inclusive and empathetic to the needs of a linguistically diverse user base.

This research has provided a comprehensive answer to the research question by demonstrating that cultural usability in Australian eGovernment services can be significantly improved through targeted enhancements in language attributes and a deep integration of cultural elements. This not only enhances communication for migrant users but also fosters an inclusive digital environment that respects and acknowledges cultural diversity.

In synthesising the key findings of this research, it becomes evident how modifications in language attributes and cultural elements effectively enhance the cultural usability of Australian eGovernment services, especially for migrant users whose first language is not English. These findings are not just incremental insights; they represent significant strides in understanding and improving the communication interface between government services and a linguistically diverse populace.

1. Language Modifications and Improved Comprehension: One of the most salient findings was the impact of modifying 'unusual words', including idioms, jargon, abbreviations, and initialisms/acronyms. The research demonstrated that these language modifications led to a substantial improvement in comprehension among migrant users, particularly from Chinese and Indian backgrounds. This suggests that simplifying complex language constructs can make eGovernment services more accessible and understandable to non-native English speakers.

2. Cultural Elements and Enhanced User Experience: Another critical finding was the influence of cultural elements such as icons, colours, and images of people on the user experience. The study revealed that integrating culturally resonant elements within eGovernment services significantly improved relatability and satisfaction among migrant users. This aligns with the need for a culturally inclusive design approach in eGovernment services, acknowledging and respecting the diverse cultural backgrounds of its users.

3. Trust Building through Cultural Sensitivity: Perhaps one of the most profound implications of this research was the observed increase in user trust through the incorporation of language and cultural elements that resonated with the migrants' cultural context. This underscores the importance of cultural sensitivity in building trust in eGovernment services among diverse user groups.

4. Reading Level Adjustments and User Satisfaction: Adjusting the reading level of eGovernment content emerged as a key factor in enhancing reading efficiency and overall user satisfaction. This finding points to the necessity of calibrating the language used in eGovernment services to suit the linguistic capabilities of a diverse audience.

These key findings collectively underscore the importance of cultural usability in eGovernment services. By making deliberate modifications to language attributes and integrating thoughtful cultural elements, eGovernment platforms can significantly improve their accessibility, effectiveness, and trustworthiness among migrant populations. These enhancements are not just beneficial; they are essential in an increasingly interconnected and culturally diverse global landscape where communication barriers can impede access to crucial government services. Therefore, this research contributes not only to the academic discourse in eGovernment and cross-cultural communication but also provides actionable insights for policymakers and eGovernment service designers to create more inclusive and responsive digital government platforms.

Contribution to Knowledge

This study advances knowledge in multiple significant ways.

Firstly, this study uncovered novel insights into the role of language attributes and cultural elements in enhancing communication for migrant users of an Australian eGovernment service. By uncovering the pronounced impact of these adjustments on parameters like subjective rating, comprehension, satisfaction, relatability, and reading efficiency, this research improves our understanding of the critical factors that can boost communication effectiveness in eGovernment services targeting migrant audiences. One of the key novel insights uncovered in this study is the significant enhancement of trust among migrant users when culturally familiar elements were incorporated into the eGovernment service interface. For example, the research found that including symbols and imagery closer to Chinese

users' cultural context, such as images depicting Chinese faces, increased trust perceptions by 6.66 points on average compared to the control group exposed to standard Australian icons and images. This highlights the strong potential of localised cultural elements to boost user trust, a pivotal factor in technology acceptance and usage.

Similarly, the study revealed notable improvements in relatability when textual language attributes were adapted to migrant users' needs. Simplifying vocabulary and reading levels for Indian migrants increased relatability ratings by 13.7 points compared to unmodified text. This indicates that better linguistic accommodation can make eGovernment services feel more welcoming, familiar and intuitive for non-native English speakers.

Secondly, it presents findings that can stimulate the development of theories or models centred on language attributes, cultural elements, and communication in eGovernment contexts. The study underscores the necessity of embedding culturally sensitive attributes and features to improve interaction with migrant users, forming a foundation for future theoretical advancements in eGovernment and cross-cultural communication. This study's significant theoretical contribution demonstrates the critical role of culturally targeted design in eGovernment theory and practice. The findings reveal that incorporating cultural elements attuned to users' backgrounds significantly enhances subjective ratings, comprehension, and satisfaction among migrant groups. For instance, including imagery and symbols familiar to Chinese migrants increased perceived understandability by 5.9 points versus generic Western imagery. This lends empirical support to eGovernment theoretical frameworks emphasising cultural customisation, resonating with models like Hofstede's Cultural Dimensions theory that underline adjusting services to users' cultural norms.

Additionally, the research bolsters usability theory by evidencing the effectiveness of linguistic and cultural accommodation in improving usability and user experience for diverse audiences. Simplifying text to lower reading levels made eGovernment services more usable for non-native English speakers, as shown by the 29.18-point increased understandability

score among Indian migrants. This aligns with user-centred design principles in usability theory, highlighting the importance of localisation and inclusive design.

Furthermore, the findings contribute to culture theory by demonstrating that integrating culturally appropriate elements leads to greater acceptance and satisfaction of eGovernment services among migrant user groups. Matching symbols and imagery to Chinese users' cultural context increased service relatability by 13.3 points. This provides tangible confirmation of culture theory tenets regarding cultural contextualisation.

Thirdly, the research question and discoveries are a testing ground for existing theories on language, cultural communication, and user satisfaction within the eGovernment service sphere. The study offers empirical proof validating the hypothesis that incorporating culturally friendly attributes and features results in enhanced communication and user satisfaction among migrant users.

Fourthly, the conclusions of this study hold practical implications, informing the design and enhancement of eGovernment services in Australia and similar contexts worldwide. The research shows the beneficial effects of language attributes and cultural elements, indicating their potential to augment communication and user experience in eGovernment services across diverse cultural contexts. These findings imply that eGovernment platforms should integrate culturally relevant imagery and symbols in their interfaces to resonate with diverse users. For instance, results showed that including Chinese icons increased Chinese migrants' satisfaction by 6.6 points. This suggests that designers could replace generic dollar signs with nationality-specific currency symbols to boost user experience.

Similarly, the research indicates that simplifying language use and reading the level of instructions and notifications can dramatically improve understandability. Indian users' comprehension rose by 12.8 points when the text was adapted to a 5th-grade reading level. Based on this, developers could apply readability guidelines and tools to simplify vocabulary and sentence structure on eGovernment sites to make interactions more accessible.

Additionally, findings reveal that depicting representative user images enhances relatability. Graphics with Asian faces improved Chinese users' perception of relatability by 5.2 points versus Western faces. Accordingly, designers could ensure that images reflect their target user base to help migrant users feel recognised and welcomed.

Finally, the research methodology utilised, including the design of control and treatment groups, offers a valuable blueprint for future eGovernment and cross-cultural communication investigations. The findings encourage researchers to probe similar research questions using analogous methodologies, thereby contributing to refining research techniques in this academic field. While this study focused on Chinese and Indian migrants using Australian government services, the findings have broader relevance internationally. For instance, the improvements in trust and relatability when culturally appropriate symbols and language were used could inform eGovernment services in other multicultural contexts like Canada, Singapore, or Qatar. The consistency across two distinct migrant groups implies the outcomes may transfer across national boundaries and apply more universally. Explicitly highlighting the potential for generalisation beyond Australia strengthens the wide-ranging impacts of the research.

A significant methodological contribution of this work was the controlled experimental approach using randomly assigned treatment and control groups. This enabled direct causal conclusions to be drawn regarding the effects of specific language and cultural adaptations on user experience metrics. Contrasting adapted services to unmodified versions isolated the impact of the changes and avoided placebo effects. The significant results, despite relatively small samples, further validate the efficacy of the experimental methodology.

This research expands on previous limited work examining culture's role in eGovernment service use, such as Kassim & Asiah Abdullah's (2010) study of cultural customization impacts on perceived usefulness. Incorporating extensive language modifications and assessing metrics like relatability provides novel evidence for communication enhancement

strategies. Furthermore, it aligns with previous research on migrant integration, like Gray's (2006) findings on technology's role in social inclusion.

Limitations of the Thesis

Several potential limitations should be noted:

1. Geographic Focus: The study focuses on migrants from China and India. While these countries represent two significant sources of migrants to Australia, they do not encompass the complete spectrum of cultural backgrounds and first languages of migrants in Australia. Findings may not be fully generalisable to migrants from other countries or regions.

2. Language Variability: The study assumes that the linguistic challenges faced by migrants can be addressed solely by modifying language attributes in a certain way. However, there's considerable variability in English language proficiency among migrants. The effectiveness of language modifications may vary greatly depending on the individual's prior exposure to English, educational background, and personal efforts to learn the language.

3. Cultural Elements: The study focuses on three specific cultural elements: icons, colour, and images of people. While these are significant elements, culture is multifaceted and includes values, beliefs, norms, customs, and symbols. Other unexplored cultural elements might be crucial in making an eGovernment service more communicable and satisfying for migrants.

4. User Trust: Trust is a complex phenomenon that is influenced by numerous factors, including personal experiences, word-of-mouth, security and privacy concerns, and the reputation of the service provider. While this study has focused on language attributes and cultural elements, it may not have fully captured the complexity of trust building in an eGovernment context.

5. Specificity of EGovernment Services: The research findings may not apply to all eGovernment services. Each service may have unique content and user interface design, cater to different needs, and may be used in varied contexts.

6. Technological Access and Literacy: The study assumes that all migrants have equal access to technology and the same level of technological literacy. In reality, this may not be the case. Digital divide issues, such as lack of access to reliable internet or lack of digital literacy skills, can significantly impact the usage of eGovernment services by migrants.

7. Temporal Limitations: Cultural and linguistic norms change over time. The appropriateness and effectiveness of the modifications proposed in this study may shift over time and thus require continual reassessment and adjustment.

Each of these limitations suggests areas for further research or consideration in applying the findings of this study to practice.

Possibilities for Further Research

The research findings can contribute to further research in the following areas. For example, the research findings provide a foundation for replication studies in different contexts and with larger sample sizes. Replicating the study with diverse migrant groups and in different eGovernment settings can help validate the initial findings and enhance the generalisability of the results. Future studies could utilise surveys, interviews, and ethnographic observation to obtain additional qualitative insights about user perceptions and experiences.

The findings can serve as a basis for further research to explore additional language attributes and cultural elements that can improve communication for migrant users. Researchers can investigate specific aspects, such as tone, imagery, navigation, or interactivity, and assess their impact on subjective and objective user experience and effectiveness measures. For example, further research could examine how applying linguistic politeness theory to language attributes impacts service quality and trustworthiness perceptions.

The research findings can be a starting point for refining and fine-tuning eGovernment services' language attributes and cultural elements. Further research can focus on optimising these elements by conducting iterative design processes, usability testing, and user feedback collection to identify potential areas for improvement. Optimising language and cultural elements could occur through techniques like A/B testing localised content variations, gathering user ratings of different phrasing or imagery, and iterative refinement based on performance data and user feedback.

The findings can inspire new research questions about migrant user experiences in eGovernment services. For example, researchers can investigate the impact of language attributes and cultural elements on migrant integration, such as social inclusion, access to public services, or trust in government institutions. What is the relationship between

culturally targeted eGovernment service design and indicators like employment, social capital, and political participation for new migrants?

The research findings can contribute to developing new theoretical frameworks or models that explain the mechanisms underlying the effects of language attributes and cultural elements on migrant user communication and satisfaction. Researchers can explore theories from intercultural communication, user experience, or technology adoption to provide a deeper understanding of these phenomena. For instance, integrating speech act theory and social presence models could provide a new theoretical lens to examine how language choices shape perceptions of service quality and usability.

The research findings can be extended to practical applications by examining the implementation of culturally friendly attributes and elements in eGovernment services on a broader scale. This can involve assessing the scalability, feasibility, and cost-effectiveness of integrating these enhancements into existing systems and platforms. Pilot studies and cost-benefit analyses can provide data to guide decisions on more comprehensive implementation across eGovernment services. Phased rollout plans can test feasibility and user reactions at larger scales.

The possibilities for further research of this study's findings could provide a more comprehensive understanding of how eGovernment services can be designed and optimised to cater to diverse user groups.

Analysing how local eGovernment users may react to foreign cultural elements included in the host countries' eGovernment services could yield insightful results. This line of inquiry could address the acceptability and effectiveness of integrating foreign cultural elements into eGovernment services. It could also explore potential biases, stereotypes, and misconceptions local users might hold towards foreign cultural elements. This would not only contribute to our understanding of the dynamics between local and migrant user groups but

also could provide a foundation for promoting cross-cultural understanding and collaboration within eGovernment services.

Furthermore, asking users to nominate their cultural background before using a service and applying language attributes and cultural elements appropriate to the request could offer a personalised user experience. This could increase satisfaction, trust, and usage among local and migrant users. However, research in this area should also consider potential ethical and privacy concerns. It would be essential to ensure that users understand why they are being asked for their cultural background and how this information will be used to enhance their user experience. A potential downside could be that some users may feel uncomfortable disclosing their cultural background. Therefore, this feature should be optional and designed to respect user privacy and choice. Studying local user responses to foreign cultural elements raises essential ethical considerations regarding transparency, consent, and avoiding stereotyping. Providing transparent opt-in consent processes and emphasizing individual differences within cultural groups would be essential.

Research in these areas could provide new insights into the role of cultural elements and language attributes in eGovernment services. It could lead to the development of innovative and inclusive design strategies that cater to the needs of diverse user groups. By examining these issues, researchers can contribute to advancing eGovernment theory, usability theory, and culture and cultural differences theory.

Practical Recommendations

The study highlights the improvements that can be made to communication strategies, design elements, and user interfaces to better cater to the needs of migrant users whose first language is not English. For example, the research can be used to identify potential applications and practical interventions to enhance language attributes and cultural elements

in eGovernment services for migrant users. The research question and findings can contribute to practical recommendations in the following ways.

Communicating the research findings to relevant stakeholders, such as government agencies responsible for eGovernment services, policymakers, and service providers, is essential. This communication can help foster awareness and understanding of the importance of catering to the needs of migrant users. By sharing the research outcomes, stakeholders can gain insights into the positive impact of culturally friendly attributes and elements on communication and user experience.

Researchers can collaborate with practitioners, such as eGovernment service providers, language experts, and cultural communication specialists, to translate the research findings into practical actions. Collaborative efforts can lead to developing guidelines, frameworks, or best practices that integrate the identified language attributes and cultural elements into the design and delivery of eGovernment services for migrant users.

Publishing the results in practitioner-oriented outlets is valuable to ensure that the research findings reach practitioners and professionals. These outlets may include industry magazines, conferences, workshops, or specialised publications on eGovernment, migration, or cultural communication. Publishing in such outlets can facilitate knowledge transfer and practical implementation of the research findings.

Researchers can engage in outreach activities to disseminate the research findings and recommendations to a broader audience. This can involve workshops, seminars, or webinars targeting eGovernment practitioners, policymakers, and other relevant stakeholders. By actively engaging in outreach activities, researchers can create opportunities for knowledge exchange, networking, and collaborative efforts to improve communication for migrant users in eGovernment services.

References

Absher, J.D. and Vaske, J.J., 2011. The role of trust in residents' fire wise actions. *International Journal of Wildland Fire*, *20*(2), pp.318-325.

Abu-Shanab, E. and Al-Azzam, A., 2012. Trust Dimensions and the adoption of E-government in Jordan. *International Journal of Information Communication Technologies and Human Development (IJICTHD)*, *4*(1), pp.39-51.

Adams, D.C., Di Bitetti, M.S., Janson, C.H., Slobodkin, L.B. and Valenzuela, N., 1997. An" audience effect" for ecological terminology: use and misuse of jargon. *Oikos*, pp.632-636.

Adams, F.M. and Osgood, C.E., 1973. A cross-cultural study of the affective meanings of color. *Journal of cross-cultural psychology*, *4*(2), pp.135-156.

Adler, N.J. and Aycan, Z., 2018. Cross-cultural interaction: What we know and what we need to know. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, pp.307-333.

Agarwal, U.A. and Rai, A., 2019. Exploring bullying among Indian managers: a grounded theory approach. *Journal of Asia Business Studies*.

Agrawal, G., Kumar, D. and Singh, M., 2021. Assessing the usability, accessibility, and mobile readiness of e-government websites: a case study in india. *Universal Access in the Information Society*, pp.1-12.

Akcay, O., Dalgin, M.H. and Bhatnagar, S., 2011. Perception of color in product choice among college students: a cross-national analysis of USA, India, China and Turkey. *International Journal of Business and Social Science*, *2*(21).

Akgül, Y., 2019. The accessibility, usability, quality and readability of Turkish state and local government websites an exploratory study. *International Journal of Electronic Government Research (IJEGR)*, *15*(1), pp.62-81.

Akkaya, C., Wolf, P. and Krcmar, H., 2012, January. Factors influencing citizen adoption of e-government services: a cross-cultural comparison (Research in progress). In *2012 45th Hawaii International Conference on System Sciences* (pp. 2531-2540). IEEE.

Akman, I., Yazici, A., Mishra, A. and Arifoglu, A., 2005. E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly*, *22*(2), pp.239-257.

Akpinar, Y. and Ondin, Z., 2008. Citizens' use and acceptance of e-government applications of Turkish social security institutions. *Electronic Government, an International Journal*, *5*(4), pp.403-419.

Al Omoush, K.S., Yaseen, S.G. and Alma'Aitah, M.A., 2012. The impact of Arab cultural values on online social networking: The case of Facebook. *Computers in Human Behavior*, *28*(6), pp.2387-2399.

Al-Adawi, Z., Yousafzai, S. and Pallister, J., 2005, September. Conceptual model of citizen adoption of e-government. In *The second international conference on innovations in information technology* (pp. 1-10). Dubai: IT Innovation.

Aladwani, A.M., 2013. A cross-cultural comparison of Kuwaiti and British citizens' views of e-government interface quality. *Government Information Quarterly*, *30*(1), pp.74-86.

Alajarmeh, N., 2022. The extent of mobile accessibility coverage in WCAG 2.1: sufficiency of success criteria and appropriateness of relevant conformance levels pertaining to accessibility problems encountered by users who are visually impaired. *Universal Access in the Information Society*, *21*(2), pp.507-532.

Alcántara-Pilar, J.M. and Del Barrio-García, S., 2015. Antecedents of attitudes toward the website: the moderating role of long-term orientation and individualism. *Cross Cultural Management*, *22*(3), pp.379-404.

Alcántara-Pilar, J.M., Del Barrio-García, S. and Rodríguez-López, M.E., 2018. Does language matter? A cross-national comparison of the moderating effect of language on website information-processing. *Journal of Business Research*, *88*, pp.66-78.

Aldrees, A. and Gračanin, D., 2021, July. Cultural usability of e-government portals: a comparative analysis of job seeking web portals between Saudi Arabia and the United States. In *Design, User Experience, and Usability: Design for Diversity, Well-being, and Social Development: 10th International Conference, DUXU 2021, Held as Part of the 23rd HCI International Conference, HCII 2021, Virtual Event, July 24–29, 2021, Proceedings, Part II* (pp. 3-17). Cham: Springer International Publishing.

Alenezi, H., Tarhini, A. and Sharma, S.K., 2015. Development of quantitative model to investigate the strategic relationship between information quality and e-government benefits. *Transforming Government: People, Process and Policy*, *9*(3), pp.324-351.

Alexander, A.J. and Chauhan, V., 2020. Parents and emerging adults in India. In *Parents and Caregivers Across Cultures* (pp. 217-230). Springer, Cham.

Alexander, R., 2019. *Usability themes in high and low context cultures: A comparative study* (Doctoral dissertation, Murdoch University).

Alexander, R., Murray, D. and Thompson, N., 2017. Cross-cultural web usability model. In *Web Information Systems Engineering–WISE 2017: 18th International Conference, Puschino, Russia, October 7-11, 2017, Proceedings, Part II 18* (pp. 75-89). Springer International Publishing.

Alexopoulos, C., Lachana, Z., Androutsopoulou, A., Diamantopoulou, V., Charalabidis, Y. and Loutsaris, M.A., 2019, April. How machine learning is changing e-government. In *Proceedings of the 12th international conference on theory and practice of electronic governance* (pp. 354-363).

Al-Faries, A., Al-Khalifa, H.S., Al-Razgan, M.S. and Al-Duwais, M., 2013, October. Evaluating the accessibility and usability of top Saudi e-government

services. In *Proceedings of the 7th International Conference on Theory and Practice of Electronic Governance* (pp. 60-63).

Alhassan, U., 2022. E-government and the impact of remittances on new business creation in developing countries. *Economic Change and Restructuring*, pp.1-34.

Al-Hujran, O. Al-Debei, M. Chatfield, A and Migdadi, M (2015). The imperative of influencing citizen attitude toward e-government adoption and use *Computers in Human Behavior* 53, pp. 189–203

Al-Khouri, A.M., 2012. eGovernment strategies the case of the United Arab Emirates (UAE). *European Journal of ePractice*, *17*(September), pp.126-150.

Allen, J.F., 2003. Natural language processing. In *Encyclopedia of computer science* (pp. 1218-1222).

Alsaghier, H., Ford, M., Nguyen, A. and Hexel, R., 2009. Conceptualising citizen's trust in e-government: Application of Q methodology. *Electronic Journal of E-government*, *7*(4), pp.pp295-310.

Al-Shafi, S. and Weerakkody, V., 2010. Factors affecting e-government adoption in the state of Qatar.

Alshehri, M., Drew, S. and AlGhamdi, R., 2013. Analysis of citizens acceptance for e-government services: applying the UTAUT model. *arXiv preprint arXiv:1304.3157*.

Alsmadi, I. and Abu-Shanab, E., 2016. E-government website security concerns and citizens' adoption. *Electronic Government, an International Journal*, *12*(3), pp.243-255.

Al-Soud, A.R. and Nakata, K., 2010, December. Evaluating e-government websites in Jordan: Accessibility, usability, transparency and responsiveness. In *2010 IEEE International Conference on Progress in Informatics and Computing* (Vol. 2, pp. 761-765). IEEE.

Alzahrani, L., Al-Karaghouli, W. and Weerakkody, V., 2017. Analysing the critical factors influencing trust in e-government adoption from citizens' perspective: A systematic review and a conceptual framework. *International business review*, *26*(1), pp.164-175.

Anamaria-Mirabela, P. and Monica-Ariana, S., 2014. Business English outside the box. Business jargon and abbreviations in business communication. *Annals of Faculty of Economics*, *1*(2), pp.111-119.

Anawati, D. and Craig, A., 2006. Behavioral adaptation within cross-cultural virtual teams. *IEEE transactions on professional communication*, *49*(1), pp.44-56.

Andersen, P.D. and Rasmussen, L.B., 2014. The impact of national traditions and cultures on national foresight processes. *Futures*, *59*, pp.5-17.

Andersson, A., Hatakka, M., Larsson, H. and Hedström, K., 2021. Citizen diversity in e-government research: moving the field forward.

Archibugi, D., 2004. Cosmopolitan democracy and its critics: a review. *European journal of international relations*, *10*(3), pp.437-473.

Arslan, A., 2009. Cross-cultural analysis of European e-government adoption. *World Applied Sciences Journal*, *7*(9).

Aslam, M.M., 2006. Are you selling the right colour? A cross-cultural review of colour as a marketing cue. Journal of marketing communications, 12(1), pp.15-30.

Au, F.T., Baker, S., Warren, I. and Dobbie, G., 2008, January. Automated usability testing framework. In *Proceedings of the ninth conference on Australasian user interface-Volume 76* (pp. 55-64).

Australian Bureau of Statistics, 2023, Australia's Population by Country of Birth, viewed 30/11/2023, < https://www.abs.gov.au/statistics/people/population/australias-population-country-birth/latest-release>

Australian Government's Department of Employment and Workplace Relations 2023, viewed 30/11/2023, < https://www.dewr.gov.au/>

Australian Human Rights Commission 2023, Face the Facts: Cultural Diversity, viewed 30/11/2023, < https://humanrights.gov.au/our-work/education/face-facts-cultural-diversity>

Bachner, A., 2014. *Beyond Sinology: Chinese Writing and the Scripts of Culture*. Columbia University Press.

Back, A.L., Arnold, R.M., Baile, W.F., Tulsky, J.A. and Fryer-Edwards, K., 2005. Approaching difficult communication tasks in oncology 1. *CA: a cancer journal for clinicians*, *55*(3), pp.164-177.

Baier, A., 1986. Trust and antitrust. *ethics*, *96*(2), pp.231-260.

Baker, D.L., 2009. Advancing e-government performance in the United States through enhanced usability benchmarks. *Government Information Quarterly*, *26*(1), pp.82-88.

Baptista, G. and Oliveira, T., 2015. Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, *50*, pp.418-430.

Baram-Tsabari, A., & Lewenstein, B.V., 2012 'An instrument for assessing scientists' written skills in public communication of science', Science Communication, vol. 35, no. 1, pp. 56–85, DOI: https://doi.org/10.1177/1075547012440634

Barber, W. and Badre, A., 1998, June. Culturability: The merging of culture and usability. In *Proceedings of the 4th Conference on Human Factors and the Web* (Vol. 7, No. 4, pp. 1-10).

Barker, C., 2002. *Making sense of cultural studies: Central problems and critical debates*. Sage.

Barnes, S., Baron, G., Fraser, C., Cool, K.J. and Jestin, A., 2019. Targeted Health Promotion Content Analysis.

Barnes, S.J. and Vidgen, R., 2004. Interactive e-government services: modelling user perceptions with eQual. *Electronic Government, an International Journal*, *1*(2), pp.213-228.

Barry, A.M.S., 1997. *Visual intelligence: Perception, image, and manipulation in visual communication*. State University of New York Press.

Basran, G.S. and Zong, L., 1998. Devaluation of foreign credentials as perceived by visible minority professional immigrants.(1). *Canadian Ethnic Studies Journal*, *30*(3), pp.6-26.

Beall, J., 2008. The weaknesses of full-text searching. *The Journal of Academic Librarianship*, *34*(5), pp.438-444.

Bearfield, D.A. and Bowman, A.O.M., 2017. Can you find it on the web? An assessment of municipal e-government transparency. *The American Review of Public Administration*, *47*(2), pp.172-188.

Becker, J., Niehaves, B., Bergener, P. and Räckers, M., 2008, August. Digital divide in eGovernment: The eInclusion gap model. In *International Conference on Electronic Government* (pp. 231-242). Springer, Berlin, Heidelberg.

Bedford, O. and Hwang, K.K., 2003. Guilt and shame in Chinese culture: A cross-cultural framework from the perspective of morality and identity. *Journal for the Theory of Social Behaviour*, *33*(2), pp.127-144.

Beekhuyzen, J., Hellens, L.V. and Siedle, M., 2005, July. Cultural barriers in the adoption of emerging technologies. In *Proceedings of HCI International*.

Begeny, J.C. and Greene, D.J., 2014. Can readability formulas be used to successfully gauge difficulty of reading materials?. *Psychology in the Schools*, *51*(2), pp.198-215.

Bélanger, F. and Crossler, R.E., 2011. Privacy in the digital age: a review of information privacy research in information systems. *MIS quarterly*, pp.1017-1041.

Bellizzi, J.A., Crowley, A.E. and Hasty, R.W., 1983. The effects of color in store design. *Journal of retailing*.

Belt, S., Väyrynen, S. and Häkkilä, J., 2010. Cross-cultural usability testing of mobile multimedia: A case study with four cultures. *Unpublished master's thesis). Oulu, Finland: Cross-University of Oulu*.

Benet-Martínez, V. and Haritatos, J., 2005. Bicultural identity integration (BII): Components and psychosocial antecedents. *Journal of personality*, *73*(4), pp.1015-1050.

Benet-Martínez, V., Leu, J., Lee, F. and Morris, M.W., 2002. Negotiating biculturalism: Cultural frame switching in biculturals with oppositional versus compatible cultural identities. *Journal of Cross-cultural psychology*, *33*(5), pp.492-516.

Beres, T., 2007. DAIRSACC-Do Acronyms Influence Reading Speed and Content Comprehension?.

Berkenkotter, C. and Huckin, T.N., 2016. *Genre knowledge in disciplinary communication: Cognition/culture/power*. Routledge.

Berman, S.L., Ratner, K., Cheng, M., Li, S., Jhingon, G. and Sukumaran, N., 2014. Identity distress during the era of globalization: A cross-national comparative study of India, China, and the United States. *Identity*, *14*(4), pp.286-296.

Bernstein, L., 2013. 10. Teaching World Literature for the 21st Century: Online Resources and Interactive Approaches. *Collected Essays on Learning and Teaching*, *6*, pp.54-59.

Besley, J.C. and Tanner, A.H., 2011. What science communication scholars think about training scientists to communicate. *Science Communication*, *33*(2), pp.239-263.

Bevan, N., 1995. Measuring usability as quality of use. *Software Quality Journal 4*, pp.115–150.

Bevana, N., Kirakowskib, J. and Maissela, J., 1991, September. What is usability. In *Proceedings of the 4th International Conference on HCI* (pp. 1-6).

Bhatti, N., Bouch, A. and Kuchinsky, A., 2000. Integrating user-perceived quality into web server design. *Computer Networks*, *33*(1-6), pp.1-16.

Biber, 1988, *Variation across speech and writing*, Cambridge UNIVERSITY press, First published 1988 First paperback edition 1991 Printed in Great Britain at the UNIVERSITY Press, Cambridge Britain, ISBN 0 521 32071 2 1.

Biber, D., 1995. *Dimensions of register variation: A cross-linguistic comparison*. Cambridge University Press.

Biber, D., Conrad, S. and Reppen, R., 1998. *Corpus linguistics: Investigating language structure and use*. Cambridge University Press.

Birren, F., 2016. Color psychology and color therapy; a factual study of the influence of color on human life. Pickle Partners Publishing.

Blaya, J.A., Fraser, H.S. and Holt, B., 2010. E-health technologies show promise in developing countries. *Health Affairs*, *29*(2), pp.244-251.

Blodgett, J.G., Bakir, A. and Rose, G.M., 2008. A test of the validity of Hofstede's cultural framework. *Journal of consumer marketing*, *25*(6), pp.339-349.

Bloemraad, I., 2007. Unity in diversity?: Bridging models of multiculturalism and immigrant integration. *Du Bois Review: Social Science Research on Race*, *4*(2), pp.317-336.

Bloom D. A. 2000.,Acronyms, abbreviations and initialisms. *BJU international*, *86*(1), 1–6.

Boas, F., 1911. *The mind of primitive man: a course of lectures delivered before the Lowell institute, Boston, Mass., and the National university of Mexico, 1910-1911*. Macmillan.

Boas, F., 1920. The methods of ethnology. *American Anthropologist*, *22*(4), pp.311-321.

Boers, F. and Demecheleer, M., 2001. Measuring the impact of cross-cultural differences on learners' comprehension of imageable idioms. *ELT journal*, *55*(3), pp.255-262.

Bogert, J., 1985. In defense of the Fog index. *The Bulletin of the Association for Business Communication*, *48*(2), pp.9-12.

Bol, N., Boerman, S.C., Romano Bergstrom, J.C. and Kruikemeier, S., 2016. An overview of how eye tracking is used in communication research. In *Universal Access in Human-Computer Interaction. Methods, Techniques, and Best Practices: 10th International Conference, UAHCI 2016, Held as Part of HCI International 2016, Toronto, ON, Canada, July 17-22, 2016, Proceedings, Part I 10* (pp. 421-429). Springer International Publishing.

Boulos, M.N.K., 2005. British internet-derived patient information on diabetes mellitus: is it readable?. *Diabetes technology & therapeutics*, *7*(3), pp.528-535.

Bourges-Waldegg, P. and Scrivener, S.A., 1998. Meaning, the central issue in cross-cultural HCI design. *Interacting with computers*, *9*(3), pp.287-309.

Boussarhan, I. and Daoudi, N., 2014. The accessibility of moroccan public websites: evaluation of three e-government websites. *Electronic Journal of e-Government*, *12*(1), p.67.

Brady, L. and Phillips, C., 2003. Aesthetics and usability: A look at color and balance. *Usability News*, *5*(1), pp.2-5.

Brady, L.M., Fryberg, S.A. and Shoda, Y., 2018. Expanding the interpretive power of psychological science by attending to culture. *Proceedings of the National Academy of Sciences*, *115*(45), pp.11406-11413.

Brislin, R.W., 1980. Cross-cultural research methods: Strategies, problems, applications. *Environment and culture*, pp.47-82.

Brooke, J., 1996. SUS-A quick and dirty usability scale. *Usability evaluation in industry*, *189*(194), pp.4-7.

Brown, G., 2017. A review of sampling effects and response bias in internet participatory mapping (PPGIS/PGIS/VGI). *Transactions in GIS*, *21*(1), pp.39-56.

Brugger, C., 1990. Advances in the international standardisation of public information symbols. *Information design journal*, *6*(1), pp.79-88.

Bryant, E.A., 2019. Readability Formulas and Writing Technique.

Buie, E. and Murray, D. eds., 2012. *Usability in government systems: User experience design for citizens and public servants*. Elsevier.

Burnkrant, R.E. and Unnava, H.R., 1995. Effects of self-referencing on persuasion. *Journal of consumer research*, *22*(1), pp.17-26.

Bush, R.F., Hair Jr, J.F. and Solomon, P.J., 1979. Consumers' level of prejudice and response to black models in advertisements. *Journal of Marketing Research*, *16*(3), pp.341-345.

Bush, T. and Haiyan, Q., 2000. Leadership and culture in Chinese education. *Asia Pacific Journal of Education*, *20*(2), pp.58-67.

Bwalya, K.J., 2009. Factors affecting adoption of e-government in Zambia. *The Electronic Journal of Information Systems in Developing Countries*, *38*(1), pp.1-13.

Caldas, M.P., 2006. Conceptualizing Brazilian multiple and fluid cultural profiles. *Management Research: Journal of the Iberoamerican Academy of Management*, *4*(3), pp.169-180.

Canal, P., Pesciarelli, F., Vespignani, F., Molinaro, N. and Cacciari, C., 2017. Basic composition and enriched integration in idiom processing: An EEG study. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *43*(6), p.928.

Caon, M., 2016. Abbreviations, initialism and acronyms: their use in medical physics (THUMP). *Australasian physical & engineering sciences in medicine*, *39*, pp.11-12.

Cardon, P.W., 2008. A critique of Hall's contexting model: A meta-analysis of literature on intercultural business and technical communication. *Journal of Business and Technical Communication*, *22*(4), pp.399-428.

Carter, L. and Belanger, F., 2004, January. Citizen adoption of electronic government initiatives. In *37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the* (pp. 10-pp). IEEE.

Carter, L. and Bélanger, F., 2005. The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, *15*(1), pp.5-25.

Casimiro, S., Hancock, P. and Northcote, J., 2007. Isolation and insecurity: Resettlement issues among Muslim refugee women in Perth, Western Australia. *Australian journal of social issues*, *42*(1), pp.55-69.

Cerulo, K.A., 1988. Analyzing cultural products: A new method of measurement. *Social Science Research*, *17*(4), pp.317-352.

Chakraborty, J., 2009. *A cross-cultural usability study on the internationalization of user interfaces based on an empirical five factor model*. University of Maryland, Baltimore County.

Chang, C.L. and Su, Y., 2012. Cross-Cultural Interface Design and the Classroom-Learning Environment in Taiwan. *Turkish Online Journal of Educational Technology-TOJET*, *11*(3), pp.82-93.

Chang, H.J., 2011. Multinationals on the web: Cultural similarities and differences in English-language and Chinese-language website designs. *Journal of the American Society for Information Science and Technology*, *62*(6), pp.1105-1117.

Chao, P.C., 2020. Using Chinese idioms to teach adolescents with intellectual disabilities self-determination skills. *Social Behavior and Personality: an international journal*, *48*(5), pp.1-11.

Charmaz, K., 2005. Grounded theory in the 21st century: A qualitative method for advancing social justice research. *Handbook of qualitative research*, *3*(7), pp.507-535.

Chaudhuri, A., 2008. *Clearing a space: reflections on India, literature and culture* (Vol. 8). Peter Lang.

Cheng, L., 2017. Do I mean what I say and say what I mean? A cross cultural approach to the use of emoticons & emojis in CMC messages. *Fonseca*, (15), p.199.

Cheung, M.Y. and Thong, J.Y., 2012. Is Localization Advisable for E-Commerce Websites?. In *E-Life: Web-Enabled Convergence of Commerce, Work, and Social Life: 10th Workshop on E-Business, WEB 2011, Shanghai, China, December 4, 2011, Revised Selected Papers 10* (pp. 255-260). Springer Berlin Heidelberg.

Chin, J.P., Diehl, V.A. and Norman, K.L., 1988. Questionnaire for user interaction satisfaction (QUIS). *Human-Computer Interaction Lab, University of Maryland at College Park*.

Chiu, R.K. and Kosinski Jr, F.A., 1995. Chinese cultural collectivism and work-related stress: Implications for employment counselors. *Journal of Employment counseling*, *32*(3), pp.98-110.

Cho, H.J. and Kim, K.S., 2005. Development of hazardous road fog index and its application. *Journal of the Eastern Asia Society for Transportation Studies*, *6*, pp.3357-3371.

Choi, C.Y., 1971. Chinese migration and settlement in Australia, with special reference to the Chinese in Melbourne.

Choong, Y.T., Plocher, T. and Rau, P.L.P., 2005. Cross-cultural web design. *Handbook of Human Factors in Web Design*, pp.284-300.

Choong, Y.Y. and Salvendy, G., 1998. Design of icons for use by Chinese in mainland China. *Interacting with computers*, *9*(4), pp.417-430.

Choudrie, J., Alfalah, A. and Spencer, N., 2017. Older Adults Adoption, Use and Diffusion of E-Government Services in Saudi Arabia, Hail City:: A Quantitative Study.

Christensen, S.L. and Kohls, J., 2003. Ethical decision making in times of organizational crisis: A framework for analysis. *Business & Society*, *42*(3), pp.328-358.

Clemmensen, T., 2010, August. Regional styles of human-computer interaction. In *Proceedings of the 3rd international conference on Intercultural collaboration* (pp. 219-222).

Clemmensen, T., Hertzum, M., Hornbæk, K., Shi, Q. and Yammiyavar, P., 2009. Cultural cognition in usability evaluation. *Interacting with computers*, *21*(3), pp.212-220.

Coleman, M.R., Rodd, J.M., Davis, M.H., Johnsrude, I.S., Menon, D.K., Pickard, J.D. and Owen, A.M., 2007. Do vegetative patients retain aspects of language comprehension? Evidence from fMRI. *Brain*, *130*(10), pp.2494-2507.

Colesca, S.E. and Dobrica, L., 2008. Adoption and use of e-government services: The case of Romania. *Journal of applied research and technology*, *6*, pp.204-217.

Colic-Peisker, V. and Tilbury, F., 2007. Integration into the Australian labour market: the experience of three “visibly different” groups of recently arrived refugees 1. *International migration*, *45*(1), pp.59-85.

Collins, J., 2002. Chinese entrepreneurs: the Chinese diaspora in Australia. *International Journal of Entrepreneurial Behavior & Research*.

Cornell, A., 1999. Idioms: an approach to identifying major pitfalls for learners.

Couchman, S., 2001. From Mrs Lup Mun, Chinese Herbalist, to Yee Joon, Respectable Scholar: A Social History of Melbourne's Chinatown, 1900-1920. *The Overseas Chinese in Australasia: History, Settlement and Interaction, Proceedings*, pp.126-139.

Coursaris, C.K. and Kim, D.J., 2011. A meta-analytical review of empirical mobile usability studies. *Journal of usability studies*, *6*(3), pp.117-171.

Courtney, A.J., 1986. Chinese population stereotypes: color associations. *Human factors*, *28*(1), pp.97-99.

Courtright, J., Wolfe, R. and Baldwin, J., 2011. Intercultural typologies and public relations research: A critique of Hofstede's dimensions. In *Public relations in global cultural contexts* (pp. 108-139). Routledge.

Cowie, A.P. and Mackin, R., 1975. Oxford dictionary of current idiomatic English V. 1: Verbs with prepositions and particles.

Cullen, R., 2005. E-government, A citizens' perspective. *Journal of E-Government*, *1*(3), pp.5-28.

Cyr, D. and Head, M., 2013. Website design in an international context: The role of gender in masculine versus feminine oriented countries. *Computers in Human Behavior*, *29*(4), pp.1358-1367.

Cyr, D. and Trevor-Smith, H., 2004. Localization of Web design: An empirical comparison of German, Japanese, and United States Web site characteristics. *Journal of the American society for information science and technology*, *55*(13), pp.1199-1208.

Cyr, D., 2013. Website design, trust and culture: An eight country investigation. *Electronic Commerce Research and Applications*, *12*(6), pp.373-385.

Cyr, D., Head, M. and Larios, H., 2010. Colour appeal in website design within and across cultures: A multi-method evaluation. *International journal of human-computer studies*, *68*(1-2), pp.1-21.

Cyr, D., Kindra, G.S. and Dash, S., 2008. Web site design, trust, satisfaction and e-loyalty: the Indian experience. *Online Information Review*, *32*(6), pp.773- 790.

Dale, E. and Chall, J.S., 1948. A formula for predicting readability: Instructions. *Educational research bulletin*, pp.37-54.

Dalton, B. and Smith, B.E., 2012. Teachers as designers: Multimodal immersion and strategic reading on the Internet. *Research in the Schools*, *19*(1).

Dasgupta, S.D., 1998. Gender roles and cultural continuity in the Asian Indian immigrant community in the US. *Sex roles*, *38*(11), pp.953-974.

Dashti, A., Benbasat, I. and Burton-Jones, A., 2010. Trust, felt trust, and e-government adoption: a theoretical perspective.

Davies, C.E., 2004. Developing awareness of crosscultural pragmatics: The case of American/German sociable interaction.

Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, pp.319-340.

De Beaugrande, R., 1991. Complexity and linguistics in the evolution of three paradigms.

De Róiste, M., 2013. Bringing in the users: The role for usability evaluation in eGovernment. *Government Information Quarterly*, *30*(4), pp.441-449.

Dean, J., 2009. *Democracy and other neoliberal fantasies: Communicative capitalism and left politics*. Duke University Press. Department of Social Services 2023, Social Security Guide, viewed 30/11/2023, < https://guides.dss.gov.au/social-security-guide/3/11/2>

Denman-Maier, E. and Parycek, P., 2003. Cross-cultural factors in global e-government. In *Electronic Government: Second International Conference, EGOV 2003, Prague, Czech Republic, September 1-5, 2003. Proceedings 2* (pp. 456-459). Springer Berlin Heidelberg.

Derné, S., 1995. *Culture in action: Family life, emotion, and male dominance in Banaras, India*. SUNY Press.

Díaz, E., Arenas, J.J., Moquillaza, A. and Paz, F., 2019, February. A systematic literature review about quantitative metrics to evaluate the usability of e-commerce web sites. In *International Conference on Intelligent Human Systems Integration* (pp. 332-338). Springer, Cham.

Díaz, J., Rusu, C. and Collazos, C.A., 2017. Experimental validation of a set of cultural-oriented usability heuristics: e-Commerce websites evaluation. *Computer Standards & Interfaces*, *50*, pp.160-178.

Dimond B. (2005). Abbreviations: the need for legibility and accuracy in documentation. *British journal of nursing (Mark Allen Publishing)*, *14*(12), 665–666.

Djamasbi, S., Tullis, T., Hsu, J., Mazuera, E., Osberg, K. and Bosch, J., 2007. Gender preferences in web design: usability testing through eye tracking. *AMCIS 2007 proceedings*, p.133.

Donahue, G.M., Weinschenk, S. and Nowicki, J., 1999. Usability is good business. *Compuware Corp., julio*.

Du Gay, P. and Pryke, M. eds., 2002. *Cultural economy: Cultural analysis and commercial life*. Sage.

DuBay, W.H., 2004. The principles of readability. *Online Submission*.

DuBay, W.H., 2008. Unlocking language: The classic readability studies. *IEEE Transactions on Professional Communication*, *51*(4), pp.416-417.

Dugdale, A., Daly, A., Papandrea, F. and Maley, M., 2005. Accessing e-government: challenges for citizens and organizations. *International Review of Administrative Sciences*, *71*(1), pp.109-118.

Durkin, K., Conti-Ramsden, G. and Walker, A.J., 2010. Computer-mediated communication in adolescents with and without a history of specific language impairment (SLI). *Computers in Human Behavior*, *26*(2), pp.176-185.

Ekong, U.O. and Ekong, V., 2010. M-voting: a panacea for enhanced e-participation. *Asian Journal of Information Technology*, *9*(2), pp.111-116.

Elliot, A.J. and Maier, M.A., 2014. Color psychology: Effects of perceiving color on psychological functioning in humans. *Annual review of psychology*, *65*, pp.95-120.

Epskamp, K., 1984. Cross-cultural interpretations of cartoons and drawings. *Media Asia*, *11*(4), pp.208-214.

Eristi, S., 2009. Cultural factors in web design. *Journal of Theoretical and Applied Information Technology*, *9*(2), pp.117-132.

ESCAP, UN., 2019. SDG 8: Decent work and economic growth: promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Ess, C. and Sudweeks, F., 2005. Culture and computer-mediated communication: Toward new understandings. *Journal of computer-mediated communication*, *11*(1), p.9.

Ess, C., 2007. From Computer-Mediated Colonization to Culturally Aware ICT Usage and Design. In *Advances in universal web design and evaluation: Research, trends and opportunities* (pp. 178-197). IGI Global.

Estill, R.B. and Kemper, S., 1982. Interpreting idioms. *Journal of psycholinguistic research*, *11*(6), pp.559-568.

Faisal, C.N., Gonzalez-Rodriguez, M., Fernandez-Lanvin, D. and de Andres-Suarez, J., 2016. Web design attributes in building user trust, satisfaction, and loyalty for a high uncertainty avoidance culture. *IEEE Transactions on Human-Machine Systems*, *47*(6), pp.847-859.

Fan, J.E., Hawkins, R.D., Wu, M. and Goodman, N.D., 2020. Pragmatic inference and visual abstraction enable contextual flexibility during visual communication. *Computational Brain & Behavior*, *3*, pp.86-101.

Fan, Y., 2000. A classification of Chinese culture. *Cross Cultural Management: An International Journal*.

Fandrych, I., 2007. Electronic communication and technical terminology: A rapprochement?. *NAWA Journal of Language and Communication*, *1*(1), pp.147-58.

Fang, T., 2003. A critique of Hofstede's fifth national culture dimension. *International journal of cross cultural management*, *3*(3), pp.347-368.

Faniel, I., Kansa, E., Whitcher Kansa, S., Barrera-Gomez, J. and Yakel, E., 2013, July. The challenges of digging data: a study of context in archaeological data reuse. In *Proceedings of the 13th ACM/IEEE-CS joint conference on Digital libraries* (pp. 295-304).

Feig , Nancy . 2004 . "A Growing Group with Huge Potential: Serving the Banking Needs of the Budding Asian-American Population," . *Community Banker* , 13 (August) : 32 – 38

Feldman, A., 2006. Web site Interface Design Theory: A Designer's Perimer. *Retrieved October*, *21*, p.2008.

Ferraro, G. and Brody, E.K., 2015. *The Cultural Dimension of Global Business (1-download)*. Routledge.

Fitzgerald, W., 2004. Models for cross-cultural communications for cross-cultural website design. *National Research Council Canada, Institute for Information Technology*.

Flesch, 1948, A new readability yardstick. *Journal of Applied Psychology*. 1948;32(3):221

Flesch, R., 1948. A new readability yardstick. *Journal of applied psychology*, *32*(3), p.221.

Foley, P. and Alfonso, X., 2009. eGovernment and the transformation agenda. *Public Administration*, *87*(2), pp.371-396.

Følstad, A., Jørgensen, H.D. and Krogstie, J., 2004, October. User involvement in e-Government development projects. In *Proceedings of the third Nordic conference on Human-computer interaction* (pp. 217-224).

Følstad, A., Kvale, K. and Haugstveit, I.M., 2014, October. Customer support as a source of usability insight: why users call support after visiting self-service websites. In *Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational* (pp. 167-170).

Ford, G. and Kotzé, P., 2005, September. Designing usable interfaces with cultural dimensions. In *IFIP Conference on Human-Computer Interaction* (pp. 713-726). Springer, Berlin, Heidelberg.

Forsythe, A., 2011. The human factors of the conspicuous Babel fish; dyadic referencing through icons. *Journal of Visual Literacy*, *30*(2), pp.91-115.

Fournier, V., 2002. Boundary work and the (un) making of the professions. In *Professionalism, boundaries and the workplace* (pp. 67-86). Routledge.

Friedman, D.B. and Hoffman-Goetz, L., 2006. A systematic review of readability and comprehension instruments used for print and web-based cancer information. *Health Education & Behavior*, *33*(3), pp.352-373.

Frøkjær, E., Hertzum, M. and Hornbæk, K., 2000, April. Measuring usability: are effectiveness, efficiency, and satisfaction really correlated?. In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems* (pp. 345-352).

Fuchs, S., 2009. *Against essentialism: A theory of culture and society*. Harvard University Press.

Galitz, W.O., 2007. *The essential guide to user interface design: an introduction to GUI design principles and techniques*. John Wiley & Sons.

Gambhir, M. and Gupta, V., 2017. Recent automatic text summarization techniques: a survey. *Artificial Intelligence Review*, *47*, pp.1-66.

Gao, M., Minglu, G. and Bryson, N. eds., 1998. *Inside/Out: New Chinese Art*. Univ of California Press.

Garber Jr, L.L., Hyatt, E.M. and Starr Jr, R.G., 2000. The effects of food color on perceived flavor. *Journal of Marketing Theory and Practice*, *8*(4), pp.59-72.

Garcia, A.C.B., Maciel, C. and Pinto, F.B., 2005, August. A quality inspection method to evaluate e-government sites. In *International Conference on Electronic Government* (pp. 198-209). Springer, Berlin, Heidelberg.

Gaspay, A., Dardan, S. and Legorreta, L., 2009. " Software of the Mind"-A Review of Applications of Hofstede's Theory to IT Research. *Journal of Information Technology Theory and Application (JITTA)*, *9*(3), p.3.

Gazni, A., 2011. Are the abstracts of high impact articles more readable? Investigating the evidence from top research institutions in the world. *Journal of Information Science*, *37*(3), pp.273-281.

Geertz, C., 1971. *Islam observed: Religious development in Morocco and Indonesia* (Vol. 37). University of Chicago Press.

Geertz, C., 1973. *Thick description* (pp. 21-21).

Geertz, C., 2008. Thick description: Toward an interpretive theory of culture. In *The cultural geography reader* (pp. 41-51). Routledge.

Gellner, E., 1987. *Culture, identity, and politics*. Cambridge University Press.

George, R., Nesbitt, K., Gillard, P. and Donovan, M., 2010, January. Identifying cultural design requirements for an Australian indigenous website. In *Proceedings of the Eleventh Australasian Conference on User Interface-Volume 106* (pp. 89-97).

Gibbs, R.W., 1980. Spilling the beans on understanding and memory for idioms in conversation. *Memory & cognition*, *8*(2), pp.149-156.

Glass, B.J. and Cook, M.K., 1990. Readability of Childrens Periodicals Yesterday and Today. *Reading Horizons: A Journal of Literacy and Language Arts*, *30*(3), p.5.

Goldfinch, S., Gauld, R. and Herbison, P., 2009. The participation divide? political participation, trust in government, and e-government in Australia and New Zealand. *Australian Journal of Public Administration*, *68*(3), pp.333-350.

Goodman, J.W., 1967, July. Digital image formation from electronically detected holograms. In *Computerized Imaging Techniques* (Vol. 10, pp. 176-181). SPIE.

Gopalan, S. and Rivera, J.B., 1997. Gaining a perspective on Indian value orientations: Implications for expatriate managers. *The International Journal of Organizational Analysis*.

Gould, E.W., Zalcaria, N. and Yusof, S.A.M., 2000, September. Applying culture to Web site design: A comparison of Malaysian and US Web sites. In *18th annual conference on computer documentation. ipcc sigdoc 2000. Technology and teamwork. Proceedings. IEEE professional communication society international professional communication conference an* (pp. 161-171). IEEE.

Gouscos, D., Kalikakis, M., Legal, M. and Papadopoulou, S., 2007. A general model of performance and quality for one-stop e-government service offerings. *Government Information Quarterly*, *24*(4), pp.860-885.

Goyal, N., Miner, W. and Nawathe, N., 2012, March. Cultural differences across governmental website design. In *Proceedings of the 4th international conference on Intercultural Collaboration* (pp. 149-152).

Grange, B. and Bloom, D.A., 2000. Acronyms, abbreviations and initialisms.

Graveel, J.G. and Fribourg, H.A., 1987. Using reading grade level to assess readability of selected plant and soil science textbooks. *Journal of Agronomic Education*, *16*(1), pp.24-29.

Gray, B., 2006. Migrant integration policy: A nationalist fantasy of management and control. *Translocations*, *1*(1), pp.118-138.

Green, D.T. and Pearson, J.M., 2011. Integrating website usability with the electronic commerce acceptance model. *Behaviour & Information Technology*, *30*(2), pp.181-199.

Greenfield, J., 2004. Readability formulas for EFL. *JALT Journal*, *26*(1), pp.5-24.

Grupp, G. and Heider, M., 1975. Non-overlapping disciplinary vocabularies. In *Communication of scientific information* (pp. 28-36). Karger Publishers.

Gudykunst, W.B., 2003. *Cross-cultural and intercultural communication*. Sage.

Gunning, R., 1952. The technique of clear writing.

Gupta, D., Ahlawat, A. and Sagar, K., 2014, November. A critical analysis of a hierarchy based Usability Model. In *2014 international conference on contemporary computing and informatics (IC3I)* (pp. 255-260). IEEE.

HaCohen-Kerner, Y., Kass, A. and Peretz, A., 2013. Initialism disambiguation: Man versus machine. *Journal of the American Society for Information Science and Technology*, *64*(10), pp.2133-2148.

Hales, A.H., Williams, K.D. and Rector, J., 2017. Alienating the audience: How abbreviations hamper scientific communication. *APS Observer*, *30*.

Hall, E. T., 1959. The silent language. *Garden City, Nueva York*.

Hall, E.T., 1976. *Beyond culture*. Anchor.

Harley, T.A., 2013. *The psychology of language: From data to theory*. Psychology press.

Harrison, T. and Stone, D.L., 2018. Effects of organizational values and employee contact on e-recruiting. *Journal of Managerial Psychology*.

Hartz, J. and Chappell, R., 1997. *Worlds apart: How the distance between science and journalism threatens America's future*. First Amendment Center.

Hasan, L. and Abuelrub, E., 2003. Common usability problems on educational websites. In *International Conference on Education and Education Technologies*.

Hayduk, L.A., 1983. Personal space: Where we now stand. *Psychological bulletin*, *94*(2), p.293.

Henriksson, A., Yi, Y., Frost, B. and Middleton, M., 2007. Evaluation instrument for e-government websites. *Electronic Government, an International Journal*, *4*(2), pp.204-226.

Hermeking, M., 2005. Culture and Internet consumption: Contributions from cross-cultural marketing and advertising research. *Journal of computer-mediated communication*, *11*(1), pp.192-216.

Herrando, C., Jiménez-Martínez, J. and Hoyos, M.D., 2019. *Social commerce users"optimal experience: stimuli, response and culture* (No. ART-2019-123439).

Hills, M.D., 2002. Kluckhohn and Strodtbeck's values orientation theory. *Online readings in psychology and culture*, *4*(4), p.3.

Hoehle, H., Zhang, X. and Venkatesh, V., 2015. An espoused cultural perspective to understand continued intention to use mobile applications: a four-country study of mobile social media application usability. *European journal of information systems*, *24*(3), pp.337-359.

Hoffman, R.R. and Kemper, S., 1987. What could reaction-time studies be telling us about metaphor comprehension?. *Metaphor and Symbol*, *2*(3), pp.149-186.

Hoffmann, T. and Worrall, L., 2004. Designing effective written health education materials: considerations for health professionals. *Disability and rehabilitation*, *26*(19), pp.1166-1173.

Hofstede, G. and Minkov, M., 2010. Long-versus short-term orientation: new perspectives. *Asia Pacific business review*, *16*(4), pp.493-504.

Hofstede, G., 2001. *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage.

Hofstede, G., 2011. Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, *2*(1), p.8.

Hohmann, L., 2020. Creating GUIs Users Can Use: Usability Analysis. In *Enterprise Operations Management* (pp. 317-329). Auerbach Publications.

Holzinger, A., 2005. Usability engineering methods for software developers. *Communications of the ACM*, *48*(1), pp.71-74.

Hooft, A.V., 2011. A Comparison of Mexican and US American students' perceptions of high-low context business communication style. *ITL-International Journal of Applied Linguistics*, *161*(1), pp.68-89.

Hornbæk, K. and Law, E.L.C., 2007, April. Meta-analysis of correlations among usability measures. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (pp. 617-626).

Hornbæk, K., 2006. Current practice in measuring usability: Challenges to usability studies and research. *International journal of human-computer studies*, *64*(2), pp.79-102.

Horton, W., 1996, April. Designing icons and visual symbols. In *Conference companion on Human factors in computing systems* (pp. 371-372).

House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. and Gupta, V. eds., 2004. *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage publications.

Howard, T., Jacobson, K.L. and Kripalani, S., 2013. Doctor talk: physicians' use of clear verbal communication. *Journal of health communication*, *18*(8), pp.991-1001.

Hsieh, H.C., Holland, R. and Young, M., 2009. A theoretical model for cross-cultural web design. In *Human Centered Design: First International Conference, HCD 2009, Held as Part of HCI International 2009, San Diego, CA, USA, July 19-24, 2009 Proceedings 1* (pp. 712-721). Springer Berlin Heidelberg.

Huang, K.C. and Chiu, T.L., 2007. Visual search performance on an LCD monitor: effects of color combination of figure and icon background, shape of icon, and line width of icon border. *Perceptual and motor skills*, *104*(2), pp.562-574.

Huang, Z. and Benyoucef, M., 2014. Usability and credibility of e-government websites. *Government information quarterly*, *31*(4), pp.584-595.

Hussain, A., Mkpojiogu, E.O., Yahaya, N.B. and Bakar, N.Z.B.A., 2018, September. A mobile usability assessment of carousell mobile app. In *AIP Conference Proceedings* (Vol. 2016, No. 1, p. 020053). AIP Publishing LLC.

Hwang, Y. and Lee, K.C., 2012. Investigating the moderating role of uncertainty avoidance cultural values on multidimensional online trust. *Information & management*, *49*(3-4), pp.171-176.

Imre, A., 2022. Categorizing and translating abbreviations and acronyms. *Open Linguistics*, *8*(1), pp.378-389.

Irujo, S., 1986. Don't put your leg in your mouth: Transfer in the acquisition of idioms in a second language. *tesol Quarterly*, *20*(2), pp.287-304.

Islam, M.N., 2015, December. Exploring the intuitiveness of iconic, textual and icon with texts signs for designing user-intuitive web interfaces. In *2015 18th International Conference on Computer and Information Technology (ICCIT)* (pp. 450-455). IEEE.

ISO, 1998. Ergonomic requirements for office work with visual display terminals (VDTs)-Part 11: guidance on usability—Part 11: guidance on usability (ISO 9241-11:1998).

Isphording, I.E. and Otten, S., 2014. Linguistic barriers in the destination language acquisition of immigrants. *Journal of economic Behavior & organization*, *105*, pp.30-50.

Issa, T. and Isaias, P., 2022. Usability and Human–Computer Interaction (HCI). In *Sustainable Design: HCI, Usability and Environmental Concerns* (pp. 23-40). London: Springer London.

Jackson, T. and Bak, M., 1998. Foreign companies and Chinese workers: employee motivation in the People's Republic of China. *Journal of Organizational Change Management*.

Javidan, M., House, R.J., Dorfman, P.W., Hanges, P.J. and Sully de Luque, M., 2006. Conceptualizing and measuring cultures and their consequences: a comparative review of GLOBE's and Hofstede's approaches. *Journal of international business studies*, *37*, pp.897-914.

Jeive, M., 2016. Negotiating beyond an essentialised culture model: the use and abuse of cultural distance models in international management studies. *International Journal of Bias, Identity and Diversities in Education (IJBIDE)*, *1*(2), pp.53-66.

Jensen, L.M., 1997. *Manufacturing Confucianism: Chinese traditions & universal civilization*. Duke University Press.

Jia, X., Pang, Y. and Liu, L.S., 2021, December. Online health information seeking behavior: a systematic review. In *Healthcare* (Vol. 9, No. 12, p. 1740). MDPI.

Jimenez, C., Lozada, P. and Rosas, P., 2016, September. Usability heuristics: A systematic review. In *2016 IEEE 11th Colombian Computing Conference (CCC)* (pp. 1-8). IEEE.

Jirwe, M., Gerrish, K., Keeney, S. and Emami, A., 2009. Identifying the core components of cultural competence: findings from a Delphi study. *Journal of clinical nursing*, *18*(18), pp.2622-2634.

Jobsearch, 2019, Jobactive, viewed 1/7/2019, <https://www.jobsearch.gov.au>

Joseph, S.R., 2015. Advantages and disadvantages of E-government implementation: literature review. *International Journal of Marketing and Technology*, *5*(9), pp.18-34.

Jucks, R., Schulte-Löbbert, P. and Bromme, R., 2007. Supporting experts' written knowledge communication through reflective prompts on the use of specialist concepts. *Zeitschrift für Psychologie/Journal of Psychology*, *215*(4), pp.237-247.

Kadhim, W.A.M., Mahdi, G.S. and Maktoof, Z.R., 2022. Acronyms and Abbreviations in the Language of social media. *Zien Journal of Social Sciences and Humanities*, *15*, pp.51-57.

Kagawa-Singer, M. and Blackhall, L.J., 2001. Negotiating cross-cultural issues at the end of life: You got to go where he lives. *Jama*, *286*(23), pp.2993-3001.

Kale, S.H., 2006. Designing culturally compatible Internet gaming sites. *UNLV Gaming Research & Review Journal*, *10*(1), p.5.

Karvonen, K., 1999, November. Creating trust. In *Proceedings of the fourth Nordic Workshop on Secure IT systems (Nordsec'99)* (pp. 21-36).

Kasabwala, K., Misra, P., Hansberry, D.R., Agarwal, N., Baredes, S., Setzen, M. and Anderson Eloy, J., 2013, April. Readability assessment of the American Rhinologic Society patient education materials. In *International Forum of Allergy & Rhinology* (Vol. 3, No. 4, pp. 325-333).

Kassim, N. and Asiah Abdullah, N., 2010. The effect of perceived service quality dimensions on customer satisfaction, trust, and loyalty in e-commerce settings: A cross cultural analysis. *Asia pacific journal of marketing and logistics*, *22*(3), pp.351-371.

Keller, H. and Greenfield, P.M., 2000. History and future of development in cross-cultural psychology. *Journal of Cross-cultural psychology*, *31*(1), pp.52-62.

Khurana, D., Koli, A., Khatter, K. and Singh, S., 2023. Natural language processing: State of the art, current trends and challenges. *Multimedia tools and applications*, *82*(3), pp.3713-3744.

Kincaid, 1975, Derivation of new readability formulas: (automated readability index, fog count and Flesch reading ease formula) for navy enlisted personnel. 1975. p. 48. Research branch report. Chief of naval technical training, Naval Air Station Memphis.

King, B.A. and Youngblood, N.E., 2016. E-government in Alabama: An analysis of county voting and election website content, usability, accessibility, and mobile readiness. *Government Information Quarterly*, *33*(4), pp.715-726.

Kirakowski, J., 1996. The software usability measurement inventory: background and usage. *Usability evaluation in industry*, pp.169-178.

Kirkbride, P.S., Tang, S.F. and Westwood, R.I., 1991. Chinese conflict preferences and negotiating behaviour: Cultural and psychological influences. *Organization studies*, *12*(3), pp.365-386.

Klare, G.R., 1974. Assessing readability. *Reading research quarterly*, pp.62-102.

Kluckhohn, F.R. and Strodtbeck, F.L., 1961. Variations in value orientations.

Kluzer, S., Hache, A. and Codagnone, C., 2008. Overview of digital support initiatives for/by immigrants and ethnic minorities in the EU27. *Luxembourg: Office for Official Publications of the European Communities*.

Knight, E., Gunawardena, C.N. and Aydin, C.H., 2009. Cultural interpretations of the visual meaning of icons and images used in North American web design. *Educational Media International*, *46*(1), pp.17-35.

Knott, K., 2016. *Hinduism: a very short introduction* (Vol. 5). Oxford University Press.

Kő, A., Molnár, T. and Mátyus, B., 2018, December. A user-centred design approach for mobile-government systems for the elderly. In *2018 12th International Conference on Software, Knowledge, Information Management & Applications (SKIMA)* (pp. 1-7). IEEE.

Kochkina, N. and Riccardi, M., 2021. How Covid-19 Pandemic Reshaped Cultural Environment in Italy and Ukraine: Facebook Content Analysis. *Jurnal The Messenger*, *13*(3), pp.194-210.

Kohls, L.R., 2011. *Survival kit for overseas living: For Americans planning to live and work abroad*. Hachette UK.

Kohrt, B.A. and Hruschka, D.J., 2010. Nepali concepts of psychological trauma: the role of idioms of distress, ethnopsychology and ethnophysiology in alleviating suffering and preventing stigma. *Culture, Medicine, and Psychiatry*, *34*, pp.322-352.

Kozhuharova, D., Georgieva, D., Dimova, M. and Peteva, P., 2022. What Does the Law Say? The Legal Framework Applicable to the Design and Use of ICTs in Migrants' Integration. In *Information and Communications Technology in Support of Migration* (pp. 275-293). Cham: Springer International Publishing.

Kreitler, H. and Kreitler, S., 1972. The model of cognitive orientation: Towards a theory of human behaviour. *British Journal of Psychology*, *63*(1), pp.9-30.

Kripalani, S. and Weiss, B.D., 2006. Teaching about health literacy and clear communication. *Journal of general internal medicine*, *21*(8), p.888.

Krumpal, I., 2013. Determinants of social desirability bias in sensitive surveys: a literature review. *Quality & quantity*, *47*(4), pp.2025-2047.

Kshetri, N., 2011. The Indian environment for entrepreneurship and small business development. *Studia Universitatis Babes Bolyai-Negotia*, *56*(4), pp.35-52.

Kujala, S. and Miron-Shatz, T., 2013, April. Emotions, experiences and usability in real-life mobile phone use. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 1061-1070).

Kumar, V., Mukerji, B. and Butt, I., 2007. Factors for Successful E-Government Adoption: A Conceptual Framework. *Electronic Journal of E-government*, *5*(1), pp.pp63-76.

Labrecque, L.I. and Milne, G.R., 2012. Exciting red and competent blue: the importance of color in marketing. *Journal of the Academy of Marketing Science*, *40*, pp.711-727.

Lachner, F., Fincke, F. and Butz, A., 2017. Ux metrics: Deriving country-specific usage patterns of a website plug-in from web analytics. In *Human-Computer Interaction–INTERACT 2017: 16th IFIP TC 13 International Conference, Mumbai, India, September 25–29, 2017, Proceedings, Part III 16* (pp. 142-159). Springer International Publishing.

Lacka, E. and Chong, A., 2016. Usability perspective on social media sites' adoption in the B2B context. *Industrial Marketing Management*, *54*, pp.80-91.

Lakha, S. and Stevenson, M., 2001. Indian identity in multicultural Melbourne. Some preliminary observations. *Journal of Intercultural Studies*, *22*(3), pp.245-262.

Landauer, M., Haider, W. and Pröbstl-Haider, U., 2014. The influence of culture on climate change adaptation strategies: Preferences of cross-country skiers in Austria and Finland. *Journal of Travel Research*, *53*(1), pp.96-110.

Landgraf, S., Beyer, R., Hild, I., Schneider, N., Horn, E., Schaadt, G., Foth, M., Pannekamp, A. and van der Meer, E., 2012. Impact of phonological processing skills on written language acquisition in illiterate adults. *Developmental Cognitive Neuroscience*, *2*, pp.S129-S138.

Lean, O.K., Zailani, S., Ramayah, T. and Fernando, Y., 2009. Factors influencing intention to use e-government services among citizens in Malaysia. *International journal of information management*, *29*(6), pp.458-475.

LeBlanc, T.W., Hesson, A., Williams, A., Feudtner, C., Holmes-Rovner, M., Williamson, L.D. and Ubel, P.A., 2014. Patient understanding of medical jargon: a survey study of US medical students. *Patient education and counseling*, *95*(2), pp.238-242.

Lee, C.K.C., Fernandez, N. and Martin, B.A., 2002. Using self-referencing to explain the effectiveness of ethnic minority models in advertising. *International Journal of Advertising*, *21*(3), pp.367-379.

Lee, J., Kim, H.J. and Ahn, M.J., 2011. The willingness of e-Government service adoption by business users: The role of offline service quality and trust in technology. *Government information quarterly*, *28*(2), pp.222-230.

Lee, S. and Koubek, R.J., 2010. The effects of usability and web design attributes on user preference for e-commerce web sites. *Computers in Industry*, *61*(4), pp.329-341.

Lee, Sang Gun & Trimi, Silvana & Kim, Changsoo. (2013). The impact of cultural differences on technology adoption. Journal of World Business. 48. 20–29. 10.1016/j.jwb.2012.06.003.

Lee, W.D. and Belden, B.R., 1966. A cross-validation readability study of general psychology textbook material and the Dale-Chall Readability Formula. *The Journal of Educational Research*, *59*(8), pp.369-373.

Lehrman, R.A. and Schnure, E., 2019. *The Political Speechwriter' s Companion: A Guide for Writers and Speakers*. CQ Press.

Leong, F.T. and Wong, P.T., 2003. Optimal human functioning from cross-cultural perspectives: Cultural competence as an organizing framework. *Counseling psychology and optimal human functioning*, pp.123-150.

Levitan, C.A., Ren, J., Woods, A.T., Boesveldt, S., Chan, J.S., McKenzie, K.J., Dodson, M., Levin, J.A., Leong, C.X. and Van den Bosch, J.J., 2014. Cross-cultural color-odor associations. *PloS one*, *9*(7), p.e101651.

Lewis, C., 1982. *Using the" thinking-aloud" method in cognitive interface design*. Yorktown Heights, NY: IBM TJ Watson Research Center.

Lewis, J.R., 1992, October. Psychometric evaluation of the post-study system usability questionnaire: The PSSUQ. In *Proceedings of the human factors society annual meeting* (Vol. 36, No. 16, pp. 1259-1260). Sage CA: Los Angeles, CA: Sage Publications.

Lewis, J.R., 1995. Computer system usability questionnaire. *International Journal of Human-Computer Interaction*.

Lewis, J.R., 1995. IBM computer usability satisfaction questionnaires: psychometric evaluation and instructions for use. *International Journal of Human-Computer Interaction*, *7*(1), pp.57-78.

Lewis, R., 2010. *When cultures collide* (pp. 171-211). London: Nicholas Brealey Publishing.

Li, J.R. and Hsieh, Y.H.P., 2004. Traditional Chinese food technology and cuisine. *Asia Pacific journal of clinical nutrition*, *13*(2).

Li, P.P., 2008. Toward a geocentric framework of trust: An application to organizational trust. *Management and Organization Review*, *4*(3), pp.413-439.

Li, X., Hess, T.J. and Valacich, J.S., 2008. Why do we trust new technology? A study of initial trust formation with organizational information systems. *The Journal of Strategic Information Systems*, *17*(1), pp.39-71.

Lim, L., 2002. Work-related values of Malaysians and Japanese: A re-examination of Hofstede's propositions. *Journal of Transnational Management Development*, *6*(3-4), pp.39-56.

Lin, H.F., 2011. An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust. *International journal of information management*, *31*(3), pp.252-260.

Lin, H.X., Choong, Y.Y. and Salvendy, G., 1997. A proposed index of usability: a method for comparing the relative usability of different software systems. *Behaviour & information technology*, *16*(4-5), pp.267-277.

Lin, S., Wu, F. and Li, Z., 2020. Social integration of migrants across Chinese neighbourhoods. *Geoforum*, *112*, pp.118-128.

Liu, H., Lussier, Y.A. and Friedman, C., 2001. Disambiguating ambiguous biomedical terms in biomedical narrative text: an unsupervised method. *Journal of biomedical informatics*, *34*(4), pp.249-261.

Liu, J. and Liu, Y.H., 2016. Perceived organizational support and intention to remain: The mediating roles of career success and self-esteem. *International journal of nursing practice*, *22*(2), pp.205-214.

Liu, Y., 2007. Designing quality online education to promote cross-cultural understanding. In *Globalized e-learning cultural challenges* (pp. 35-59). IGI Global.

Livermore, D. and Soon, A.N.G., 2015. *Leading with cultural intelligence: The real secret to success*. Amacom.

Longford, G., 2002. Canadian democracy hard-wired? connecting government and citizens in the digital age. *Canadian Issues*, p.33.

Luna, D., Peracchio, L.A. and de Juan, M.D., 2002. Cross-cultural and cognitive aspects of web site navigation. *Journal of the academy of marketing science*, *30*(4), pp.397-410.

Lund, A.M., 2001. Measuring usability with the use questionnaire12. *Usability interface*, *8*(2), pp.3-6.

MacMillan, D.M., 2008. *Diwali: Hindu festival of lights*. Enslow Publishers, Inc..

Madden, T.J., Hewett, K. and Roth, M.S., 2000. Managing images in different cultures: A cross-national study of color meanings and preferences. *Journal of international marketing*, *8*(4), pp.90-107.

Maheswaran, D. and Shavitt, S., 2000. Issues and new directions in global consumer psychology. *Journal of consumer psychology*, *9*(2), pp.59-66.

Mahmood, F., Wan Adnan, W.A., Md Noor, N.L. and Mohd Saman, F., 2018. Emotional response towards cultural-based e-government portal design using card sorting method. In *User Science and Engineering: 5th International Conference, i-USEr 2018, Puchong, Malaysia, August 28–30, 2018, Proceedings 5* (pp. 12-22). Springer Singapore.

Mandl, T. and De La Cruz, T., 2009. International differences in web page evaluation guidelines. *International Journal of Intercultural Information Management*, *1*(2), pp.127-142.

Mangalassary, S., 2016. Indian cuisine—the cultural connection. In *Indigenous culture, education and globalization* (pp. 119-134). Springer, Berlin, Heidelberg.

Marcus, A. and Gould, E.W., 2000. Crosscurrents: cultural dimensions and global Web user-interface design. *interactions*, *7*(4), pp.32-46.

Marimuthu, K. and Devi, S.L., 2012, December. How human analyse lexical indicators of sentiments-a cognitive analysis using reaction-time. In *Proceedings of the 2nd workshop on sentiment analysis where AI meets psychology* (pp. 81-90).

Markus, H., 1977. Self-schemata and processing information about the self. *Journal of personality and social psychology*, *35*(2), p.63.

Markus, H.R. and Kitayama, S., 1991. Culture and the self: Implications for cognition, emotion, and motivation. *Psychological review*, *98*(2), p.224.

Markus, H.R. and Kitayama, S., 2014. Culture and the self: Implications for cognition, emotion, and motivation. In *College student development and academic life* (pp. 264-293). Routledge.

Marshall, T.C., 2008. Cultural differences in intimacy: The influence of gender-role ideology and individualism—collectivism. *Journal of Social and Personal Relationships*, *25*(1), pp.143-168.

Martin-Shields, C.P., Camacho, S., Taborda, R. and Ruhe, C., 2022. Digitalization and e-government in the lives of urban migrants: Evidence from Bogotá. *Policy & Internet*, *14*(2), pp.450-467.

Matsumoto, D. and Yoo, S.H., 2006. Toward a new generation of cross-cultural research. *Perspectives on psychological science*, *1*(3), pp.234-250.

Maxwell, R., 2010. Evaluating migrant integration: Political attitudes across generations in Europe. *International migration review*, *44*(1), pp.25-52.

Mc Laughlin, G.H., 1969. SMOG grading-a new readability formula. *Journal of reading*, *12*(8), pp.639-646.

McAdams, K.C., 1992. Readability reconsidered: A study of reader reactions to Fog indexes. *Newspaper Research Journal*, *13*(4), p.50.

McKnight, D.H., Choudhury, V. and Kacmar, C., 2002. The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *The journal of strategic information systems*, *11*(3-4), pp.297-323.

McMordie, S., 1978. English Idioms and How to Use Them/McMordie Seidl.

McSweeney, B., 2002. The essentials of scholarship: A reply to Geert Hofstede. *Human relations*, *55*(11), pp.1363-1372.

McSweeney, B., 2016. Hall, hofstede, huntington, trompenaars, GLOBE: Common foundations, common flaws. In *Transculturalism and Business in the BRIC States* (pp. 39-84). Routledge.

McTaggart, A.C., 1962. *An experimental validation of the Flesch and Dale-Chall readability formulas on high school health texts*. University of Illinois at Urbana-Champaign.

Mead, M., 1928. Coming of age in Samoa; a psychological study of primitive youth for western civilisation.

Mead, M., 2017. *Continuities in cultural evolution*. Routledge.

Mekler, E.D. and Hornbæk, K., 2019, May. A framework for the experience of meaning in human-computer interaction. In *Proceedings of the 2019 CHI conference on human factors in computing systems* (pp. 1-15).

Meltwater, 2023, Social Media Statistics for Australia [Updated 2023], viewed 30/11/2023, < https://www.meltwater.com/en/blog/social-media-statistics-australia>

Meredith D (2010) *Explaining Research: How to Reach Key Audiences to Advance your Work*. New York: Oxford University Press.

Merritt, A. and Maurino, D., 2004. 5. Cross-Cultural Factors in Aviation Safety. In *Cultural Ergonomics* (Vol. 4, pp. 147-181). Emerald Group Publishing Limited.

Meyer, E., 2014. *The culture map: Breaking through the invisible boundaries of global business*. Public Affairs.

Mikolov, T., Sutskever, I., Chen, K., Corrado, G.S. and Dean, J., 2013. Distributed representations of words and phrases and their compositionality. *Advances in neural information processing systems*, *26*.

Miller, A.N., Bharathan, A., Duvuuri, V.N.S., Navas, V., Luceno, L., Zraick, R., Atmakuri, S., Schmidt-Owens, M., Deichen, M., Ayers, T. and Thrash, K., 2022. Use of seven types of medical jargon by male and female primary care providers at a university health center. *Patient education and counseling*, *105*(5), pp.1261-1267.

Miller, T. and Yúdice, G., 2002. *Cultural policy*. Sage.

Minkler M., Chang C. (2013). Participatory research and action. In Kawachi I. (Ed.), *Oxford handbook of public health practice* (3rd ed., pp. 198-202). Oxford, UK: Oxford University Press.

Minkov, M. and Hofstede, G., 2012. Hofstede's fifth dimension: New evidence from the World Values Survey. *Journal of cross-cultural psychology*, *43*(1), pp.3-14.

Mirabela, P.A. and Ariana, S.M., 2009. The use of acronyms and initialisms in business English. *Annals of Faculty of Economics*, *1*(1), pp.557-562.

Mohammad, M. and Lan, Y.C., 2013. Overcoming the barriers to accessing government online services in Australia: the case of selected non-English speaking migrants. *International Journal of E-Services and Mobile Applications (IJESMA)*, *5*(3), pp.1-24.

Mohammad, M., 2013. Overcoming the barriers experienced by non-English-speaking background (NESB) communities in accessing Australian government information systems: the NESB model.

Molich, R. and Nielsen, J., 1990. Improving a human-computer dialogue. *Communications of the ACM*, *33*(3), pp.338-348.

Moon, J., Chadee, D. and Tikoo, S., 2008. Culture, product type, and price influences on consumer purchase intention to buy personalized products online. *Journal of business research*, *61*(1), pp.31-39.

Morato, J., Iglesias, A., Campillo, A. and Sanchez-Cuadrado, S., 2021. Automated readability assessment for spanish e-government information. *Journal of Information Systems Engineering and Management*, *6*(2), p.em0137.

Mouttaki, I., Bagdanavičiūtė, I., Maanan, M., Erraiss, M., Rhinane, H. and Maanan, M., 2022. Classifying and mapping cultural ecosystem services using artificial intelligence and social media data. *Wetlands*, *42*(7), p.86.

Mpinganjira, M., 2015. Use of e-government services: the role of trust. *International Journal of Emerging Markets*.

Nadkarni, P., Chen, R. and Brandt, C., 2001. UMLS concept indexing for production databases: a feasibility study. *Journal of the American Medical Informatics Association*, *8*(1), pp.80-91.

Naidoo, L., 2007. Rupture or continuity?: The impact of globalization on cultural identity and education in Indian immigrant families in Australia. *TCI (Transnational Curriculum Inquiry)*, *4*(1), pp.18-28.

Nakayama, T.K. and Martin, J.N., 2014. CHAPTER FIVE ETHICAL ISSUES IN INTERCULTURAL COMMUNICATION COMPETENCE: A DIALECTICAL APPROACH. *Intercultural communication competence: Conceptualization and its development in cultural contexts and interactions*, p.97.

Namenwirth, J.Z. and Weber, R.P., 2016. *Dynamics of culture*. Routledge.

Nantel, J. and Glaser, E., 2008. The impact of language and culture on perceived website usability. *Journal of Engineering and Technology Management*, *25*(1-2), pp.112-122.

Narayan, M., Waugh, L., Zhang, X., Bafna, P. and Bowman, D., 2005, November. Quantifying the benefits of immersion for collaboration in virtual environments. In *Proceedings of the ACM symposium on Virtual reality software and technology* (pp. 78-81).

Narayan, U., 1998. Essence of culture and a sense of history: A feminist critique of cultural essentialism. *Hypatia*, *13*(2), pp.86-106.

Nasir, K.G. and Al-Ghizzy, M.J.D., 2019. Linguistic Features of Netspeak: Abbreviations, Acronyms, and Punctuation Marks. *University of Thi-Qar Journal of Education for Humanities Science*, *1*(1).

Nassau, K., 2001. *The physics and chemistry of color: the fifteen causes of color* (p. 496).

Neuhoff, E., Feeser, K.M., Sutherland, K. and Hovatter, T., 2016. Flesch-Kincaid Reading Grade Level Re-examined: Creating a Uniform Method for Calculating Readability on a Certification Exam. *Online Journal for Workforce Education and Development*, *9*(1), p.2.

Neuliep, J.W., 2020. *Intercultural communication: A contextual approach*. Sage Publications.

Niehaves, B. and Plattfaut, R., 2010. What is the issue with internet acceptance among elderly citizens? Theory development and policy recommendations for inclusive E-government. In *Electronic Government: 9th IFIP WG 8.5 International Conference, EGOV 2010, Lausanne, Switzerland, August 29-September 2, 2010. Proceedings 9* (pp. 275-288). Springer Berlin Heidelberg.

Nielsen, J. and Levy, J., 1994. Measuring usability: preference vs. performance. *Communications of the ACM*, *37*(4), pp.66-75.

Nielsen, J., 1993. Iterative user-interface design. *Computer*, *26*(11), pp.32-41.

Nippold, M.A. and Martin, S.T., 1989. Idiom interpretation in isolation versus context: A developmental study with adolescents. *Journal of Speech, Language, and Hearing Research*, *32*(1), pp.59-66.

Norris, P., 2003. Preaching to the converted? Pluralism, participation and party websites. *Party politics*, *9*(1), pp.21-45.

Oakland, T. and Lane, H.B., 2004. Language, reading, and readability formulas: Implications for developing and adapting tests. *International Journal of Testing*, *4*(3), pp.239-252.

Ogura, T., 2006. Electronic government and surveillance-oriented society. In *Theorizing surveillance* (pp. 284-309). Willan.

Oishi, S., Diener, E., Napa Scollon, C. and Biswas-Diener, R., 2004. Cross-situational consistency of affective experiences across cultures. *Journal of Personality and Social Psychology*, *86*(3), p.460.

Olson, L.C., 2007. Intellectual and conceptual resources for visual rhetoric: A re-examination of scholarship since 1950. *The Review of Communication*, *7*(1), pp.1-20.

Omidvar, R. and Richmond, T., 2005. *Immigrant settlement and social inclusion in Canada*. Joint Centre of Excellence for Research on Immigration and Settlement.

Oreg, S. and Katz-Gerro, T., 2006. Predicting proenvironmental behavior cross-nationally: Values, the theory of planned behavior, and value-belief-norm theory. *Environment and behavior*, *38*(4), pp.462-483.

Ortuno, M.M., 1991. Cross-cultural awareness in the foreign language class: The Kluckhohn model. *The Modern Language Journal*, *75*(4), pp.449-459.

Ott, C., 2022. Talking about cultural differences in an age of globalization and hybridization: Between Obelix and Stephen Colbert. *Missiology*, *50*(1), pp.63-77.

Oyserman, D., 2006. High power, low power, and equality: Culture beyond individualism and collectivism. *Journal of Consumer Psychology*, *16*(4), pp.352-356.

Oyserman, D., Coon, H.M. and Kemmelmeier, M., 2002. Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses. *Psychological bulletin*, *128*(1), p.3.

Ozkan, S. and Kanat, I.E., 2011. e-Government adoption model based on theory of planned behavior: Empirical validation. *Government Information Quarterly*, *28*(4), pp.503-513.

Paas, T. and Halapuu, V., 2012. Attitudes towards immigrants and the integration of ethnically diverse societies. *Eastern Journal of European Studies*, *3*(2).

Pakhomov, S., Pedersen, T. and Chute, C.G., 2005. Abbreviation and acronym disambiguation in clinical discourse. In *AMIA annual symposium proceedings* (Vol. 2005, p. 589). American Medical Informatics Association.

Panagiotopoulos, P., Ziaee Bigdeli, A. and Sams, S., 2012. " 5 Days in August"–How London local authorities used Twitter during the 2011 riots. In *Electronic Government: 11th IFIP WG 8.5 International Conference, EGOV 2012, Kristiansand, Norway, September 3-6, 2012. Proceedings 11* (pp. 102-113). Springer Berlin Heidelberg.

Parent, M., Vandebeek, C.A. and Gemino, A.C., 2005. Building citizen trust through e-government. *Government Information Quarterly*, *22*(4), pp.720-736.

Parisi, M., 2022. The religious dimension of the migrant in Italy: rights and identities in the management of the immigration phenomenon. *The religious dimension of the migrant in Italy: rights and identities in the management of the immigration phenomenon*, pp.311-329.

Park, J.Y., 2015. Cross-cultural language learning and web design complexity. *Interactive Learning Environments*, *23*(1), pp.19-36.

Patel, T., 2017. Multiparadigmatic studies of culture: needs, challenges, and recommendations for management scholars. *European Management Review*, *14*(1), pp.83-100.

Pauluzzo, R., Shen, B., Pauluzzo, R. and Shen, B., 2018. Culture and Its Dimensions: General Implications for Management. *Impact of Culture on Management of Foreign SMEs in China*, pp.91-138.

Pauwels, L., 2012, A Multimodal Framework for Analyzing Websites as Cultural Expressions, *Journal of Computer-Mediated Communication*, Volume 17, Issue 3, 1 April 2012, Pages 247–265.

Pearce, A. and Pons, D., 2019. Advancing lean management: The missing quantitative approach. *Operations Research Perspectives*, *6*, p.100114.

Penninx, R., 2005. Integration of migrants: Economic, social, cultural and political dimensions. *The new demographic regime: Population challenges and policy responses*, *5*(2005), pp.137-152.

Persson, H., Åhman, H., Yngling, A.A. and Gulliksen, J., 2015. Universal design, inclusive design, accessible design, design for all: different concepts—one goal? On the concept of accessibility—historical, methodological and philosophical aspects. *Universal Access in the Information Society*, *14*(4), pp.505-526.

Pham, X.L., Chen, G.D., Nguyen, T.H. and Hwang, W.Y., 2016. Card-based design combined with spaced repetition: A new interface for displaying learning elements and improving active recall. *Computers & Education*, *98*, pp.142-156.

Phippen, A. and Lacohée, H., 2006. eGovernment—issues in citizen engagement. *BT Technology Journal*, *24*(2), pp.205-208.

Pina, V., Torres, L. and Royo, S., 2007. Are ICTs improving transparency and accountability in the EU regional and local governments? An empirical study. *Public administration*, *85*(2), pp.449-472.

Plocher, T., Rau, P.L.P., Choong, Y.Y. and Guo, Z., 2021. Cross-Cultural Design. *Handbook of human factors and ergonomics*, pp.252-279.

Priluck Grossman, R. and Wisenblit, J.Z., 1999. What we know about consumers' color choices. *Journal of marketing practice: Applied marketing science*, *5*(3), pp.78-88.

Pruitt, M., 2022. *Consider the Big Picture: A Quantitative Analysis of Readability and the Novel Genre, 1800-1922* (Doctoral dissertation, Miami University).

Pulla, V., Carter, E. and Bhattacharyya, R., 2020. Recognising, understanding and responding to racism in India. In *Discrimination, Challenge and Response* (pp. 177-195). Palgrave Macmillan, Cham.

Quesenbery, W., 2001, May. What does usability mean: Looking beyondease of use'. In *Annual conference-society for technical communication* (Vol. 48, pp. 432-436).

Rachels, J., 1999. The challenge of cultural relativism.

Rahman, M.S., 2020. *Persuasive Design for Near Home Tourism* (Master's thesis).

Rajanen, M., 2006. Different Approaches to Usability Cost-Benefit Analysis. *Proc. ECITE 2006*, pp.391-397.

Rakedzon, T., Segev, E., Chapnik, N., Yosef, R. and Baram-Tsabari, A., 2017. Automatic jargon identifier for scientists engaging with the public and science communication educators. *PloS one*, *12*(8), p.e0181742.

Rasmussen A., Basila K., Allen S. K., John W. (2011). Posttraumatic idioms of distress among Darfur refugees: Hozun and Majnun. *Transcultural psychiatry* 48(4): 392–415. https://doi.org/

Rathbone, C.J., Salgado, S., Akan, M., Havelka, J. and Berntsen, D., 2016. Imagining the future: A cross-cultural perspective on possible selves. *Consciousness and Cognition*, *42*, pp.113-124.

Rawian, R.M., 2019. Text readability: A snapshot. *SALTeL Journal (Southeast Asia Language Teaching and Learning)*, *2*(1), pp.26-29.

Raza, S.H., Hasnain, A. and Khan, S.W., 2018. Cross-cultural evaluation of the mediation of attitudes in relationship of cultural values and behavioral reactions toward web based advertising. *South Asian Journal of Management Sciences*, *12*(1), pp.1-24.

Reinecke, K. and Bernstein, A., 2011. Improving performance, perceived usability, and aesthetics with culturally adaptive user interfaces. *ACM Transactions on Computer-Human Interaction (TOCHI)*, *18*(2), pp.1-29.

Rezaei, A.A., 2000. The validity of the Fog-Index of Readability. *The International Journal of Humanities*, *7*(4), pp.17-27.

Riach, P.A. and Rich, J., 1991. Testing for racial discrimination in the labour market. *Cambridge Journal of Economics*, *15*(3), pp.239-256.

Richardson, R.T., Drexler, T.L. and Delparte, D.M., 2014. Color and contrast in e-learning design: A review of the literature and recommendations for instructional designers and web developers. *MERLOT Journal of Online Learning and Teaching*, *10*(4), pp.657-670.

Rinne, T., Steel, G.D. and Fairweather, J., 2013. The role of Hofstede's individualism in national-level creativity. *Creativity Research Journal*, *25*(1), pp.129-136.

Rochat, J., Ehrler, F., Siebert, J.N., Ricci, A., Ruiz, V.G. and Lovis, C., 2022. Usability Testing of a Patient-Centered Mobile Health App for Supporting and Guiding the Pediatric Emergency Department Patient Journey: Mixed Methods Study. *JMIR pediatrics and parenting*, *5*(1), p.e25540.

Rogers, Y., Sharp, H. and Preece, J., 2023. *Interaction design: beyond human-computer interaction*. John Wiley & Sons.

Rojas, A. and Palma, I., 2014, April. E-government for the expatriates: In the pursuit of social inclusion. In *2014 First International Conference on eDemocracy & eGovernment (ICEDEG)* (pp. 131-134). IEEE.

Rosenberg, D., 2021. Ethnic perspective in e-government use and trust in government: A test of social inequality approaches. *New Media & Society*, *23*(6), pp.1660-1680.

Rosson, M.B. and Carroll, J.M., 2002. *Usability engineering: scenario-based development of human-computer interaction*. Morgan Kaufmann.

Rotter, J.B., 1971. Generalized expectancies for interpersonal trust. *American psychologist*, *26*(5), p.443.

Rousseau, D.M., Sitkin, S.B., Burt, R.S. and Camerer, C., 1998. Not so different after all: A cross-discipline view of trust. *Academy of management review*, *23*(3), pp.393-404.

Rubaii-Barrett, N. and Wise, L.R., 2006. Language minorities and the digital divide: A study of state e-government accessibility. *Journal of Public Management & Social Policy*, *12*(2), pp.5-27.

Russo, P. and Boor, S., 1993, May. How fluent is your interface? Designing for international users. In *Proceedings of the INTERACT'93 and CHI'93 conference on human factors in computing systems* (pp. 342-347).

Saba, A., 2012. EDTECH 602 Boise State University Professor Hsu.

Sabucedo, L.M.Á., Rifón, L.E.A., Pérez, R.M. and Gago, J.M.S., 2009. Providing standard-oriented data models and interfaces to eGovernment services: A semantic-driven approach. *Computer Standards & Interfaces*, *31*(5), pp.1014-1027.

Sachau, L.L. and Hutchinson, S.R., 2012. Trends in culturally relevant interface design features for Latino Web site users. *Educational Technology Research and Development*, *60*(6), pp.1033-1050.

Safarov, N., 2020. Digital (Dis) Engagement in Older Age: Determinants and Outcomes. *Radical (Dis) Engagement*.

Safarov, N., 2021. Personal experiences of digital public services access and use: Older migrants' digital choices. *Technology in Society*, *66*, p.101627.

Şahin Mencütek, Z. and Nashwan, A.J., 2021. Employment of Syrian refugees in Jordan: challenges and opportunities. *Journal of Ethnic & Cultural Diversity in Social Work*, *30*(6), pp.500-522.

Sangren, P., 1987. *History and magical power in a Chinese community*. Stanford University Press.

Sarkar, T., 2001. *Hindu wife, Hindu nation: Community, religion, and cultural nationalism*. Indiana University Press.

Sazzed, S., 2022, April. Influence of Language Proficiency on the Readability of Review Text and Transformer-based Models for Determining Language Proficiency. In *Companion Proceedings of the Web Conference 2022* (pp. 881-886).

Schiffman, H., 2012. *Linguistic culture and language policy*. Routledge.

Schmitt, B.H. and Pan, Y., 1994. Managing corporate and brand identities in the Asia-Pacific region. *California Management Review*, *36*(4), pp.32-48.

Schmitt, B.H., 1995. Language and visual imagery: Issues of corporate identity in East Asia. *The Columbia Journal of World Business*, *30*(4), pp.28-36.

Scolere, L., Reid, B., Pardo, C.A., Meron, G., Licero, J. and Hedge, A., 2012. Making electronic infographics enjoyable: Design guidelines based on eyetracking. *Advances in affective and pleasurable design*, pp.713-22.

Scott, M., DeLone, W.H. and Golden, W., 2009. Understanding net benefits: a citizen-based perspective on eGovernment success. *ICIS 2009 proceedings*, p.86.

Scruton, R., 1980. *The meaning of conservatism* (Vol. 21). Harmondsworth: Penguin Books.

Seidl, J., 1978. W. McMORDIE: English Idioms and How to Use Them.

Semaan, S., 2010. Time-space sampling and respondent-driven sampling with hard-to-reach populations. *Methodological Innovations Online*, *5*(2), pp.60-75.

Sent, E.M. and Kroese, A.L., 2022. Commemorating Geert Hofstede, a pioneer in the study of culture and institutions. *Journal of Institutional Economics*, *18*(1), pp.15-27.

Services Australia 2023, Accessibility, viewed 30/11/2023, https://www.servicesaustralia.gov.au/accessibility?context=1

Services Australia 2023, Ageing, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/ageing>

Services Australia 2023, Education, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/education>

Services Australia 2023, Health and Disability, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/health-and-disability>

Services Australia 2023, Living Arrangements, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/living-arrangements>

Services Australia 2023, Medicare, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/medicare>

Services Australia 2023, Raising Kids, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/raising-kids>

Services Australia 2023, What can we help with?, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/>

Services Australia 2023, Work, viewed 30/11/2023, < https://www.servicesaustralia.gov.au/work>

Shackel, B., 1991. Usability—context, framework, definition, design and evaluation. In: Shackel, B., Richardson, S. (Eds.), Human Factors for Informatics Usability. Cambridge University Press, Cambridge, pp.21–38.

Shackel, B., 1997. Human-computer interaction—Whence and whither?. *Journal of the American society for information science*, *48*(11), pp.970-986.

Shareef, M.A., Dwivedi, Y.K., Laumer, S. and Archer, N., 2016. Citizens' adoption behavior of mobile government (mGov): a cross-cultural study. *Information Systems Management*, *33*(3), pp.268-283.

Sharon, A.J. and Baram-Tsabari, A., 2014. Measuring mumbo jumbo: A preliminary quantification of the use of jargon in science communication. *Public Understanding of Science*, *23*(5), pp.528-546.

Sheng, H. and Trimi, S., 2008. M-government: technologies, applications and challenges. *ELECTRONIC GOVERNMENT-INDERSCIENCE-*, *5*(1), p.1.

Shobeiri, S., Mazaheri, E. and Laroche, M., 2018. Creating the right customer experience online: The influence of culture. *Journal of Marketing Communications*, *24*(3), pp.270-290.

Sia, C.L., Lim, K.H., Leung, K., Lee, M.K., Huang, W.W. and Benbasat, I., 2009. Web strategies to promote internet shopping: is cultural-customization needed?. *Mis Quarterly*, pp.491-512.

Siddiquee, N.A., 2016. E-government and transformation of service delivery in developing countries: The Bangladesh experience and lessons. *Transforming Government: People, Process and Policy*, *10*(3), pp.368-390.

Silcock, R., 2001. What is e-government. *Parliamentary affairs*, *54*(1), pp.88-101.

Singh, M., Sarkar, P., Dissanayake, D. and Pittachayawa, S., 2008. Diffusion of e-government services in Australia: Citizens' perspectives.

Singh, N. and Tiwari, A., 2018. Indian Color Symbolism: A Demonstration of Color Metaphors With Visual Identity. *Psychol Res*, *8*(1), pp.26-28.

Singh, N., Zhao, H., and Hu, X. 2003. Cultural Adaptation on the Web: A Study of American Companies' Domestic and Chinese Websites. *Journal of Global Information Management (JGIM), 11*(3), 63-80. http://doi.org/10.4018/jgim.2003070104

Singh, S., 2006. Impact of color on marketing. *Management decision*.

Siyanova-Chanturia, A., Conklin, K. and Schmitt, N., 2011. Adding more fuel to the fire: An eye-tracking study of idiom processing by native and non-native speakers. *Second Language Research*, *27*(2), pp.251-272.

Smelser, N.J., 2003. On comparative analysis, interdisciplinarity and internationalization in sociology. *International sociology*, *18*(4), pp.643-657.

Smith, A., Dunckley, L., French, T., Minocha, S. and Chang, Y., 2004. A process model for developing usable cross-cultural websites. *Interacting with computers*, *16*(1), pp.63-91.

Smith, S.L. and Mosier, J.N., 1986. *Guidelines for designing user interface software*. Bedford, MA: Mitre Corporation.

Smith, W., 1999. American perspectives on heraldry and vexillology. *Raven: A Journal of Vexillology*, *6*, pp.41-53.

Snel, E., Engbersen, G. and Leerkes, A., 2006. Transnational involvement and social integration. *Global networks*, *6*(3), pp.285-308.

Sohaib, O. and Kang, K., 2012. The effect of technology, human and social networks in serviceable cross-culture business to-consumer (B2C) websites. *Journal of Internet and e-Business Studies*, *2012*, p.1.

Sørum, H., Andersen, K.N. and Vatrapu, R., 2012. Public websites and human–computer interaction: an empirical study of measurement of website quality and user satisfaction. *Behaviour & Information Technology*, *31*(7), pp.697-706.

Spering, M., 2001. Current issues in cross-cultural psychology: Research topics, applications, and perspectives. *Universität Heidelberg. Unpublished paper. Retrieved December*, *5*, p.2012.

Spiteri, L.F., 2007. The structure and form of folksonomy tags: The road to the public library catalog. *Information technology and libraries*, *26*(3), pp.13-25.

Srivastava, S.C. and Teo, T.S., 2009. Citizen trust development for e-government adoption and usage: Insights from young adults in Singapore. *Communications of the Association for Information Systems*, *25*(1), p.31.

Stableford, S. and Mettger, W., 2007. Plain language: a strategic response to the health literacy challenge. *Journal of public health policy*, *28*, pp.71-93.

Stark, L., 2018. Algorithmic psychometrics and the scalable subject. *Social Studies of Science*, *48*(2), pp.204-231.

Stockwell, R. and Minkova, D., 2001. *English words: History and structure*. Cambridge University Press.

Sulistyowati, W.A., Alrajawy, I., Yulianto, A., Isaac, O. and Ameen, A., 2021. Factors contributing to e-government adoption in Indonesia—an extended of technology acceptance model with trust: a conceptual framework. In *Intelligent Computing and Innovation on Data Science: Proceedings of ICTIDS 2019* (pp. 651-658). Singapore: Springer Singapore.

Sun, H., 2001, October. Building a culturally-competent corporate web site: an exploratory study of cultural markers in multilingual web design. In *Proceedings of the 19th annual international conference on Computer documentation* (pp. 95-102).

Sutskever, I., Vinyals, O. and Le, Q.V., 2014. Sequence to sequence learning with neural networks. *Advances in neural information processing systems*, *27*.

Tan, C., Niculae, V., Danescu-Niculescu-Mizil, C. and Lee, L., 2016, April. Winning arguments: Interaction dynamics and persuasion strategies in good-faith online discussions. In *Proceedings of the 25th international conference on world wide web* (pp. 613-624).

Tan, C.W., Benbasat, I. and Cenfetelli, R.T., 2008, January. Building citizen trust towards e-government services: do high quality websites matter?. In *Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS 2008)* (pp. 217-217). IEEE.

Taylor, W.L., 1953. "Cloze procedure": A new tool for measuring readability. *Journalism quarterly*, *30*(4), pp.415-433.

Teo, T.S., Srivastava, S.C. and Jiang, L.I., 2008. Trust and electronic government success: An empirical study. *Journal of management information systems*, *25*(3), pp.99-132.

Terranova, G., Ferro, M., Carpeggiani, C., Recchia, V., Braga, L., Semelka, R.C. and Picano, E., 2012. Low quality and lack of clarity of current informed consent forms in cardiology: how to improve them. *JACC: Cardiovascular Imaging*, *5*(6), pp.649-655.

Thinyane, H., Bhat, K., Junio, D.R., Ju, B. and Craven-Matthews, C., 2018. Migrant workers' use of ICTs in Unacceptable Forms of Work. In *Proceedings of the 10th Conference of the International Development Informatics Association (IDIA 2018)*.

Thovtrup, H. and Nielsen, J., 1991, March. Assessing the usability of a user interface standard. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 335-341).

Tigre Moura, F., Gnoth, J. and Deans, K.R., 2015. Localizing cultural values on tourism destination websites: The effects on users' willingness to travel and destination image. *Journal of Travel Research*, *54*(4), pp.528-542.

Tokuda, Yasuharu & Jimba, Masamine & Yanai, Haruo & Fujii, Seiji & Inoguchi, Takashi. (2008). Interpersonal Trust and Quality-of-Life: A Cross-Sectional Study in Japan. PloS one. 3. e3985. 10.1371/journal.pone.0003985.

Tolbert, C.J. and Mossberger, K., 2006. The effects of e-government on trust and confidence in government. *Public administration review*, *66*(3), pp.354-369.

Torres, L., Pina, V. and Acerete, B., 2005. E-government developments on delivering public services among EU cities. *Government information quarterly*, *22*(2), pp.217-238.

Triandis, H.C., 1989. The self and social behavior in differing cultural contexts. *Psychological review*, *96*(3), p.506.

Trompenaars, F. (1993). *Riding the waves of culture: understanding cultural diversity in business.* London: The Economist Books

Trompenaars, F. and Hampden-Turner, C., 2011. *Riding the waves of culture: Understanding diversity in global business*. Nicholas Brealey International.

Tsai, H.T., Chien, J.L. and Tsai, M.T., 2014. The influences of system usability and user satisfaction on continued Internet banking services usage intention: empirical evidence from Taiwan. *Electronic Commerce Research*, *14*, pp.137-169.

Tsohou, A., Lee, H., Irani, Z., Weerakkody, V., Osman, I.H., Anouze, A.L. and Medeni, T., 2013. Proposing a reference process model for the citizen-centric evaluation of e-government services. *Transforming Government: People, Process and Policy*, *7*(2), pp.240-255.

Turkle, S., 2011. *Life on the Screen*. Simon and Schuster.

Türkyilmaz, A., Kantar, S., Bulak, M.E. and Uysal, O., 2015. User experience design: aesthetics or functionality. *Managing Intellectual Capital and Innovation for Sustainable and Inclusive Society: Managing Intellectual Capital and Innovation*, pp.559-565.

Twizeyimana, J.D. and Andersson, A., 2019. The public value of E-Government–A literature review. *Government information quarterly*, *36*(2), pp.167-178.

Tylor, E.B., 1871. *Primitive culture: Researches into the development of mythology, philosophy, religion, art and custom* (Vol. 2). J. Murray.

van Dam, N., Evers, V. and Arts, F.A., 2005. Cultural user experience issues in e-government: Designing for a multi-cultural society. In *Digital Cities III. Information Technologies for Social Capital: Cross-cultural Perspectives: Third International Digital Cities Workshop, Amsterdam, The Netherlands, September 18-19, 2003. Revised Selected Papers 3* (pp. 310-324). Springer Berlin Heidelberg.

Van de Vijver, F.J. and Leung, K., 2021. *Methods and data analysis for cross-cultural research* (Vol. 116). Cambridge University Press.

Van Huffel, S. and Vandewalle, J., 1991. *The total least squares problem: computational aspects and analysis*. Society for Industrial and Applied Mathematics.

van Osch, Y.M., Breugelmans, S.M., Zeelenberg, M. and Fontaine, J.J., 2013. The meaning of pride across cultures. *Components of emotional meaning: A sourcebook*, pp.377-387.

Van Tubergen, F., Maas, I. and Flap, H., 2004. The economic incorporation of immigrants in 18 western societies: Origin, destination, and community effects. *American sociological review*, *69*(5), pp.704-727.

Varshney, A., 1993. Contested meanings: India's national identity, Hindu nationalism, and the politics of anxiety. *Daedalus*, *122*(3), pp.227-261.

Venaik, S. and Brewer, P., 2013. Critical issues in the Hofstede and GLOBE national culture models. *International Marketing Review*, *30*(5), pp.469-482.

Venkateswaran, R.T. and Ojha, A.K., 2019. Abandon Hofstede-based research? Not yet! A perspective from the philosophy of the social sciences. *Asia Pacific Business Review*, *25*(3), pp.413-434.

Wan, X., Woods, A.T., van den Bosch, J.J., McKenzie, K.J., Velasco, C. and Spence, C., 2014. Cross-cultural differences in crossmodal correspondences between basic tastes and visual features. *Frontiers in psychology*, *5*, p.1365.

Wang, H.X., 2016. *Developing and testing readability measurements for second language learners* (Doctoral dissertation, Queensland University of Technology).

Wangpipatwong, S., Chutimaskul, W. and Papasratorn, B., 2005, November. Factors influencing the adoption of Thai eGovernment websites: information quality and system quality approach. In *Proceedings of the Fourth International Conference on eBusiness* (pp. 19-20).

Warcup, S. and Zimmerman, D., 2009, July. The relevance of information scent to information seeking on the Web. In *2009 IEEE International Professional Communication Conference* (pp. 1-5). IEEE.

Wardhaugh, R., 2002. *Understanding English grammar: A linguistic approach*. John Wiley & Sons.

Wass, M., Ibertsson, T., Lyxell, B., Sahlen, B., Hällgren, M., Larsby, B. and MÄKI-TORKKO, E.L.I.N.A., 2008. Cognitive and linguistic skills in Swedish children with cochlear implants–measures of accuracy and latency as indicators of development. *Scandinavian Journal of Psychology*, *49*(6), pp.559-576.

Watkins, L. and Gnoth, J., 2011. The value orientation approach to understanding culture. *Annals of Tourism Research*, *38*(4), pp.1274-1299.

Weightman, B.A., 1996. Sacred landscapes and the phenomenon of light. *Geographical Review*, pp.59-71.

Weiss, D.S., 2007. The impact of event scale: revised. In *Cross-cultural assessment of psychological trauma and PTSD* (pp. 219-238). Boston, MA: Springer US.

Welch, E.W. and Hinnant, C.C., 2003, January. Internet use, transparency, and interactivity effects on trust in government. In *36th Annual Hawaii International Conference on System Sciences, 2003. Proceedings of the* (pp. 7-pp). IEEE.

Wessel, D., Kennecke, A.K. and Heine, M., 2021. WCAG and dyslexia—Improving the search function of websites for users with dyslexia (without making it worse for everyone else). In *Proceedings of Mensch und Computer 2021* (pp. 168-179).

West, D.M., 2004. E-government and the transformation of service delivery and citizen attitudes. *Public administration review*, *64*(1), pp.15-27.

Wharton, C.M., Holyoak, K.J., Downing, P.E., Lange, T.E., Wickens, T.D. and Melz, E.R., 1994. Below the surface: Analogical similarity and retrieval competition in reminding. *Cognitive Psychology*, *26*(1), pp.64-101.

Wijenberg, M.J., 2021. *Assessing the indirect effect of interface design via cognitive workload on a learning task* (Master's thesis, University of Twente).

Wirtz, B.W., Piehler, R. and Daiser, P., 2015. E-government portal characteristics and individual appeal: An examination of e-government and citizen acceptance in the context of local administration portals. *Journal of Nonprofit & Public Sector Marketing*, *27*(1), pp.70-98.

Wren, J.D. and Garner, H.R., 2002. Heuristics for identification of acronym-definition patterns within text: towards an automated construction of comprehensive acronym-definition dictionaries. *Methods of information in medicine*, *41*(05), pp.426-434.

Wu, J., Li, S. and Wang, H., 2019. From Fans to “Little Pink”: The production and mobilization mechanism of national identity under new media commercial culture. In *From cyber-nationalism to fandom nationalism* (pp. 32-52). Routledge.

Würtz, E., 2005. Intercultural communication on web sites: A cross-cultural analysis of web sites from high-context cultures and low-context cultures. *Journal of computer-mediated communication*, *11*(1), pp.274-299.

Xu, Y., Chen, N., Fernandez, A., Sinno, O. and Bhasin, A., 2015, August. From infrastructure to culture: A/B testing challenges in large scale social networks. In *Proceedings of the 21th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (pp. 2227-2236).

Yeasmin, N., 2018. *The governance of immigration manifests itself in those who are being governed: Economic integration of immigrants in Arctic perspectives*. fi= Lapin yliopisto en= University of Lapland.

Yorio, C.A., 1971. Some sources of reading problems for foreign-language learners 1. *Language learning*, *21*(1), pp.107-115.

Youngblood, N.E. and Mackiewicz, J., 2012. A usability analysis of municipal government website home pages in Alabama. *Government Information Quarterly*, *29*(4), pp.582-588.

Yu, H.C., 2014. A cross-cultural analysis of symbolic meanings of color. *Chang Gung Journal of Humanities and Social Sciences*, *7*(1), pp.49-74.

Yuen, J. and Rood, D.L., 2009. Templates and style guides: The nuts and bolts of regulatory documents. *Targeted Regulatory Writing Techniques: Clinical Documents for Drugs and Biologics*, pp.33-43.

Yum, J.O., 1988. The impact of Confucianism on interpersonal relationships and communication patterns in East Asia. *Communications Monographs*, *55*(4), pp.374-388.

Zamanian, M. and Heydari, P., 2012. Readability of Texts: State of the Art. *Theory & Practice in Language Studies*, *2*(1).

Zhang, X., Brown, H.F. and Shankar, A., 2016, May. Data-driven personas: Constructing archetypal users with clickstreams and user telemetry. In *Proceedings of the 2016 CHI conference on human factors in computing systems* (pp. 5350-5359).

Zhao, F., 2011. Impact of national culture on e-government development: a global study. *Internet Research*, *21*(3), pp.362-380.

Zhao, F., Shen, K.N. and Collier, A., 2014. Effects of national culture on e-government diffusion—A global study of 55 countries. *Information & Management*, *51*(8), pp.1005-1016.

Zhou, S., Jeong, H. and Green, P.A., 2017. How consistent are the best-known readability equations in estimating the readability of design standards?. *IEEE Transactions on Professional Communication*, *60*(1), pp.97-111.

Zhu, J., 2009. *Quantitative models for performance evaluation and benchmarking: data envelopment analysis with spreadsheets* (Vol. 2). New York: Springer.

Zhu, P., 2010. Cross-cultural blunders in professional communication from a semantic perspective. *Journal of technical writing and communication*, *40*(2), pp.179-196.

Zinkhan, G.M. and Martin Jr, C.R., 1983. Two copy testing techniques: The cloze procedure and the cognitive complexity test. *Journal of Business Research*, *11*(2), pp.217-227.

Zufic, J. and Pogarcic, I., 2019. Colors, Contrasts and Typography in the Design of ecourses. *J. Multim. Process. Technol.*, *10*(2), pp.62-68.

Appendix A - Information About the Study (Hindi)

HINDI INFO

प्रतिभागी जानकारी शीट https://translate.googleusercontent.com/translate_

शोध में शामिल प्रतिभागियों को जानकारी

आप भाग लेने के लिए आमंत्रित कर रहे हैं

आप ऑस्ट्रेलियाई eGovernment संचार की सांस्कृतिक प्रयोज्य के एक मूल्यांकन हकदार एक अनुसंधान परियोजना में भाग लेने के लिए आमंत्रित कर रहे हैं।

इस परियोजना के विक्टोरिया विश्वविद्यालय से प्रोफेसर जॉन Zeleznikow की देखरेख में विक्टोरिया विश्वविद्यालय में पीएचडी अध्ययन के हिस्से के रूप में एक छात्र शोधकर्ता स्कॉट लोगी द्वारा आयोजित किया जा रहा है।

परियोजना स्पष्टीकरण

शोध का उद्देश्य मौजूदा ऑस्ट्रेलियाई eGovernment संचार की सांस्कृतिक प्रयोज्य मूल्यांकन करने के लिए है। समझने के लिए कैसे रोजगार वेबसाइट के ऑस्ट्रेलियाई सरकार के विभाग को पार सांस्कृतिक परिवर्तन सकारात्मक चीनी और भारतीय प्रवासियों द्वारा वेबसाइट के सांस्कृतिक प्रयोज्य को प्रभावित कर सकता है की जरूरत है।

मैं क्या करने के लिए कहा जाएगा?

- एक प्रश्नावली में सवालों का जवाब
- छात्र अन्वेषक द्वारा प्रदान की एक लैपटॉप कंप्यूटर का उपयोग करना

मैं भाग लेने से क्या लाभ होगा?

प्रतिभागियों यह एक विषय है, जिसमें वे रुचि रखते हैं पर एक सर्वेक्षण पूरा करने के लिए उत्तेजक मिल सकता है। यह उनकी खुद की खपत पैटर्न में उन्हें कुछ अंतर्दृष्टि दे सकता है। इसके अलावा, प्रतिभागियों को परियोजना से बाहर आ रहा है, तो वे रुचि रखते हैं प्रकाशित सामग्री (अंतिम ड्राफ्ट) के लिए उपयोग की पेशकश की जाएगी।

जानकारी मैं दे कैसे इस्तेमाल किया जाएगा?

जानकारी के सांख्यिकीय विश्लेषण किया जाएगा और फिर सिफारिशों उद्योग के लिए किया जाएगा।

इस परियोजना में भाग लेने के संभावित जोखिम क्या हैं?

प्रश्नावली पूरी तरह से गुमनाम है और वहाँ किसी भी प्रतिभागियों के लिए कोई खतरा नहीं है।

इस परियोजना को कैसे आयोजित किया जाएगा?

डाटा एक निर्णायक अनुसंधान डिजाइन के अनुसार एकत्र किया जाएगा। डेटा एक प्रतिनिधि से एकत्र किया जाएगा

एक प्रश्नावली का उपयोग नमूना। परिणाम मात्रात्मक विश्लेषण के अधीन हो जाएगा।

कौन अध्ययन का आयोजन होता है?

मुख्य अन्वेषक प्रोफेसर जॉन Zeleznikow, 9919 1837

छात्र शोधकर्ता स्कॉट लोगी, 0400 429 449

इस परियोजना में अपनी भागीदारी के बारे में कोई प्रश्न मुख्य अन्वेषक ऊपर सूचीबद्ध करने का निर्देश दिया जा सकता है।

आप किसी भी प्रश्न या जिस तरह से आप इलाज किया गया है के बारे में शिकायत नहीं है, तो आप नैतिकता सचिव, विक्टोरिया विश्वविद्यालय मानव अनुसंधान आचार समिति, कार्यालय अनुसंधान के लिए, विक्टोरिया विश्वविद्यालय, पीओ बॉक्स 14428, मेलबोर्न, विक, 8001, ईमेल researchethics @ नजरों से देख संपर्क कर सकते हैं .edu.au या फोन (03) 9919 4781 या 4461।

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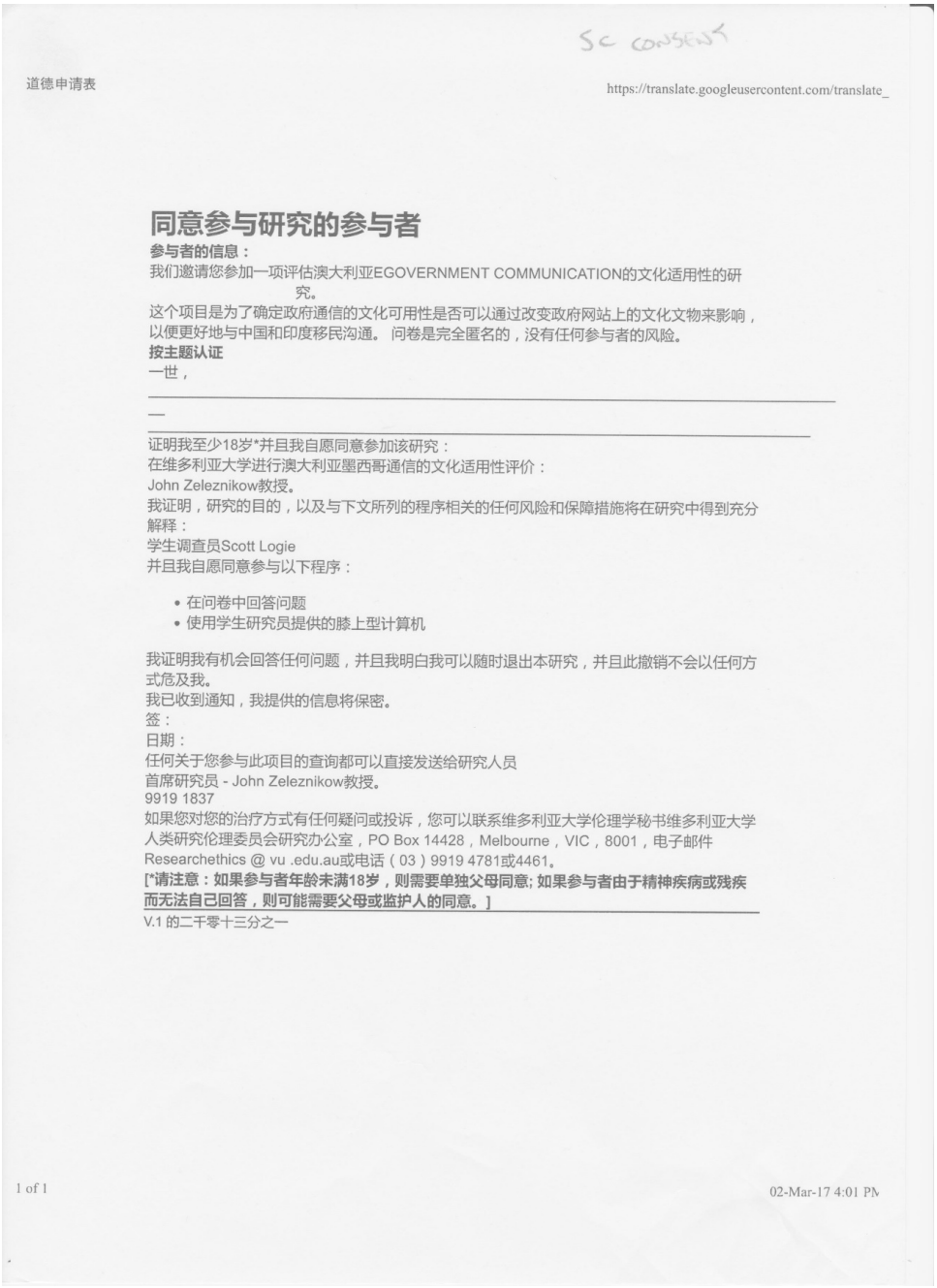
Appendix B – Consent Form (Chinese Respondents)



Sc consent

同意参与研究的参与者

参与者的信息：

我们邀请您参加一项评估澳大利亚EGOVERNMENT COMMUNICATION的文化适用性的研究。

这个项目是为了确定政府通信的文化可用性是否可以通过改变政府网站上的文化文物来影响，以便更好地与中国和印度移民沟通。 问卷是完全匿名的，没有任何参与者的风险。

按主题认证

一世，

_____

—

_____

证明我至少18岁*并且我自愿同意参加该研究：

在维多利亚大学进行澳大利亚墨西哥通信的文化适用性评价：

John Zeleznikow教授。

我证明，研究的目的，以及与下文所列的程序相关的任何风险和保障措施将在研究中得到充分解释：

学生调查员Scott Logie

并且我自愿同意参与以下程序：

- 在问卷中回答问题
- 使用学生研究员提供的膝上型计算机

我证明我有机会回答任何问题，并且我明白我可以随时退出本研究，并且此撤销不会以任何方式危及我。

我已收到通知，我提供的信息将保密。

签：

日期：

任何关于您参与此项目的查询都可以直接发送给研究人员

首席研究员 - John Zeleznikow教授。

9919 1837

如果您对您的治疗方式有任何疑问或投诉，您可以联系维多利亚大学伦理学秘书维多利亚大学人类研究伦理委员会研究办公室，PO Box 14428，Melbourne，VIC，8001，电子邮件 Researchethics @ vu .edu.au或电话（03）9919 4781或4461。

[*请注意：如果参与者年龄未满18岁，则需要单独父母同意; 如果参与者由于精神疾病或残疾而无法自己回答，则可能需要父母或监护人的同意。]

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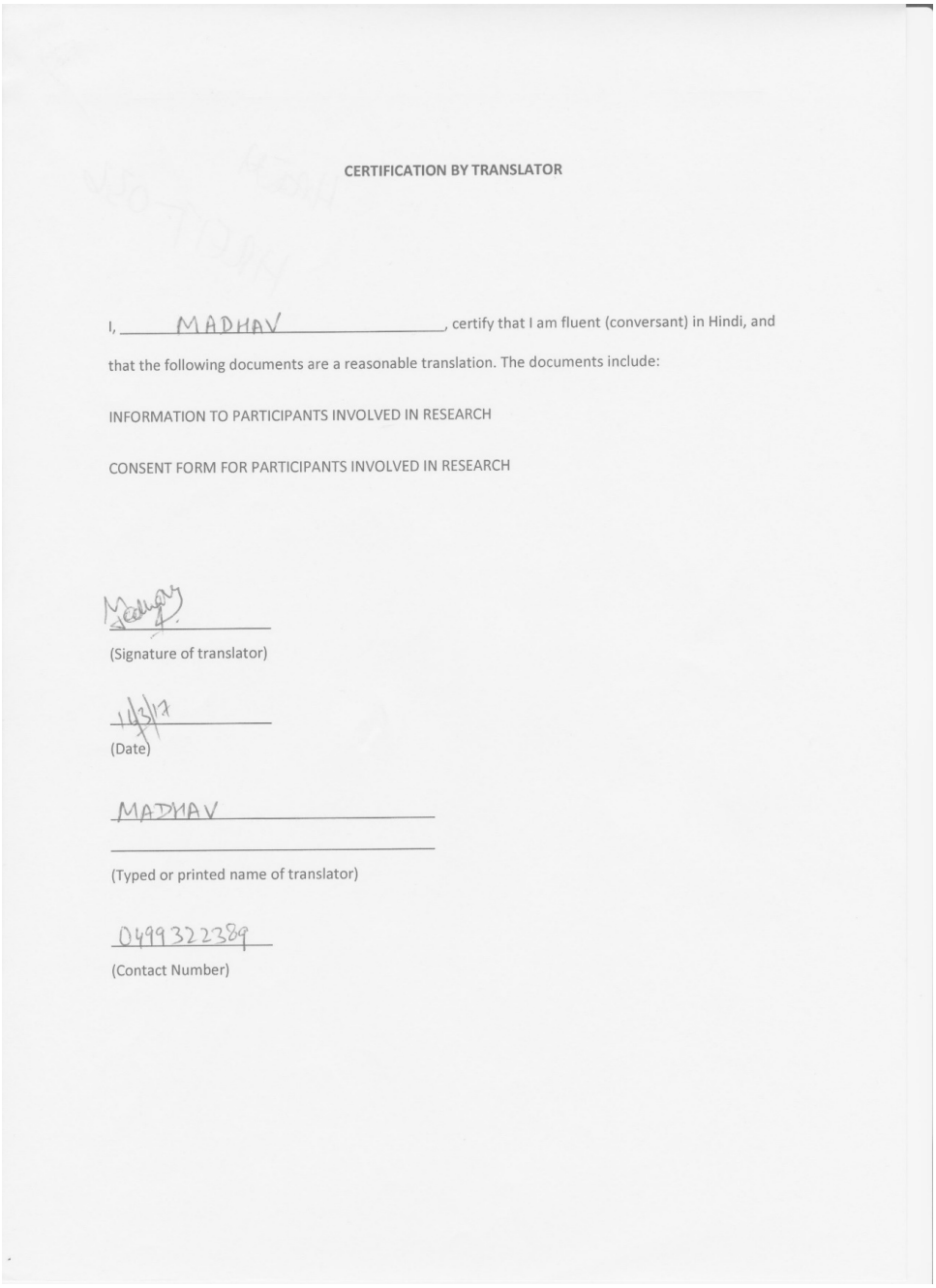
Appendix C – Accurate Translation into Hindi of Information and Consent Forms



CERTIFICATION BY TRANSLATOR

I, MADHAV, certify that I am fluent (conversant) in Hindi, and that the following documents are a reasonable translation. The documents include:

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

(Signature of translator)

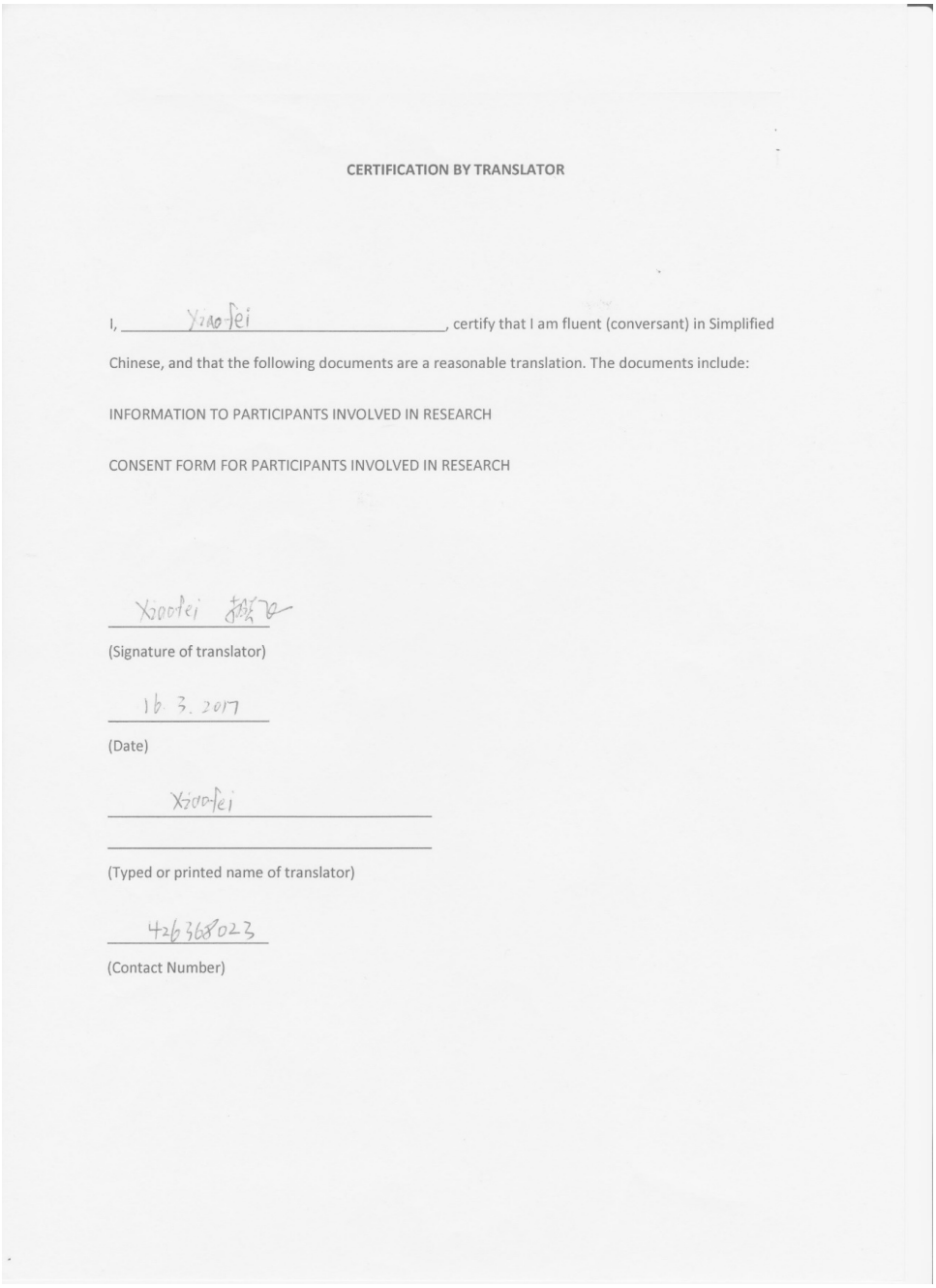
14/3/17
(Date)

MADHAV

(Typed or printed name of translator)

0499322389
(Contact Number)

Appendix D – Accurate Translation into Simplified Chinese of Information and Consent Forms



CERTIFICATION BY TRANSLATOR

I, Xiao-fei, certify that I am fluent (conversant) in Simplified Chinese, and that the following documents are a reasonable translation. The documents include:

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

Xiaofei

(Signature of translator)

16. 3. 2017

(Date)

Xiaofei

(Typed or printed name of translator)

426368023

(Contact Number)

Appendix E – Chinese Treatments (Descriptive)

China Control Group						China Treatment Group					
Idioms	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**		**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**
Q1	2.42	2.5	2	0.87	3		4	4	4	0.69	2
Q2	2.42	2.5	2	0.71	3		4.08	4	4	0.67	3
Q3	2.63	3	2	0.77	3		4.03	4	4	0.84	3
Q4	2.42	2.5	2	0.71	3		4.03	4	4	0.66	2
Q5	2.53	2.5	2	0.62	2		4.03	4	4	0.56	2
Q6	2.43	2.5	2	0.63	2		4.08	4	4	0.65	2
Q7	2.38	2	2	0.71	3		4	4	4	0.67	2
Cronbach's Alpha				0.917898122		**Cronbach's Alpha**				0.942824565	

1 Central Tendency: The mean, median, and mode provide measures of central tendency, indicating the typical or central values within each group for each item (Q1-Q7). In the China Control Group, the mean and median scores range from 2.38 to 2.63, with modes predominantly at 2. In the China Treatment Group, the mean and median scores range from 4.0 to 4.08, with modes consistently at 4.

2 Dispersion: The standard deviation and range describe the dispersion or variability of responses within each group for each item. In the China Control Group, the standard deviations range from 0.62 to 0.87, indicating relatively low variability. The range values are consistent at 3, suggesting a limited spread of responses. In the China Treatment Group, the standard deviations range from 0.56 to 0.84, also indicating low variability. The range values are consistently at 2, indicating a narrower spread compared to the control group.

3 Cronbach's Alpha: Cronbach's Alpha is a measure of internal consistency or reliability of a scale. In the China Control Group, Cronbach's Alpha is 0.918, suggesting high internal consistency among the items in the questionnaire. In the China Treatment Group, Cronbach's Alpha is 0.943, indicating even higher internal consistency.

Based on these analyses, it appears that the China Treatment Group generally exhibits higher mean ratings, lower variability, and higher internal consistency compared to the China Control Group.

These statistical findings suggest that the intervention or treatment provided to the China Treatment Group was successful, given the higher average ratings, lower variability in responses, and higher internal consistency compared to the China Control Group.

The elevated mean ratings in the China Treatment Group indicate that participants responded more positively to the items in the questionnaire, suggesting a more favourable reception of the eGovernment services compared to the control group. This supports the thesis argument that the proposed changes or improvements to eGovernment services are effective and well-received.

The lower variability in the China Treatment Group's responses, demonstrated by the standard deviation and range, implies that the group's perceptions of the eGovernment services were more consistent and less divided. This further strengthens the argument, indicating that the proposed changes or improvements to the services not only have a positive impact overall but also resonate similarly across a diverse group of users.

Finally, the higher Cronbach's Alpha in the China Treatment Group shows that the responses to different items in the questionnaire were highly consistent. This suggests that the positive impact of the proposed changes or improvements was not confined to a specific aspect of the eGovernment services but rather seen across multiple aspects, reinforcing the thesis that the interventions had a comprehensive and broad-ranging positive effect.

Together, these results provide strong quantitative support for the thesis argues that the changes or improvements to the eGovernment services in China were effective and beneficial, and they could potentially inform future enhancements of these services.

China Control Group						China Treatment Group					
Jargon	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**		**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**
Q1	2.26	2	2	1.09	4		4.36	5	5	0.7519	2
Q2	2.14	2	2	0.78	3		4.26	4	5	0.7383	3
Q3	2.14	2	2	0.68	2		4.26	4	5	0.7383	2
Q4	2.2	2	2	0.62	2		4.26	4	5	0.7383	2
Q5	2.04	2	2	0.64	2		4.18	4	5	0.7574	2
Q6	2.26	2	2	0.64	2		4.28	4	4	0.5649	2
Q7	2.4	3	2	0.93	4		4.28	4	5	0.6245	2
Cronbach's Alpha 0.929941928						**Cronbach's Alpha** 0.933175628					

1. Central Tendency: The mean scores in the China Control Group range from 2.04 to 2.4, with medians predominantly at 2 and modes mostly at 2. The mean scores in the China Treatment Group range from 4.18 to 4.36, with medians at 4 or 5 and modes consistently at 5.
2. Dispersion: In the China Control Group, the standard deviations range from 0.62 to 1.09, indicating moderate to high variability. The range values vary from 2 to 4, suggesting a wider spread of responses. In the China Treatment Group, the standard deviations range from 0.5649 to 0.7574, indicating relatively low variability. The range values consistently at 2, suggesting a narrower spread than the control group.
3. Cronbach's Alpha: In the China Control Group, Cronbach's Alpha is 0.930, indicating high internal consistency among the items in the questionnaire. In the China Treatment Group, Cronbach's Alpha is 0.933, suggesting similarly high internal consistency.

Based on these analyses, it appears that the China Treatment Group generally exhibits higher mean ratings, lower variability, and similar internal consistency compared to the China Control Group.

China Control Group						China Treatment Group					
Abbreviations	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**		**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**
Q1	2.18	2	2	0.921	3		4.41	4	5	0.6668	3
Q2	2.13	2	2	0.7761	3		4.35	4	5	0.6488	2
Q3	2.28	2	2	0.7039	2		4.29	4	5	0.4819	3
Q4	2.1	2	2	0.7826	2		4.35	4	4	0.5164	2
Q5	2.13	2	2	0.7681	2		4.26	4	4	0.5568	2
Q6	2.2	2	2	0.9656	3		4.38	4	4	0.5189	3
Q7	2.1	2	1	0.7782	3		4.32	4	4	0.6236	3
Cronbach's Alpha 0.916610617						**Cronbach's Alpha** 0.939561858					

1. Central Tendency: The mean scores in the China Control Group range from 2.1 to 2.28, with medians predominantly at 2 and modes mostly at 2 or 1. In the China Treatment Group, the mean scores range from 4.26 to 4.41, with medians at 4 and modes mostly at 4 or 5.
2. Dispersion: In the China Control Group, the standard deviations range from 0.7039 to 0.9656, indicating moderate to high variability. The range values vary from 2 to 3, suggesting a moderate spread of responses. In the China Treatment Group, the standard deviations range from 0.4819 to 0.6668, indicating relatively low variability. The range values vary from 2 to 3, suggesting a moderate spread of responses.
3. Cronbach's Alpha: In the China Control Group, Cronbach's Alpha is 0.917, indicating high internal consistency among the items in the questionnaire. In the China Treatment Group, Cronbach's Alpha is 0.940, suggesting similarly high internal consistency.

Based on these analyses, it appears that the China Treatment Group generally exhibits higher mean ratings, lower variability, and similar internal consistency compared to the China Control Group.

China Control Group						China Treatment Group					
Initialisms / Acronyms	Mean	Median	Mode	Standard Deviation	Range		Mean	Median	Mode	Standard Deviation	Range
Q1	2.08	2	2	0.7767	3		4.2	4	5	0.9661	4
Q2	2.08	2	2	0.5406	3		4.1	4	4	0.7328	4
Q3	2.06	2	2	0.6202	2		4.3	4	4	0.483	2
Q4	2.08	2	2	0.3295	2		4.05	4	4	0.9296	3
Q5	2	2	2	0.5031	2		4.25	4	5	0.7188	2
Q6	2.18	2	2	0.3937	2		4.35	4	4	0.4795	2
Q7	2.18	2	3	0.6583	2		4.4	5	5	0.5164	4
Cronbach's Alpha 0.923655456						**Cronbach's Alpha** 0.929359823					

1. Central Tendency: The mean scores in the China Control Group range from 2.0 to 2.18, with medians predominantly at 2 and modes mostly at 2 or 3. The mean scores in the China Treatment Group range from 4.05 to 4.4, with medians mostly at 4 and modes predominantly at 4 or 5.
2. Dispersion: In the China Control Group, the standard deviations range from 0.3295 to 0.7767, indicating relatively low to moderate variability. The range values vary from 2 to 3, suggesting a moderate spread of responses. The standard deviations in the China Treatment Group range from 0.483 to 0.9661, indicating moderate to high variability. The range values vary from 2 to 4, suggesting a wider spread of responses.
3. Cronbach's Alpha: In the China Control Group, Cronbach's Alpha is 0.924, indicating high internal consistency among the items in the questionnaire. In the China Treatment Group, Cronbach's Alpha is 0.929, suggesting similarly high internal consistency.

Based on these analyses, it appears that the China Treatment Group generally exhibits higher mean ratings, higher variability, and similar internal consistency compared to the China Control Group.

China Control Group						China Treatment Group					
Reading Level	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**		**Mean**	**Median**	**Mode**	**Standard Deviation**	**Range**
Q1	2.78	3	3	0.8147	3		4	4	4	0.6325	2
Q2	2.78	3	3	0.6782	3		4.08	4	4	0.5831	3
Q3	2.89	3	3	0.5831	2		4.04	4	4	0.2	1
Q4	3	3	4	0.7071	2		4.17	4	4	0.375	2
Q5	3	3	3	0.8	2		4.08	4	4	0.2941	2
Q6	2.89	3	3	0.3143	2		4.29	4	4	0.483	3
Q7	3.06	3	3	0.7416	4		4.21	4	4	0.4157	2
Cronbach's Alpha 0.909836568						**Cronbach's Alpha** 0.929193823					

1. Central Tendency: The mean scores for the Reading Level items (Q1-Q7) in the China Control Group range from 2.78 to 3.06. The medians are predominantly at 3, and the modes are mostly at 3 or 4. In the China Treatment Group, the mean scores for the Reading Level items range from 4.0 to 4.29. The medians are consistently at 4, and the modes are predominantly at 4.
2. Dispersion: The standard deviations for the Reading Level items in the China Control Group range from 0.3143 to 0.8147, indicating moderate variability. The range values vary from 2 to 4, suggesting a moderate spread of responses. The standard deviations for the Reading Level items in the China Treatment Group range from 0.2 to 0.6325, indicating relatively low variability. The range values vary from 1 to 3, suggesting a narrower spread of responses compared to the control group.
3. Cronbach's Alpha: The Cronbach's Alpha value for the Reading Level items in the China Control Group is 0.9098, indicating a high level of internal consistency. The Cronbach's Alpha value for the Reading Level items in the China Treatment Group is 0.9292, suggesting a similarly high level of internal consistency.

The China Treatment Group generally exhibits higher mean ratings, lower variability, and similar internal consistency to the China Control Group regarding the Reading Level items. The treatment group's responses tend to have higher mean scores, narrower dispersion, and similar internal consistency.

China Control Group						China Treatment Group					
Icons	Mean	Median	Mode	Standard Deviation	Range		Mean	Median	Mode	Standard Deviation	Range
Q1	2.04	2	2	0.8147	2		4	4	4	0.63	3
Q2	2.08	2	2	0.8382	4		4.13	4	4	0.78	3
Q3	1.96	2	2	0.819	4		4.13	4	4	0.78	3
Q4	2.08	2	2	0.8	4		4.15	4	4	0.63	3
Q5	2	2	2	0.7071	4		4.08	4	4	0.66	2
Q6	2.04	2	2	0.5385	4		3.88	4	4	0.5	3
Q7	1.92	2	2	0.6192	4		4.13	4	4	0.35	2
Cronbach's Alpha 0.906351054						**Cronbach's Alpha** 0.919952654					

1. Central Tendency: The mean scores for the Icons items (Q1-Q7) in the China Control Group range from 1.92 to 2.08. The medians are predominantly at 2, and the modes are mostly at 2 or 4. The mean scores for the Icons items in the China Treatment Group range from 3.88 to 4.15. The medians are consistently at 4, and the modes are predominantly at 4.
2. Dispersion: The standard deviations for the Icons items in the China Control Group range from 0.5385 to 0.8382, indicating moderate variability. The range values vary from 2 to 4, suggesting a moderate spread of responses. The standard deviations for the Icons items in the China Treatment Group range from 0.35 to 0.78, indicating relatively low variability. The range values vary from 2 to 3, suggesting a narrower spread of responses compared to the control group.
3. Cronbach's Alpha: The Cronbach's Alpha value for the Icons items in the China Control Group is 0.9064, indicating a high level of internal consistency. The Cronbach's Alpha value for the Icons items in the China Treatment Group is 0.9200, suggesting a similarly high level of internal consistency.

The China Treatment Group generally exhibits higher mean ratings, lower variability, and similar internal consistency to the China Control Group regarding the Icons items. The treatment group's responses tend to have higher mean scores, narrower dispersion, and similar internal consistency.

China Control Group						China Treatment Group					
Colour	Mean	Median	Mode	Standard Deviation	Range		Mean	Median	Mode	Standard Deviation	Range
Q1	1.24	1	1	0.53	4		4.66	5	5	0.71	3
Q2	1.33	1	1	0.64	3		4.54	5	5	0.65	2
Q3	1.24	1	1	0.44	2		4.37	5	5	0.92	2
Q4	1.33	1	1	0.56	3		4.61	5	5	0.51	2
Q5	1.37	1	1	0.59	3		4.37	4	5	0.62	2
Q6	1.42	1	1	0.6	3		4.29	4	5	0.72	2
Q7	1.33	1	1	0.52	3		4.71	5	5	0.61	2
Cronbach's Alpha 0.942762216						**Cronbach's Alpha** 0.88819145					

1. Central Tendency: The mean scores for the Colour items (Q1-Q7) in the China Control Group range from 1.24 to 1.42. The medians and modes are consistently at 1, indicating a central tendency towards lower scores. The mean scores for the Colour items in the China Treatment Group range from 4.29 to 4.71. The medians and modes are predominantly at 5, suggesting a central tendency towards higher scores.
2. Dispersion: The standard deviations for the Colour items in the China Control Group range from 0.44 to 0.64, indicating a relatively low level of variability. The range values vary from 2 to 4, suggesting a moderate spread of responses. The standard deviations for the Colour items in the China Treatment Group range from 0.51 to 0.92, indicating a slightly higher variability level than the control group. The range values vary from 2 to 3, suggesting a narrower spread of responses.
3. Cronbach's Alpha: The Cronbach's Alpha value for the Colour items in the China Control Group is 0.9428, indicating high internal consistency. The Cronbach's Alpha value for the Colour items in the China Treatment Group is 0.8882, suggesting a slightly lower internal consistency level than the control group.

The China Treatment Group generally exhibits higher mean ratings, slightly higher variability, and slightly lower internal consistency than the China Control Group regarding the Colour items. The treatment group's responses tend to have higher mean scores, slightly higher variability, and lower internal consistency.

China Control Group						China Treatment Group					
Images of People	Mean	Median	Mode	Standard Deviation	Range		Mean	Median	Mode	Standard Deviation	Range
Q1	2.69	2	2	0.89	4		3.26	3	4	0.95	4
Q2	2.76	3	2	0.84	4		3.54	4	4	0.92	4
Q3	2.66	2	2	0.63	3		3.35	3	3	0.86	4
Q4	2.84	3	3	0.86	4		3.58	4	4	0.75	3
Q5	2.55	2	2	0.84	4		3.55	4	4	0.89	4
Q6	2.52	2	2	0.72	3		3.36	4	4	0.84	4
Q7	2.78	3	3	0.86	4		3.71	4	4	0.85	4
Cronbach's Alpha 0.933316286						**Cronbach's Alpha** 0.907834974					

1. Central Tendency: The mean scores for the Images of People items (Q1-Q7) in the China Control Group range from 2.52 to 2.84. The medians and modes vary but generally align with the mean values, indicating a moderate central tendency. The mean scores for the Images of People items in the China Treatment Group range from 3.26 to 3.71. The medians and modes also align with the mean values, suggesting a moderate central tendency.
2. Dispersion: The standard deviations for the Images of People items in the China Control Group range from 0.63 to 0.89, indicating moderate variability. The range values vary from 3 to 4, suggesting a relatively wide spread of responses. The standard deviations for the Images of People items in the China Treatment Group range from 0.75 to 0.95, indicating a similar level of variability compared to the control group. The range values also vary from 3 to 4, suggesting a comparable spread of responses.
3. Cronbach's Alpha: The Cronbach's Alpha value for the Images of People items in the China Control Group is 0.9333, indicating high internal consistency. The Cronbach's Alpha value for the Images of People items in the China Treatment Group is 0.9078, suggesting a slightly lower internal consistency level than the control group.

Both groups (China Control Group and China Treatment Group) show similar central tendency and dispersion patterns in their responses to the Images of People items. The treatment group generally exhibits slightly higher mean ratings, similar levels of variability, and slightly lower internal consistency compared to the control group.

Appendix F – Online Content Link

https://www.dropbox.com/scl/fo/d03lvxv0ms2yncgepu4zo/h?dl=0&rlkey=jxmw6unth2zyfkbk6g3ii4x0v

Appendix G – Jobsearch Webpage Descriptive Analysis

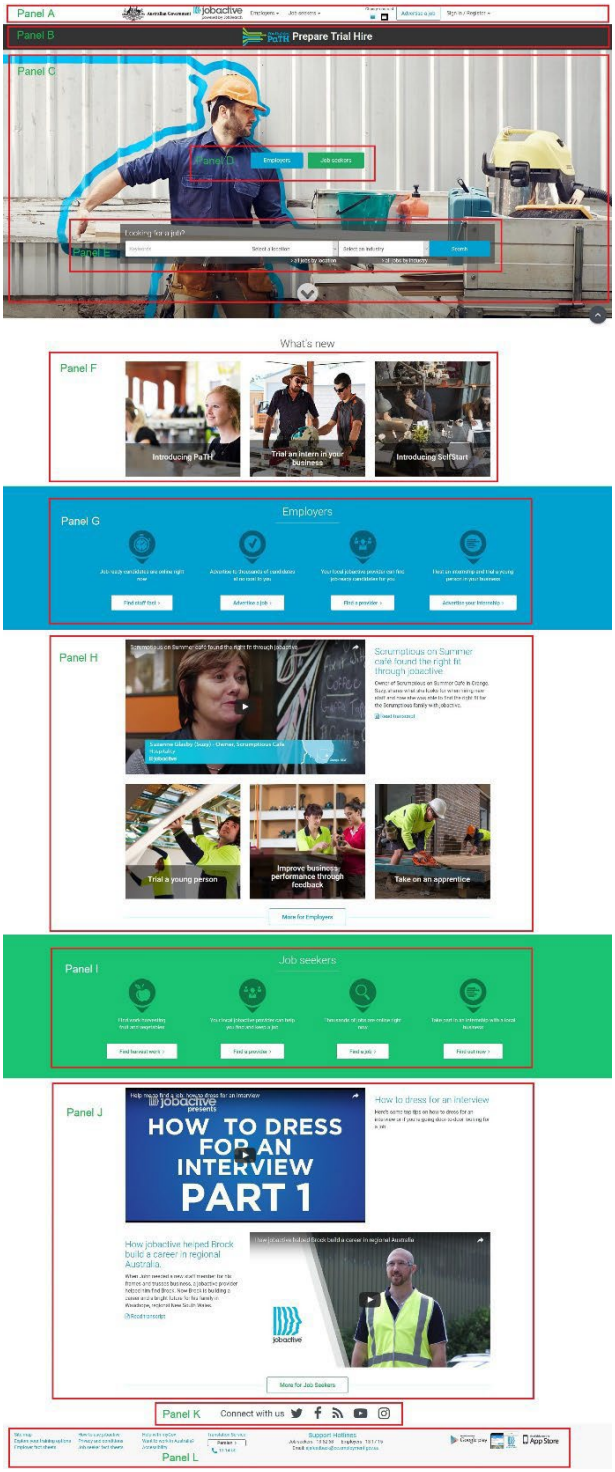


Figure 17 Jobsearch Homepage

Jobsearch Website

The jobsearch website is the leading search page for the jobactive eGovernment service (Figure 17). For this thesis, the image has been divided into 12 panels (Panel A through to Panel L). Each panel contains graphic design attributes that are of interest to this thesis. A user who opens the jobsearch homepage on a desktop or laptop computer will initially be presented with Panel A through to E. To view the remaining panels, a user must scroll down the webpage.

Panel A

Figure 18 Panel A

Figure 19 Panel A-1 Enlarged Commonwealth Coat of Arms

At the top of the webpage (Figure 18), located within Panel A, is the Commonwealth Coat of Arms (Figure 19). Smith (1999) explained that coats of arms and flags represented a broader graphic symbolism that characterised human societies' social and political organisation. Other graphic symbols include; seals, logos, medals, decorations, uniforms, and regalia.

The Commonwealth Coat of Arms is a graphic symbol characterising Australia's social and political nature. The Commonwealth Coat of Arms is a heraldic visual design on an escutcheon. The centre of the escutcheon includes symbols of Australia's six states. The Southern Cross represents the state of Victoria, the state of Western Australia is represented by a

black swan, the state of Tasmania is represented by a red walking lion, the state of South Australia is represented by the Australian piping shrike, the state of New South Wales is represented by the Cross of St George with lion and stars and the state of Queensland is represented by a blue Maltese Cross and Crown. Australian native animals, the kangaroo and the emu hold up the escutcheon. A seven-point Commonwealth Star sits above the escutcheon. Six of the star's points represent the Australian states, and the seventh point represents the territories. The golden wattle, Australia's floral emblem, frames the escutcheon. The word 'Australia' is prominent beneath the escutcheon. The title ' Australian Government ' is on the right-hand side of the Commonwealth Coat of Arms.'

Another graphic symbol is positioned to the right of the Commonwealth Coat of Arms. This graphic symbol is the logo for jobactive. The left-hand side of the logo consists of five blue vertical lines on a white background. The colour of the vertical lines for the thesis is described as 'jobsearch blue.' When viewed from left to right, the first blue line is featureless. Each following blue line incrementally becomes a profile of a human face.

Additionally, the white space between the blue lines appears to become faces. The word 'jobactive' is presented in black and positioned on the blue faces' right-hand side. A slogan, also in black, 'powered by Jobsearch, ' appears underneath the word 'jobactive.'

On the right-hand side of the jobactive logo are two Uniform Resource Locators (URLs). One URL is represented by the anchor text 'Employers', and the second is by the anchor text 'Job seekers. Anchor text is the text that is linked to the URL. Each of these URLs references a different webpage. A click (using a computer mouse or trackpad) on the 'Employers' URL will direct a user to a website where items of interest to an employer

are given. Similarly, clicking the ‘Job seekers’ URL will direct a user to job seeker information. Both URL anchor text links are presented in black text.

A' Change Contrast' URL is on the right-hand side of the ‘Employers’ and ‘Job seekers’ URLs. A user can view the jobsearch website either with dark text on a white background or white text on a dark background. This feature makes it easier for users to see the content by separating foreground attributes from the background and is recommended by the World Wide Web Consortium (W3C).

W3C is an international community that develops open standards to ensure the long-term growth of the Web. The W3C continually develop design principles that web designers ought to adhere to. These designed websites will then meet the needs of all website users. There are several design principles that W3C has developed. Design principles address ‘Web for All,’ ‘Web on Everything,’ ‘Web for Rich Interaction,’ ‘Web of Data and Services, ’ and ‘Web of Trust.’ The ‘Web for All’ design principles focus on the Web’s social value in that it enables human communication, commerce, and opportunities to share knowledge. W3C's primary goal is to ensure these benefits are available to all people, whatever their hardware, software, network infrastructure, native language, culture, geographical location, physical ability, or mental ability. The W3C published the ‘Web Content Accessibility Guidelines (WCAG) 2.0’, which covers a wide range of recommendations for making Web content more accessible. The Australian Government claims on the jobsearch website that they applied the WCAG guidelines in the design of the jobsearch website. WCAG guidelines have four sections that recommend strategies to make a website perceivable, operable, understandable, and robust.

Positioned to the right-hand side of the ‘Change Contrast’ URL is another URL with anchor text that states, ‘Advertise a job.’ This URL is directed towards employers who wish to advertise for staff. The anchor text and box in which the text is centred are coloured ‘jobsearch blue.’

The last item in Panel A at the top right-hand corner of the jobsearch website is an URL that enables an existing user to ‘Sign in’ or a new user to ‘Register.’ The anchor text is black in both instances. The website does not need a casual user to ‘Sign in’ to function. A user who must prove that they have made a determined number of job applications as set by Centrelink must ‘Sign in’ for their job applications to be counted and monitored. Centrelink delivers a range of government payments and services for retirees, the unemployed, families, carers, parents, people with disabilities, Indigenous Australians, students, apprentices, and people from diverse cultural and linguistic backgrounds. Most of Centrelink's services are the disbursement of social security payments.

Panel B

Figure 20 Panel B

Positioned below Panel A, Panel B (Figure 20) is a narrow rectangular band with a black background. In the centre of the black panel is a logo for 'Youth Jobs PaTH – Prepare Trial Hire.' This logo consists of three arrows and two bars that point to the logo text. The colour of the arrows is 'jobsearch green', and the colour of the bars is 'jobsearch blue. Text stating 'Youth Jobs PaTH – Prepare Trial Hire' completes the logo. The 'Youth Jobs PaTH' text is 'jobsearch blue', and the 'Prepare Trial Hire' is white. 'Youth Jobs PaTH – Prepare Trial Hire' is the name of an Australian Government program that is aimed to help job seekers better understand what employers expect of them in the workplace whilst equipping them with the skills, attitudes, and behaviours for them to be successful in a job. The logo is an URL that combines a graphic image (arrows) with text (Youth Jobs PaTH – Prepare Trial Hire). The URL opens a new website that gives information about the youth program.

Panel C

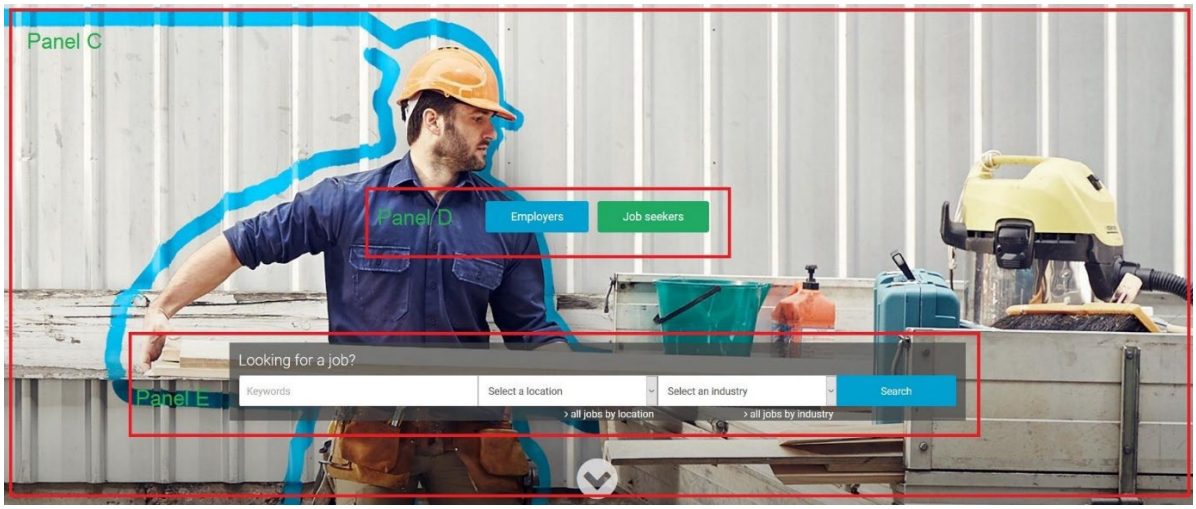


Figure 21 Panel C

Panel C (Figure 21) is a large panel that incorporates both Panel D and Panel E. Users who open the jobsearch webpage on a desktop or laptop computer will initially be presented with Panels A, B and C.

Panel C consists of a photograph of a tradesman loading timber into the back of a utility vehicle. The tradesman appears to have either European or Anglo-Celtic ancestry. He has his sleeves rolled up and is working. The tradesman does not appear to have either Chinese or Indian ancestry. A ‘jobsearch blue’ outline highlights the image of the tradesman.

Panel D

Figure 22 Panel D

Contained within Panel D are two URLs (Figure 22). One URL is designed as a rectangle coloured in ‘jobsearch blue’ with ‘Employers’ as the anchor text, and one URL is designed as a rectangle coloured in ‘jobsearch green’ with ‘Job seekers’ as the anchor text. Both URLs are positioned near the top of the tradesman’s left shoulder. Each URL directs a user to another webpage that gives further information about the clicked-upon anchor text. Positioned below Panel D is Panel E.

Panel E

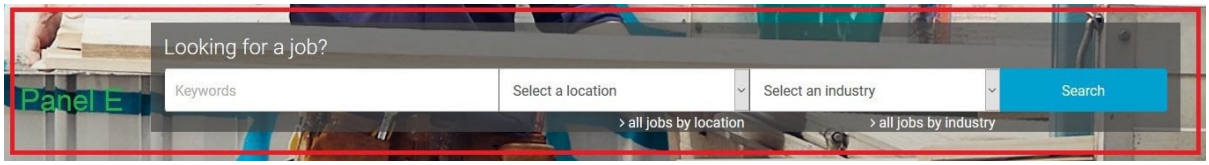


Figure 23 Panel E

Panel E is titled 'Looking for a job?' (Figure 23). There are four sections that a user must interact with to be supplied with a list of current job advertisements. The four sections include 'Keywords,' 'Select a location,' 'Select an Industry', and 'Search.'

The first section, 'Keywords', requires a user to input a word that they believe may be associated with the type of employment they seek. For the selected keyword to be successfully recognised by the database of jobs, the keyword must be entered in English. Immigrants with English as a Second Language may find it challenging to select an appropriate English word that accurately describes the type of employment they wish to seek. Failure to enter a recognised English word or a word recognised by the jobsearch database is met with a message stating 'No option matches "(incorrect user request"'.

The second section, 'Select a location', requires users to nominate the location where they seek employment. A drop-down list of 167 locations is given to the user. Users must then select the geographical area where they wish to seek employment. A migrant who has recently arrived in Australia may find it difficult to determine the best location from 167 choices in which they hope to find employment.

The third section, 'Select an industry', requires users to nominate the industry where they hope to seek employment. A dropdown list of 26

industry categories, as determined by jobsearch, is given alphabetically from ‘accounting to transport’.

The last section, ‘Search’, is designed as a rectangle coloured in ‘jobsearch blue’ and includes the anchor text ‘Search.’ When clicked upon, a search of the jobsearch database of available jobs is undertaken within the parameters of the selected keyword, location, and industry. A new webpage of results is presented to the user. The results page allows users to refine their search by sorting the results by ‘job age,’ ‘tenure,’ ‘vacancy type,’ ‘work type,’ and ‘salary.’

The ‘job age’ categories include ‘Any, Past three days, Past week and Past fortnight’.

The categories of ‘tenure’ include ‘Any, Contract position, Permanent position, Temporary position.’

The categories of ‘vacancy type’ include ‘Any, Australian employment covenant, Defence Force Experience Desirable, Defence Industries, Fly-in, fly-out job, Inland Rail, National Disability Insurance Scheme, Capacity Building, CDP Vacancy, Apprenticeships/ traineeships, Business Opportunities jobs, Commission jobs, Government jobs, Harvest jobs, Indigenous Identified Position, National Work Experience Program.’

The ‘work type’ categories include ‘Any, Casual position, Full-time position, Part-time position.’

The categories of ‘salary’ include ‘Any, Above Award, Award, Commission, Hourly Rate, <$40,000, $40,000 - $60,000, $60,001 - $80,000, $80,001 - $100,000, >$100,000, Not Specified’.

A migrant who recently arrived in Australia, where English is not their primary language, may struggle to navigate Panel E, ‘Looking for a job successfully?’

Panel F

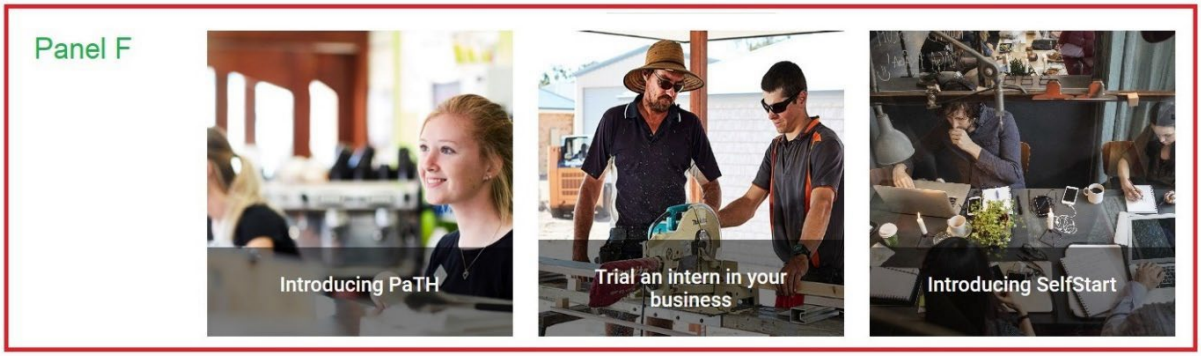


Figure 24 Panel F

Panel F contains three URLs with anchor text at the bottom of three photographic images (Figure 24). The URLs are 'Introducing PaTH,' 'Trial an intern in your business', and 'Introducing SelfStart.' The three images each contain photographs of people who are employed and engaged in their jobs. All three photographs have images of people who have European or Anglo-Celtic ancestry. There are no images of Chinese or Indian workers.

The first photograph is of a young female taking an order in a café. The anchor text 'Introducing PaTH' is a URL that directs users to further information about the government's PaTH program on a webpage.

The second photograph focuses on two males engaged in operating a circular saw. The older male is watching; the younger male operates the tool. The anchor text 'Trial an intern in your business' directs a user to the government's PaTH program webpage.

The third photograph centres on a young male operating a laptop computer in a café. The anchor text 'Introducing SelfStart' directs users to a government webpage about starting a business.

Panel G

Figure 25 Panel G

Panel G is titled 'Employers' (Figure 25). The panel is coloured in 'jobsearch blue', the background of four icons, a brief description, and anchor text. Below each icon is a brief description of the information available when the anchor text below is clicked upon. The anchor text is placed in a white rectangle and appears below each icon and description.

The first icon is a stopwatch. The brief description states, 'Job-ready candidates are online right now.' The anchor text states, 'Find staff fast.' There is an implication that time is critical for employers when they need staff. The anchor text directs an employer to the jobsearch webpage. This webpage enables employers the ability to place a job advertisement on jobsearch.

The second icon is a tick (check or check mark or mark). This icon indicates the concept "yes." For example, yes, this has been verified. The brief description below the tick states, 'Advertise to thousands of candidates at no cost to you.' The anchor text states, 'Advertise a job.' The language indicates that employers should advertise with jobsearch as there are thousands of verified jobseekers, and there is no cost.

The third icon is a graphical representation of three connected individuals in a network. The most prominent individual is wearing a men's business

necktie. The brief description states, ‘Your local jobactive provider can find job-ready candidates for you.’ A job seeker who receives a Newstart payment from the government is appointed to a jobactive provider. The provider manages the job-seeking efforts of the jobseeker as part of their contract with Centrelink. The jobactive provider works closely with employers to understand their recruitment needs. They tailor their services to ensure employers get the help they need to find suitable staff. The anchor text states, ‘Find a provider.’ The anchor text URL directs an employer to a webpage that gives the locations of the nearest jobactive provider.

The fourth icon is a mono-coloured version of the ‘Youth Jobs PaTH’ logo. This icon appeared in colour in Panel B. This logo consists of three arrows and two bars that point to the right. The brief description states, ‘Host an internship and trial a young person in your business.’ The anchor text states, ‘Advertise your internship.’ The anchor text URL directs an employer to the PaTH webpage.

Panel H

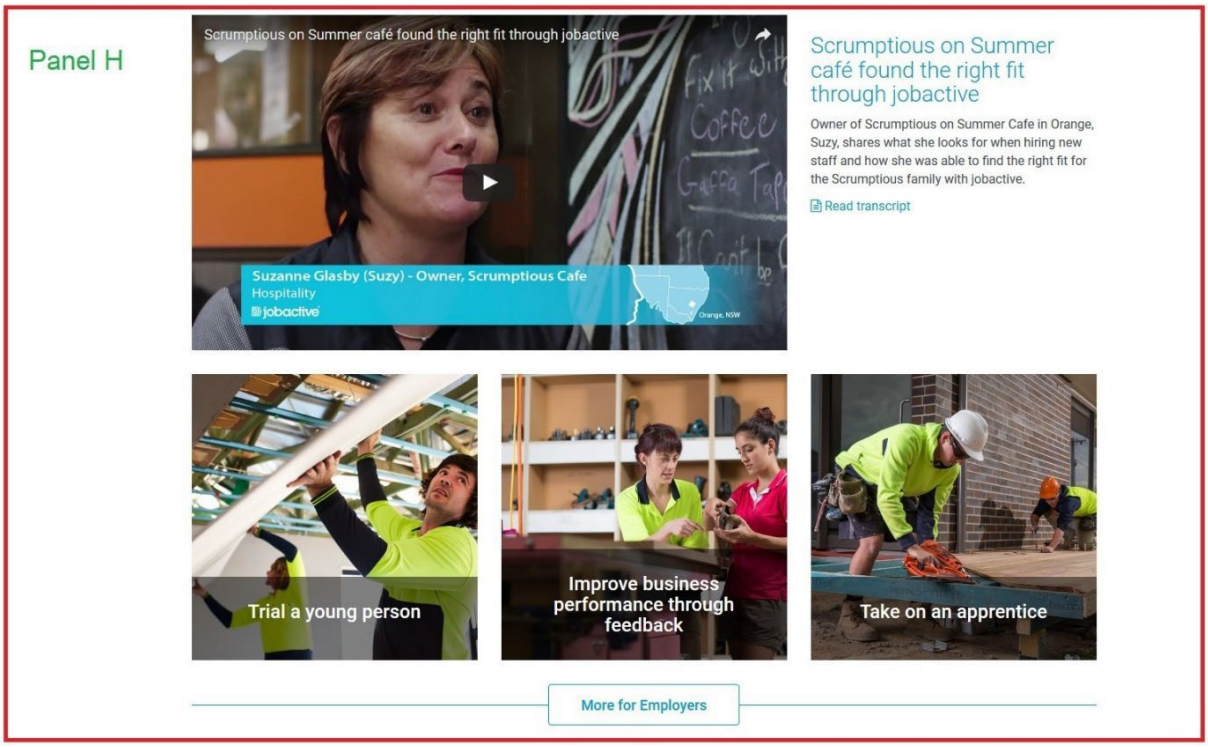


Figure 26 Panel H

All Panel H messages focus on employers (Figure 26).

Panel H contains a freeze frame image taken from a video of a female coffee shop owner. The coffee shop owner of Scrumptious Café, Suzanne Glasby, appears in the video produced by jobactive. In the video, the owner discusses the qualities in a person that she looks for when hiring inexperienced staff. The video length is 3 minutes and 13 seconds. Suzanne Glasby and all her staff have European or Anglo-Celtic ancestry. A rectangular overlay on the bottom of the freeze frame image has a background colour in 'jobsearch blue' and text that states the owner's name, business name, industry name and producer's name. To the right of the freeze frame image is a brief description of the video and an anchor text URL directing a user to a video transcript.

Panel H also with anchor text URLs with anchor text at the bottom of each image. The URLs are 'Trial a young person,' 'Improve business

performance through feedback', and 'Take on an apprentice.' The three images each contain photographs of people who are employed and engaged in their jobs. All the employees are wearing fluorescent clothing. All three photographs have images of people who have European or Anglo-Celtic ancestry. There are no images of Chinese or Indian workers.

The first photograph is of two young males working in construction. The anchor text 'Trial a young person' is a URL that directs a user to further information on a webpage about the government's PaTH program.

The second photograph focuses on two females engaged in manufacturing. The older female is directing, and the younger female handles a tool. The anchor text 'Improve business performance through feedback' directs users to the government's PaTH program webpage.

The third photograph centres on a young male operating a nail gun. The anchor text 'Take on an apprentice' directs users to the government's PaTH program webpage.

Panel I

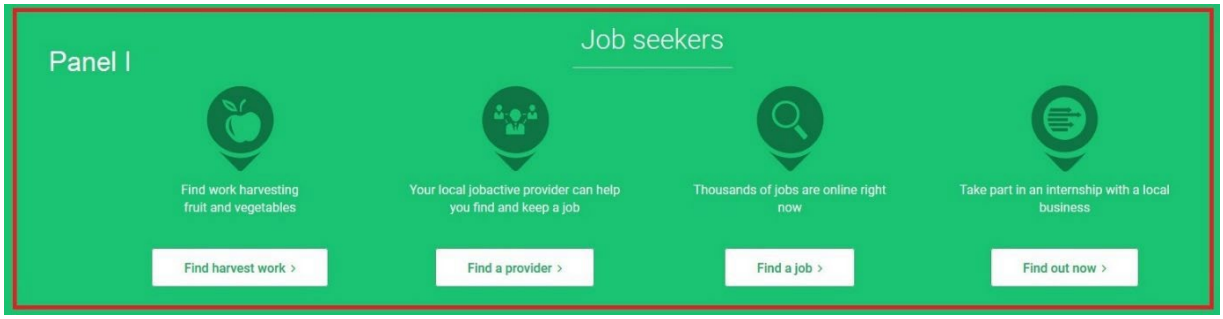


Figure 27 Panel I

Panel I is titled 'Job Seekers' (Figure 27). The panel is coloured in 'jobsearch green', the background of four icons, a brief description, and anchor text. Below each icon is a brief description of the information available when the anchor text below is clicked upon. The anchor text is placed in a white rectangle and appears below each icon and description.

The first icon is an apple. The brief description states, 'Find work harvesting fruit and vegetables.' The anchor text states, 'Find harvest work.' The apple icon, as used by jobsearch, represents harvest jobs. The symbol of the apple has been used in myths and religions throughout the world. Often the apple is represented as being mystical or forbidden. The Greeks, Norse and Celts have legends, folklore and traditions based around the apple. The anchor text directs a job seeker to the harvest jobs webpage. This webpage enables job seekers to seek a job in the harvest industry.

The second icon is a graphical representation of three connected individuals in a network. The most prominent individual is wearing a men's business necktie. The brief description states, 'Your local jobactive provider can help you find and keep a job.' Every job seeker who receives a Centrelink unemployment payment is appointed to a jobactive provider. The jobactive provider assists a jobseeker with their job search efforts. The

anchor text states, ‘Find a provider.’ The anchor text URL directs a job seeker to a webpage that gives the locations of the nearest jobactive provider.

The third icon is a magnifying glass. The brief description states, ‘Thousands of jobs are online right now.’ The anchor text states, ‘Find a job.’ The magnifying glass icon is used on webpages as a symbol that allows a user to make a ‘search’, usually at the place of the icon. The magnifying glass icon on the jobsearch webpage indicates to job seekers that a search can be made for a job. The anchor text URL directs a user to the main jobsearch search webpage.

The fourth icon is a mono-coloured version of the ‘Youth Jobs PaTH’ logo. This icon appeared in colour in Panel B. This logo consists of three arrows and two bars that point to the right. The brief description states, ‘Take part in an internship with a local business.’ The anchor text states, ‘Find out now.’ The anchor text URL directs a job seeker to the PaTH webpage.

Panel J

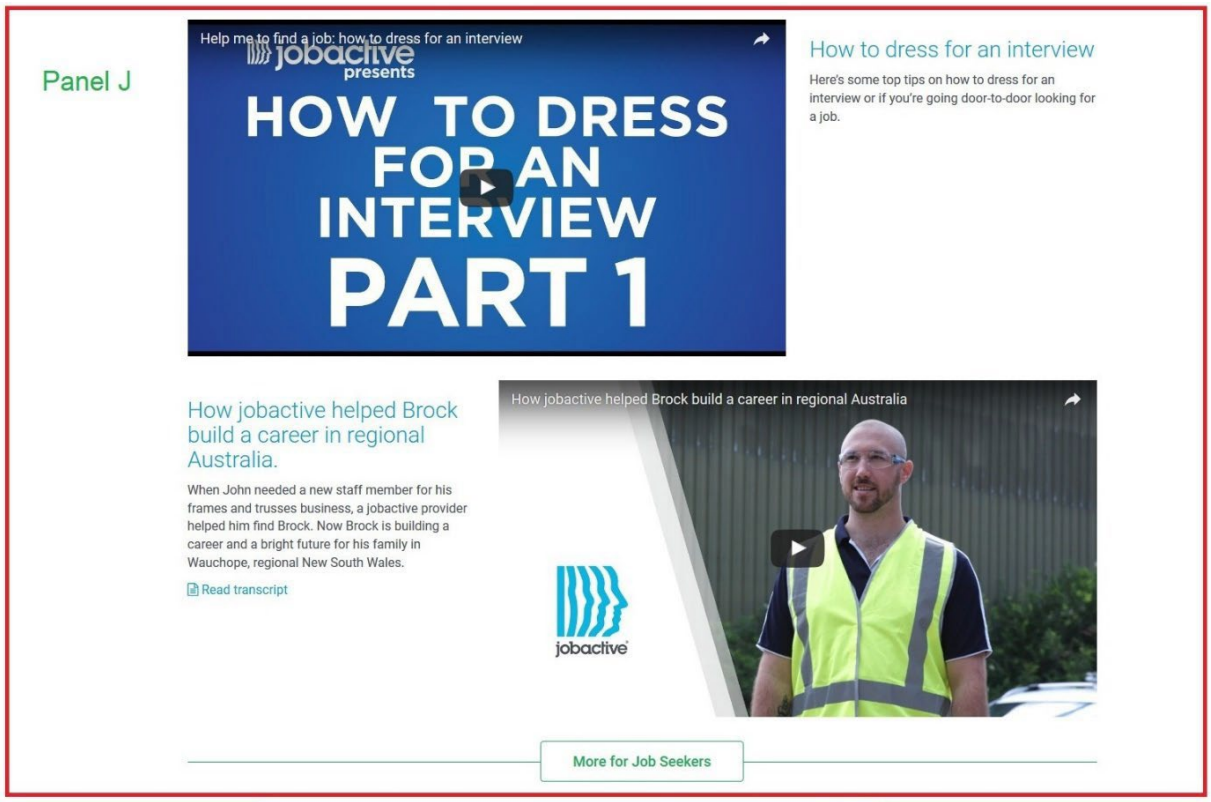


Figure 28 Panel J

Panel J is titled 'More for Job Seekers' (Figure 28). The panel consists of two videos. The first video instructs a job seeker on how to dress for an interview. The video features a young woman with European or Anglo-Celtic ancestry.

The second video features a young man who successfully built a regional Australian career. The young man has European or Anglo-Celtic ancestry.

The videos in Panel J did not include a Chinese or Indian person to inform a job seeker about dressing appropriately for a job interview or how to build a career in regional Australia.

Panel K

Figure 29 Panel K

Panel K is titled 'Connect with us' (Figure 29). The panel consists of five grey icons. Each icon represents a method by which a user may contact jobactive. The icons are not labelled. It is assumed by the jobsearch webpage that the user recognises the icons. The first icon is a bird to represent Twitter; the second is a lowercase 'F' to represent Facebook; the third is a Wi-Fi icon that represents a wireless internet connection; the fourth is a grey rectangle with a triangle placed in the middle that represents YouTube and finally, a simplistic icon of a camera that represents Instagram.

Panel L

Figure 30 Panel L

Panel L consists of several anchor text URLs that direct users to further information about translations, accessibility and contact information (Figure 30).

The 'Translation Service' anchor text URL does not provide the jobsearch webpage in any language other than English. The URL directs a user to a webpage where a basic 'factsheet' can be downloaded in 15 languages. Vital information to migrants and temporary protection visa holders regarding their Centrelink mutual obligation requirements can only be

downloaded in six languages. Those languages include Arabic, Burmese, Dari, Farsi, Karen, and Nepali.

The most common languages in China are Mandarin, Min Chinese, Wu Chinese, Cantonese, Jin Chinese, Gan Chinese, Hakka Chinese, Xiang Chinese, Huizhou Chinese and Pinghua Chinese. The jobsearch webpage does not support any of these Chinese languages about information about mutual obligation requirements.

The most common languages in India are Hindi, Bengali, Marathi, Telugu, Tamil, Gujarati, Urdu, Kannada, Odia, Malayalam, Punjabi, and Assamese. The jobsearch webpage does not support any of these Indian languages about information about mutual obligation requirements.

The ‘Accessibility’ anchor text URL takes a user to a government webpage that describes how the Australian Government, under the Disability Discrimination Act of 1992, ensures that information and services are provided in a non-discriminatory accessible manner. The Australian Government states that the jobactive website (and its subsidiary website, jobsearch) has been designed to meet the Australian Government standard established regarding this requirement. The Australian government again states that the jobactive website complies with level A of the ‘Web content accessibility guidelines version 2.0.’

Contact information is given through phone numbers for job seekers, employers, and translation services.

On the right-hand side of the panel is a notification that a ‘jobactive’ application for either an Android device or an Apple device can be downloaded from either Google Play or the Apple App Store.