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Craike *et al.*
Health Research Policy and Systems (2025) 23:139
https://doi.org/10.1186/s12961-025-01414-9

Health Research Policy and Systems

COMMENT

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Introducing PROSPECT: a novel process for prospectively tracking research engagement

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Abstract

Health researchers are increasingly encouraged to engage with nonacademic stakeholders and provide evidence of their engagement. However, evidencing research engagement and advancing the evidence base is challenging, partly because of the lack of available tools to prospectively track research engagement activities. To fill this gap, this Commentary introduces PROcess for Systematic Prospective Engagement Capture and Tracking (PROSPECT), a novel process based on event logging that offers a systematic way to track and measure research engagement activities. The development of PROSPECT was informed by a literature search, a series of reflective practice sessions and application to one of our research programs. PROSPECT includes five phases: (1) determine the purpose, (2) define research engagement and categories of research engagement, (3) determine the information to be recorded for each research engagement activity, (4) determine the data collection system and (5) analyse, present and report. We provide examples of how we are applying each phase. We have used the data collected through PROSPECT in funder reports to describe our engagement activities and to gain insights into patterns of engagement throughout our research program. Whilst PROSPECT offers a promising approach to capturing research engagement data, we have encountered a range of practical, conceptual and technical challenges in applying this process. We suggest some next steps in its development to address these challenges. Once the challenges of applying the process are addressed, PROSPECT will be a valuable tool for researchers, leaders of research institutions and funders.

Keywords Engagement, Collaboration, Measurement, Tool, Prospective, Tracking, Partnership

Background

Health researchers are increasingly encouraged to engage with nonacademic stakeholders and provide evidence of their engagement [1–4]. Engaging with nonacademic stakeholders, including clinicians, practitioners, policymakers, professional association representatives, lived experience experts, industry representatives and the public, is expected to increase the impact of research through the production and accessibility of relevant and actionable findings [5–13]. Indeed, in several countries, most notably the United Kingdom, patient and public involvement is actively encouraged, if not mandated by funders [14]. Guides have been developed to facilitate engagement [14], and reporting checklists have been created [15]. However, relative to the investment in and rhetoric about research engagement, the evidence base remains underdeveloped [16–20]. Furthermore, there is an increasing recognition of the considerable resources required for meaningful research engagement, both from the perspective of researchers and nonacademic stakeholders [21, 22].

Evidencing research engagement and advancing the evidence base is hindered by a lack of tools that facilitate the detailed, prospective tracking of research engagement activities [23]. Of the existing measures of research engagement, many are designed to retrospectively assess

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the quality of research engagement or identify global levels and types of engagement [23–26]. These measures have some limitations. For example, they are subject to recall bias [27] and lack detail on research engagement activities, which precludes quantifying research engagement or examining changes over time. Further, they rarely examine the spectrum of research engagement activities [28].

Novel processes are needed to prospectively track research engagement activities. The application of diary methods has the potential to advance the tracking of research engagement. Diary methods include experience sampling, event logging, and daily diary studies [29]. These methods minimise recall bias, document variation over time [30] and provide rich data for a variety of analyses [31]. Event logging, which involves completing a series of items each time an event that meets a pre-established definition occurs [27, 29, 32], is particularly well suited for tracking research engagement. Although event logging has been applied in a range of fields (e.g. [27, 31, 33–36]), to our knowledge, it has not been utilised to track research engagement activities. The application of event logging to research engagement facilitates the prospective tracking of research engagement, which can be used to evidence research engagement, assess its cost and advance the evidence base on the effectiveness of research engagement in enhancing the relevance and accessibility of research and ultimately, its impact. This Commentary introduces PROcess for Systematic Prospective Engagement Capture and Tracking (PROSPECT), a novel process for tracking research engagement based on event logging.

Research context: Pathways in Place

Pathways in Place [37] is a 5-year research program jointly led by two research teams based at two Australian universities in Queensland (Griffith University) and Victoria (Victoria University). This paper concerns the work of Pathways in Place-Victoria University (VU), a program of research that collaborates with practitioners, policymakers, researchers and communities to build capacity to design and implement place-based systems change approaches that improve outcomes of people experiencing disadvantage. Pathways in Place-VU is guided by the Theory of Systems Change [38]. This Commentary builds on the Theory of Systems Change [38], which proposes research engagement as one of four activities necessary for systems change and research impact. Research engagement is central to producing relevant research and wide dissemination for rapid translation and adoption of research to achieve impact. Since engagement is central to our program, we sought a tool to track our engagement over time for reporting, monitoring and evaluation activities. Therefore, tracking research engagement has been grounded in each of the six stages of the research process: research planning; problem identification; coordinated activities; data collection, analysis or interpretation; monitoring or evaluation; and communication and dissemination.

When we could not find a suitable tool, we developed PROSPECT. In this Commentary, we present our work on developing and applying PROSPECT to date, noting that we will likely continue to refine the process.

Development and application of PROSPECT

Development

The development of PROSPECT was initially informed by a literature search to scope out methods, techniques and/or tools that could be applied to measure research engagement (e.g. [15, 39–44]). We identified event logging [27, 29, 32] as a suitable approach on which to base the tracking of research engagement activities and used literature on this approach to inform the five phases of PROSPECT. Following the literature search, we engaged in a series of reflective practice sessions within our research team to refine the process before testing it within Pathways in Place. In the following sections, we outline the five phases of PROSPECT: (1) determine the purpose, (2) define research engagement and categories of research engagement, (3) determine the information to be recorded for each research engagement activity, (4) determine the data collection system and (5) analyse, present and report.

Application

Phase 1: determine the purpose

There is a range of potential purposes for tracking research engagement. These include:

(1) Quantifying the time and resourcing needed for research engagement. This could inform funders who wish to support research engagement, support the development of university procedures and assist with workload allocations.
(2) Assisting with monitoring engagement activities to support continuous learning for more effective research engagement activities [2].
(3) Examining the dynamic nature of engagement over time [18, 30].
(4) Testing assumptions about the outcomes of research engagement (when coupled with impact data). This could contribute to the evidence base on the types of research engagement that enhance research translation and impact [45, 46], highlight the contributions made by research that might otherwise be overlooked [46–48] and inform the creation of conditions for research to influence policy and practice [48, 49].

(5) Assessing the effectiveness of interventions designed to increase research engagement.

Determining the purpose of tracking research engagement is vital because it helps to focus efforts and ensures that the data collected is meaningful and aligned with the purpose.

In Pathways in Place-VU, the primary purpose of tracking research engagement relates to points 1, 3 and 4.

Phase 2: define research engagement and categories of research engagement

Research engagement has been described and theorised using a range of terms and approaches, including research partnerships, knowledge exchange, knowledge transfer and research collaboration. In some cases, these terms are used interchangeably, whereas in others, they are associated with different meanings across the literature [18, 50, 51]. Ultimately, the definition of research engagement will depend on the nature of the research project.

In Pathways in Place-VU, we use research engagement as an umbrella term to describe all knowledge-related interactions between academic researchers and non-academic stakeholders, including practitioners, policymakers, the public and people with lived experience. Therefore, we took a comprehensive view of research engagement to capture the various ways in which researchers and stakeholders interact [52] to avoid the restrictions of focussing on only one type of engagement which could limit our insights into the nuances of different types of engagement [52].

Once research engagement has been conceptualised, categories of research engagement must be clearly defined. Whilst this can be challenging, it is a requisite step for event logging [30, 31]. Categories of engagement and their definitions will likely depend on the purpose of tracking research engagement, the nature of the research being undertaken and the definition of research engagement adopted.

At Pathways in Place-VU, consistent with our broad conceptualisation of research engagement, we defined "categories of research engagement" as being inclusive of interactions across all mediums (e.g. online and face-to-face meetings, workshops, emails, phone calls and social media communications). Interactions conducted for operational reasons (e.g. emails to arrange a meeting time) were excluded, as were internal university interactions between the research team and professional staff, meetings with our funder and governance meetings. Consistent with our aim of capturing a diverse range of research engagement activities, we defined five discrete categories of research engagement (Table 1). We included "research participation" as a research engagement category because our program was grounded in co-creation principles, where participation in the research was often not merely completing a survey, but included the active involvement of participants in identifying problems and shaping, implementing and evaluating initiatives.

Phase 3: determine the information to be recorded for each research engagement activity

Once the categories of research engagement have been defined, it is necessary to determine the information to be collected about each activity within each category. The

Table 1 Definitions and examples of each category of research engagement

Research engagement categories	Definition	Example research engagement activities
Research participation	Direct stakeholder involvement in research as a research participant. The signing of an informed consent form typically defines this type of involvement	Completing a survey, participating in a focus group or interview and participating in a workshop
Relationship building and maintenance	Intentional efforts by researchers to establish, nurture and strengthen connections and rapport with nonacademic stakeholders to foster positive relationships, build trust and create a supportive network for ongoing collaboration, mutual support and shared goals	Informal meetings, social events
Informing the research process	Stakeholder involvement to inform any stage of the research process. This is distinguished from research participation because the stakeholder does not sign a consent form	Feedback on interview prompts or survey items; assistance in designing workshops
Communication and dissemination of research	Active, planned communication and dissemination of research. This category has two subcategories: • Targeted activities • Mass activities	Targeted activities: a link to a research output is sent to an individual stakeholder via email Mass activities: sharing research via newsletters or social media posts
Stakeholder initiated request for information, advice, or expertise	Stakeholders contact the research team seeking more information about their research, or seeking their input or expertise	Email requesting resources on research methods

data collected will depend on the purpose of tracking and measuring research engagement. The framework for data collection developed by Hamilton et al. [42] is a helpful starting point to guide the details recorded about each research engagement activity.

For Pathways in Place-VU, where relevant, we collect information about what the engagement entails, when and where it occurs and how it is initiated. An example of the information we collect for the research engagement category of "relationship-building and maintenance" is outlined in Table 2. We provide "response categories" as examples only. In the Challenges section, we discuss that determining the most appropriate response categories has been challenging, and we have not formally assessed the reliability of reporting against these categories.

Phase 4: determine the data collection system

Determining the data collection system involves outlining data collection protocols [41], developing a data dictionary (defined as a "centralised repository of information about data such as meaning, relationships to other data, origin, usage, and format" [53, 54]), and determining the software or platform for data collection.

At Pathways in Place-VU, we developed a data collection protocol and dictionary to support data collection and analysis. The data dictionary included, for example, an explanation of each subdomain, cell type and a definition of each response category. We met several times as a team to discuss the protocol, and the project leads (M.C., A.M.) provided one-on-one support to individual team members to complete information related to research engagement activities. We used a series of Microsoft Excel workbooks to collect engagement activity data hosted on a private Microsoft SharePoint site. Excel was the most pragmatic choice for the database as it is part of Microsoft Office, the primary productivity suite used by the research team. Where possible, data were entered using predefined data validation rules to help ease completion and minimise data entry errors. In addition, we sought to minimise the burden of recording by incorporating fixed-category responses where possible [55].

Phase 5: analyse, present and report

The data collected through event logging are rich in detail, which allows for a range of analyses to be conducted [18, 31, 45, 51]. The analyses should be tied to the purpose of tracking research engagement. How data are presented and reported will depend on the purpose and the intended audience [56].

At Pathways in Place-VU, we have used research engagement data to report to our funder and university about our engagement activities. We have also used the data internally to examine the nature of our engagement activities and to reflect on how this has influenced the direction of our research and knowledge exchange activities. In the future, we expect to pair the research

Table 2 Example of data collection sheet for the research engagement category of "relationship-building and maintenance"

Domain	Subdomain	Response categories
Who	Stakeholder type (broad categories)	• Policymakers • Practitioners • Decision-makers • People with lived experience • Researchers • Funders • Other
What	Type/level of engagement	• Inform • Consult • Involve • Collaborate • Empower
When	What date(s) did the engagement take place?	Open ended
Where	What was the location of the engagement?	Online or in-person (enter suburb and postcode)
How	Interaction medium	• Social gathering • Meeting (online or in person) • Workshop • Committee meeting • Academic conference or seminar • Nonacademic or mixed conference or seminar • Email • Training course • Webinar • Social media • Traditional media

engagement data with indicators of impact to assess whether and how our engagements facilitated the development of relevant and actionable research evidence and improved the accessibility of our research.

Benefits and challenges of implementing PROSPECT

Benefits

PROSPECT has allowed our research team to gather detailed, prospective data about our engagement activities. Applying this process inspired us to develop and conceptualise different categories of research engagement. We believe ours is the first attempt to categorise a comprehensive range of research engagement activities. We have used the data we collected in various ways, including reports to our funders, and we continue to gain valuable insights from the data. For example, we have been able to calculate researcher time that has been spent on engagement activities, and in doing so, can quantify the time and resourcing required for research engagement. We have also observed a shift from the research team being the initiator of most engagement activities at the beginning of the program to stakeholders initiating more contacts over time. We have been able to demonstrate our engagement with a range of stakeholders, as well as the range of our engagement activities.

Challenges

Although the five phases of PROSPECT appear conceptually robust, we experienced challenges in the practical application the phases. Here, we discuss some practical, conceptual and technical challenges we faced in applying the phases of PROSPECT:

Practical challenges

We found that applying PROSPECT was sometimes burdensome and time consuming for the research team. This is consistent with findings of previous studies in other contexts, which show that event logging (the approach on which PROSPECT is based) can be onerous for respondents [57, 58], and that time and workload can be barriers to completing measures of research engagement [59]. Related to this point is the challenge of encouraging research team members to comply with the process. Again, this finding reflects a fundamental limitation of approaches such as event logging, often reported in the literature.

Initially, we tried several methods to encourage research team members to enter research engagement data immediately after the activity. However, some researchers found it difficult to stick to a routine of post-activity data logging. In some instances, this was due to or amplified by the extra time and resources required to work within the community, which added to the workload of the research team.

Conceptual challenges

Defining and putting boundaries around what constituted a research engagement activity was challenging. For example, would all emails with stakeholders be considered an engagement activity? Event logging has been chiefly applied to recording activities over a short (e.g. 2 weeks) time period, allowing for granular recording of activities. However, as we aimed to record activities over the life of our research program, we needed to be realistic about the level of granularity we could feasibly record. In essence, it was challenging to define research engagement activities as mutually exclusive and gain a shared understanding of them across the team.

The distinction between activities categorised as "research participation" and other categories of engagement, such as involvement in the research process, has been difficult to disentangle. This is particularly the case in research programs such as ours, which strongly focus on co-creation, wherein the boundaries between being a research participant (in the traditional sense) or not are blurred. To simplify this, the research participant database contained only those approached for direct participation in research (e.g. participation required signing a consent form).

There is no way to assess or verify compliance with recording of research engagement activities independently; that is, there is no way to know whether activities occurred that were not entered or (less likely) entries made for activities that did not occur [30]. However, because our engagement activities often involve more than one research team member, we can cross-check the data for missing entries, which is one way to enhance data validity. Finally, many of the responses were set categories. Whilst this is useful for reducing the time it takes to complete research engagement entries, it could be challenging at times for our team to identify the most appropriate research engagement category or response category, which may lead to data reliability issues. Further, categorizsng engagement activities is necessarily reductive and cannot capture the more nuanced aspects of engagement.

Technical challenges

Using Excel for data collection was challenging, particularly because we relied on the collaborative, online version that allowed multiple team members to edit the spreadsheet at the same time, which sometimes led to conflicts and errors. We also found that some Excel features important for our data collection (e.g. drop-down

lists enabling the selection of multiple entries) functioned inconsistently and were often prone to technical issues. This is not a challenge of PROSPECT per se, but rather how we applied it. Data collection tools, including diaries, questionnaires and mobile apps, could be used to record data when the activities occur. Ultimately, these tools should be user-friendly and accessible.

Recommendations for future research and application

On balance, we believe further examination and development of PROSPECT is warranted, given the resourcing of, funding for and focus on research engagement [18]. In particular, we suggest the following:

1. Whilst we have engaged in the initial and challenging work of conceptualising and categorising research engagement activities, we recommend that future research examines these categories in different research contexts, refining them as necessary.
2. Related to the first point, future applications should examine the reliability of reporting and categorising research engagement activities with independent verification. For example, activities could be verified if recordings were linked to digital calendars, such as Outlook.
3. The information collected about research engagement activities, including categories related to the nature and extent of engagement, need further testing. For example, the reliability between different researchers when applying categories needs to be examined. This will provide reassurance that the data collected are reliable and consistent across researchers who enter data.
4. We suggest that future research examines how data entry processes and data capture can be simplified through automation or using technological advances to smooth the data entry process. We used Excel for pragmatic reasons but experienced various problems with this software. We believe that alternative methods of capturing data, such as through apps, mobile devices, or links to existing calendar entries, will likely be more user-friendly and less burdensome for participants to record engagement activities.

Conclusions

This Commentary introduces PROSPECT, a novel process for tracking and capturing research engagement activities grounded and tested in our own research practice. After further testing and refinement, we believe PROSPECT could be of use to researchers, leaders of research institutions and funders. Researchers could use PROSPECT to evidence their research engagement activities and advance the evidence base on which engagement approaches work best in which contexts. Leaders of research institutions could use PROSPECT to examine engagement at an institutional level and use the insights gained to inform workload allocations and develop evidence-based support mechanisms to promote research engagement [18, 45]. Funders could facilitate the development of the evidence base by providing resources to support research on research engagement, including data collection through the application of PROSPECT. Although sustained funding for "research on research" is limited [60], given the expectations surrounding engagement and its benefits, we believe allocating resources for this type of research is necessary.

Acknowledgements
We would like to thank Ms. Alex Flux for supporting the entry of our engagement data.

Author contributions
M.C. conceptualised the study; M.C. and A.M. developed the data collection systems and protocols; M.C., B.K., and A.M. contributed to data collection; M.C. and A.M. drafted the initial manuscript; and B.K. contributed to writing the manuscript. All authors read and approved the final manuscript.

Funding
The research was funded by the Paul Ramsay Foundation (grant no. 681). Any opinions, findings or conclusions expressed in this article are those of the authors and do not necessarily reflect the views of the Foundation.

Data availability
No data presented.

Declarations

Ethics approval and consent to participate
This study was approved by the Victoria University Human Research Ethics Committee (HRE22-021).

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 12 November 2024 Accepted: 6 October 2025
Published online: 23 October 2025

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