Supporting collaborative research in information science: The RADAR program as a model for academic-practitioner team engagement

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ARTICLE INFO

ABSTRACT

Supporting academics and practitioners to collaborate is critical to advance innovations in research and practice. The Research Assistance and Development for Australian Researchers (RADAR) program was designed to: 1) provide funding to teams to implement co-designed, practice-informed research projects; and 2) to document academics and practitioners' experiences of a scaffolded program of support for collaborative research. Conducted within a larger project exploring strategies to foster research culture in information science, the RADAR program developed a community of practice to share experiences through group meetings, blogging, and webinars. Teams conducted original research over 12-months, from initial design through data collection and publishing. Qualitative interviews were conducted at two points in the program, to document RADAR participants' experiences. Findings demonstrate practitioners and academics bring complementary skills and expertise to collaborations, which enhances research practice for mutual benefit. However, collaborators also have specific needs requiring further support from employers, associations, and funders, for meaningful outcomes.

1. Introduction

A vibrant, relevant research culture in information science fosters interaction between researchers and practitioners. Supporting information professionals and academics to collaborate is critical to advance innovations in research and practice. Information professionals must understand and integrate research findings into practice, while academics must engage with practice communities to address their needs. Building research capacity among practitioners and academics for the design and implementation of applied, practice-based projects can extend the adoption of research innovations. Fostering engagement between practitioners and academics is a vital first step in developing productive research relationships. Research collaborations are often proposed to ease the apparent research-practice divide between practitioners and academics (e.g., Chang, 2016; Ponti, 2012). Yet, few studies explore the nature of such collaborations; Hall, Cruickshank, and Ryan (2019) and Pickton (2016) are recent, notable exceptions.

The Research Assistance and Development for Australian Researchers (RADAR) program brought together information science academics and practitioners from various practice contexts to co-design and implement funded research projects. Implemented as part of a larger

funding program exploring research culture in the information professions, RADAR served as a study site for a scaffolded support program for research collaboration; the findings reported here document participants' views of the challenges and successes experienced in designing and implementing their projects. RADAR used a unique project design combining a small-scale grant scheme with a targeted coaching program; the results of qualitative interviews with participants, and their public blog posts, demonstrate project co-design and expert-led coaching foster productive collaborations. The paper provides valuable insights that can be applied across information practice contexts and in universities, to better support collaborative research teams.

1.1. Problem statement

Despite regular calls for information science academics and practitioners to work together to design and implement practice-informed research projects, little is known about the experiences of such collaborative teams. The aim of this study was to examine academics and practitioners' engagement with the RADAR program as a potential support model for practice-based, collaborative research practices. As an exploratory study of collaborators' experiences, this project provides

valuable insights to contribute to theory development and future scaffolding of collaborative research activities among researchers and practitioners in information science.

2. Literature review

2.1. The value of a strong research culture in the information science profession

The value of research to the information science profession, and the need to build a culture of research within professional practice, is well documented. The published literature dates to the early 2000s, demonstrating the enduring nature of this issue, and highlighting three levels of benefit from research-informed practice: professional, organisational, and individual. Pickton (2016) notes practitioner-involved research is needed to:

use and contribute to the professional knowledge base; to sustain the profession's reputation for knowledge discovery and innovation; to demonstrate professional value and impact; and, by means of its scholarly approach, to raise the profile of library and information science (LIS) as a discipline (p. 106).

Over decades, there are repeated calls for a greater contribution by practitioners to knowledge creation (Haddow & Klobas, 2004; Hall, 2010; Horowitz & Martin, 2013; Kernaghan, 2009).

For organisations, research innovations inform practice, improve decision making, guide strategy, advance service delivery, and raise institutional profiles (e.g., Clapton, 2010; Luo & McKinney, 2015; Partridge, Haidn, Weech, Connaway, & Seadle, 2014; Pickton, 2016). Yet, evidence also suggests managers ignore published research; as Hall (2010) notes, "decision-making that fails to take into account what is known already [...] risks sub-standard services delivery" (p. 84). Practitioners benefit from improved critical and analytical thinking, the development of new knowledge and skills, career advancement, and professional recognition from colleagues, professional associations, and clients (e.g., Charing & Gardiner, 2017; Eve & Schenk, 2006; Joint, 2005; Pickton, 2016). Luo and McKinney (2015) report academic librarians undertaking research have "enriched relationships with teaching faculty [...] and improved knowledge of the research field" (p. 124). Yet, a vibrant research culture is not the norm in all organisations; similarly, not all academic researchers co-design with practitioners, or share results with professionals to foster innovation adoption. Change is needed to fully embrace a research culture within the field.

2.2. The value of professional engagement to academe

Changes to government policies and university strategies in recent decades have increased academics' engagement with practice communities; universities have introduced work-integrated learning programs, while research is expected to achieve both academic and societal impact (Carson & Given, 2021; Etzkowitz, 2014; Sormani, Baaken, & van der Sijde, 2021). In two systematic reviews, spanning ~40 years, Perkmann, Salandra, Tartari, McKelvey, and Hughes (2021) and Perkmann et al. (2013) confirm engagement with practitioners is undertaken by productive academics who want to further advance their research, including accessing funding and resources. These findings reinforce D'Este and Perkmann's (2011) study of science and engineering academics, which identified four areas of motivation for academic-industry collaborations: (1) learning about industry; (2) access to resources (e.g., equipment); (3) access to industry funding; and (4) commercialisation (p. 327). Similarly, Baaken, Sormani, and van der Sijde's (2021) study of business and economics academics found although financial rewards were important motivators for collaboration, the non-financial rewards of career advancement, appreciation from one's institution and peers, and access to funding and enterprise data were stronger motivators.

Similar studies have not yet been conducted in information science.

2.3. Building capacity for practice-informed research in information science

Eve and Schenk (2006) note, creating a research culture "involves active engagement from practitioners, researchers, employers, [universities], and national bodies" (p. 12). The perception of a research-practice divide is arguably the biggest barrier to collaboration in many practice-based disciplines (e.g., Bartunek & Rynes, 2014; McKechnie, Julien, & Oliphant, 2008; Shaw & Lunt, 2018). This apparent divide is multi-faceted, with Hall, Cruickshank, and Ryan (2019) providing three explanations: 1) that practitioner audiences are not receptive to disciplinary research; 2) that strategies used by information science researchers to share results are ineffective; and 3) that researchers and practitioners have few opportunities to engage on information science-related themes (p.1060).

2.4. Recognising differing priorities of practitioners and academics

As Chang (2016) notes, it "is assumed that [academics] tend to study theory-oriented subjects, whereas practitioners are concerned with practice-oriented subjects" (p. 535). Academics are expected to publish in quality journals and secure research funding (Booth, 2011; Feather, 2009; Spring, Doherty, Boyes, & Wilshaw, 2014), while research is not considered "an immediate day-to-day priority" for practitioners (McNicol & Nankivell, 2003, p. 69). Government assessment practices, globally, are shifting research priorities (e.g., Australia's *Excellence in Research for Australia*; United Kingdom's *Research Excellence Framework*). These schemes assess performance on research funding, publications, and PhD supervision, highlighting "national research strengths in areas of critical economic and social importance" (Australian Research Council, 2021a). Governments have also added requirements for industry engagement and measures of societal impact, alongside measures of academic excellence (Carson & Given, 2021) to assess levels of engagement with research end-users and the translation of research into "economic, social, environmental, cultural and other impacts" (Australian Research Council, 2021b). The presumption of these schemes is that industry partners will support practice-based research and adopt research innovations; however, this requires a shift in evidence-based practices beyond academe. While universities embrace, for example, industry-embedded PhD placements (Roberts, 2018; Wickramasinghe & Borger, 2020), these are currently funded in areas like engineering and health, with few opportunities in information science. At present, many practice contexts in the field lack the discretionary funding or in-kind resources required for large-scale or longer-term practice-informed research programs.

2.5. Building confidence and expertise to engage in research

Practitioners often lament their lack of confidence when it comes to conducting research (e.g., Carson, Colosimo, Lake, & McMillan, 2014; Nguyen & Hider, 2018; Spring et al., 2014). This may be due to a lack of exposure to research education and training, which is not required in all programs (Hall, Cruickshank, & Ryan, 2019). However, few empirical studies explore these issues in depth. Edwards and Jennerich (2009) documented librarians' lack of clarity about research methodologies (76%) and inadequate analysis skills (71%). Similarly, Schrader, Shiri, and Williamson (2012) found that librarians lacked analysis skills, could not select methodologies, and could not formulate research problems. Hall, Cruickshank, and Ryan (2019) noted practitioners' improved confidence resulting from "increased knowledge of a fuller range of research techniques," including publishing (p. 1070). Additional research is needed to understand the extent to which practitioners could benefit from support programs.

In universities, academics may also lack the confidence and expertise

required to develop practice-informed projects. Information science academics come to their PhD degrees with varied disciplinary and professional backgrounds; for those who have never (or not lately) worked in practice, or for those who relocate and lose their professional networks, creating collaborative projects with practitioners can be daunting (McGiffin, 2020; Torres-Olave, Brown, Franco Carrera, & Ballinas, 2020). Although a PhD provides key skills to design and implement projects, a lack of industry-based PhD placements and increased competition for funding means academics may be ill-prepared to develop projects with practitioners (Australian Research Council, 2021c; Torres-Olave et al., 2020). Additional research is needed to understand how best to facilitate engagement activities with practitioners, to foster the design of practice-informed research programs.

2.6. Institutional supports are needed for research activities

A lack of time and insufficient managerial support are among the most common reasons given for practitioners not engaging in research (e.g., Clapton, 2010; Fox, 2007; Hider & Nguyen 2018; Ponti, 2012; Spring et al., 2014). Although some academic librarians are expected to conduct research and are rewarded for these activities (Couture, Gerke, & Knievel, 2020; Goodsett & Walsh, 2015; Vilz & Poremski, 2015), this varies across practice contexts and countries. Identifying mechanisms to support practitioners' engagement with research is critical to foster research culture.

Daniels, Laning, and Smigielski, Laning, and Daniels (2014) detail two categories of research support for practitioners: 1) "formal, institutional" supports, established by administrators; and 2) "informal, grassroots" supports, established by peers (p. 262). Formal supports include sabbaticals, workload adjustments, financial support, and mentoring programs, while peer-developed supports include writing groups, research support groups, and journal clubs (p. 262). Several studies have found practitioners value peer supports and collaborative activities (e.g., Crampsie, Neville, & Henry, 2020; Kumaran, 2019). In their study of early career librarians Ackerman, Hunter, and Wilkinson (2018) noted increased availability and uptake of supports (e.g., designated research time, writing groups), and conducting research projects, increased librarians' confidence. Similarly, Sassen and Wahl (2014) found librarians who completed master's theses were more confident conducting and publishing practice-based research.

Formal and informal mentoring are key research supports (Ackerman et al., 2018; Goodsett & Walsh, 2015; Schmidt, Boczar, Lewis, & Taylor, 2021; Smigielski et al., 2014). For mentees, the benefits include skill development, rapid career progression, networking, and professional recognition; for mentors, benefits include personal satisfaction, staying current with trends, and professional revitalisation (Johnson, 2016). Organisations also benefit, as "institutions with active mentoring are more likely to have productive employees, stronger organizational commitment, [and] reduced turnover […]" (Johnson, 2016, p.13). Mentoring facilitates identification of research topics, learning about the research process, hearing different views on issues, contextualising practice-based problems, and seeking feedback and advice (e.g., Kumaran, 2019; Vilz & Poremski, 2015). Kennedy, Brancolini, and Kennedy (2020) found long-term benefits to practitioners building research networks; participants highlighted peer communities as contributing to their successes and those with extensive networks produced more publications.

Academics receive workload allocations for research; however, teaching and service-related commitments take significant time, affecting academics' research practices. In 2014, de Moor claimed academic research was under threat due to societal isolation and lack of resources. He advocated for an engagement model where "reciprocal partnerships of academics with stakeholders representing their own communities" (p. 90) are created, to support co-learning and sharing resources. However, Torres-Olave et al. (2020) notes "some institutions are better positioned" (p. 276) for collaborations, including large,

research-focused universities. Further, issues of academic rank, discipline, gender, and precarity, also affect researchers' abilities to acquire funding and build and maintain productive working relationships with industry (Broadbent & Strachan, 2016; Torres-Olave et al., 2020). Time pressures and isolation are heightened by COVID-19, with many academics struggling to conduct research while shifting to digital and hybrid instructional modes (McGaughey et al., 2021; Watermeyer et al., 2021). Many academics continue to work from home and may be unable to conduct research as they did prior to the pandemic. Despite increased expectations for research to result in practice-based impacts, many of the supports and incentives needed to foster practice-engaged projects are not yet in place.

2.7. Fostering practice-informed research through engagement and co-design

The literature documenting barriers to practice-informed research points to solutions focused on addressing perceived deficits, such as providing research training to practitioners (e.g., Hall, Cruickshank, & Ryan, 2019). To address the perceived lack of managerial support, Pickton (2016) suggested institutional commitments to research "should be evident in strategic plans and reflected in service goals" (p. 107); this would enable creation of tangible supports (e.g., dedicated writing time), as these could result from institutional policies. Including research activities in performance expectations and job descriptions can also facilitate a research culture in the profession (Carson et al., 2014; Pickton, 2016). However, there is little empirical evidence about the success of such approaches in fostering practice-based or collaborative research in the long term.

De Moor's (2014) vision of collaborative engagement shares many hallmarks with co-design business practices, where users of products and services are involved in design processes (e.g., Zamenopoulos and Alexiou, 2018; Steen, 2013). Co-design practices acknowledge that no one person has the knowledge and skills to solve complex social, political, environmental, educational, and technological problems; rather, co-design enables people to "come together despite, or because of, their different agendas, needs, knowledge and skills" (Zamenopoulos and Alexiou, 2018, p. 14). Many authors in information science highlight similar potential for collaborative, practice-informed research to bring professional and scholarly communities together, to expose group members to new viewpoints and to share skills and knowledge (e.g., Chang, 2016; Luo & McKinney, 2015; McMenemy, 2010; Pickton, 2016). This type of engagement is exemplified in 'Researcher-in-Residence' programs, such as McMaster University Library's program (Detlor & Lewis, 2015). Such residencies have the dual benefit of providing academic librarians with direct access to researchers who mentor professional colleagues, while developing the academic's research agenda in conjunction with library staff.

Overall, the published literature reflects many issues the RADAR project sought to address, including the need for collaborative projects co-designed by practitioners and researchers, particularly outside North America and the United Kingdom. This project also extends the field's knowledge beyond academic library settings, by involving practitioners from a range of practice contexts, to reflect varied experiences.

3. Research design

The Research Assistance and Development for Australian Researchers (RADAR) program was designed to fulfill two goals: 1) to provide small-scale funding for information science academics and practitioners to co-design and implement a practice-informed research project; and 2) to serve as a study site for a scaffolded support program for collaborative research by capturing RADAR participants' views of their collaborative challenges and successes. This paper reports on this second goal, to address the following research question: What are academics and practitioners' experiences of the RADAR program as a

potential support model for practice-based collaborative research practices?

RADAR is one component of a larger, funded project that was designed to assess the development of a vibrant research culture in the profession. RADAR served as a living lab, with academics and practitioners reflecting on their collaborative experiences during implementation of a funded project. RADAR provided up to $5000 (AUD) each for three collaborative teams from a range of practice contexts to design and implement a 12-month research project. Recruitment occurred across practice contexts, addressing concerns raised by Clapton (2010) about the lack of research on non-academic practitioners. RADAR enabled collaboration and built capacity for research through a co-design process led by senior, expert researchers. RADAR's structured program created a community of practice through which participants developed their research awareness, skills, knowledge, and capacity. The term 'community of practice' was first introduced by Lave and Wegner (1991); the concept has been explored in the knowledge management literature in information science, previously, but has not been used to examine research project management contexts, to date. The term refers to "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wegner-Trayner & Wegner-Trayner, 2015, para. 4); it is within this context that the term is used in this paper.

Over the year, RADAR members attended nine virtual cross-team meetings, where they were coached and supported by two senior professors of information science. RADAR members wrote blog entries about their experiences, participated in research practice webinars, presented their work at a professional conference, and submitted papers to scholarly journals. All RADAR members (i.e., 3 academics and 7 practitioners) provided consent to engage in the research study about the program.[1] Individual, one-on-one phone or online interviews lasting ~30 min were conducted by the senior professor who was not hosting the support activities. Interviews were conducted at the midway point (~6 months) and end (~12 months) of the RADAR program. Interviews were semi-structured, starting with opening prompts and then adjusted to respond to participants' experiences (e.g., How has the team progressed on your project so far? What is working well/not well? What support do you need to move forward with the project?). This design enabled the questions to be piloted during implementation of the initial interview, and then repeated at the second interview, with only minor content changes aligned to project stages (e.g., to focus on data collection at the midway interview and publishing at the final interview). Interviews were audio-recorded and transcribed for analysis. The interview data were analysed alongside content members shared publicly in blog posts, which were written by participants as part of project dissemination activities. Analysis of interview and blog data was conducted following a constructivist grounded theory approach to coding (Charmaz, 2014), to develop the initial stages of theory creation in keeping with the exploratory nature of the research design.

4. Findings and discussion

The following sections document participants' perceptions about their collaborative research practices as experienced during the RADAR program. Participants reflected on RADAR as a pilot program to foster collaboration, including whether a scaffolded, community-of-practice approach could serve as a model to further develop capacity among similar research teams.

4.1. The RADAR program: Piloting best practice in collaborative research

Overall, RADAR participants were positive in discussing their experiences in conducting projects and engaging with colleagues, which reflects previous studies showing collaborative, practice-informed research is a positive way to bring professional and scholarly communities together (e.g., Chang, 2016; Eve & Schenk, 2006; Joint, 2005; Pickton, 2016). Participants highlighted the value of having all-of-group meetings to provide a "sounding board" for ideas (Practitioner Matt) or reviewing draft materials and "opportunities for informal learning and mentoring" (Practitioner Stella). As Practitioner Sarah noted, "the most helpful thing…for our research project is just the general conversations that go on and the critique that we have received from the other members of the group, because I think that's really contributed to our research rigour." For Academic Nadia, discussions of "research practice, techniques and tips, and things from your own experience [are] really helpful…and just having conversations" made the RADAR meetings worthwhile. These points are supported in the literature with Chang (2016), Luo and McKinney (2015), and McMenemy (2010) all noting the benefits of being exposed to differing viewpoints, sharing skills, and knowledge transfer. For Practitioner Stella, who had primarily conducted research on her own previously, participating in a group project was "interesting in and of itself;" she valued engaging with experienced researchers as part of a team and learning about cross-sectoral issues. However, she also noted this type of meta-level research practice engagement "adds to the time, the workload burden, because you're not just doing the project you're writing and thinking about it."

At the team level, participants discussed the value of sharing tasks and discussing issues with collaborators. Practitioners served as gatekeepers to practice contexts, providing critical access to communities. Academics played a key role in project management; this was particularly helpful, as most practitioners had little experience and did not receive release time from work to conduct research. Practitioner Fiona explained it was "really great to do this with [an academic] because I don't have a lot of time to do my own extensive research." In her institution, practitioners often designed "rapid prototyping" of new innovations, with "small feedback integrated into a cycle [of improvement];" this was a very different model to her RADAR project. For Practitioner Brooke, who was engaging in research for the first time, being able to "put my trust and faith in the work that [academics] do" was a very positive experience. She believed "all other library staff in other libraries would be doing the same [and] looking to our researchers" for guidance and support in conducting research. Similarly, Practitioner Matt noted "being a practitioner you don't really have the same kind of conversations" with colleagues that you have as a research group member; he explained having access to people conducting research was "really important in ensuring that we don't become too overwhelmed." These practitioners' experiences support the call for research collaborations to ease the research-practice divide between practitioners and academics as noted by such authors as Chang (2016), Eve and Schenk (2006), Joint (2005), and Ponti (2012).

Overall, the academics took the lead in project management; they ensured data collection and writing progressed, and timelines were met. While practitioners engaged in "thoughtful, conceptual discussions" (Practitioner Brian) to inform project design and shared "the practical experience of working in our libraries" (Practitioner Brooke), their work roles often precluded in-depth or hands-on roles in project implementation. However, delegating tasks and managing teams was not always easy for the academics. Academic Anne, for example, found task delegation to be challenging, noting next time she "would be more organised, more proactive in approaching the research team" rather than managing tasks alone. Practitioner Sarah explained this division of labour also created challenges, particularly when some team members were not "as willing to take on board the critiques of the research to strengthen it." This meant some decisions were left to the "research leader" even if other group members disagreed. This finding reinforces

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[1] Ethics approvals were received from the universities participating in project. All RADAR team members provided their consent to participate in this research. Pseudonyms have been assigned to all participants by the research team.

Given and Willson's (2015) research, which points to the phenomenon of collaborative team members enacting "parallel work." They noted while the literature conceptualises collaboration "as working together at all stages of a project, from planning, designing, implementing and analysing, to writing and publishing" (p. 154), in reality, teamwork more often falls "on a spectrum between fully integrated collaborative research practices and fully individualised, solo research" (p. 154). Unfortunately, this means team members may approach collaboration with expectations of joint decision-making and integrated activities, which may not occur in practice.

Ensuring team cohesiveness and finding ways for all members to be consulted and involved, especially when people work in parallel, requires strong relationships be developed and maintained. Practitioner Fiona described a previous encounter with an academic who had "no relationship" with practitioners, stating, "I'm not entirely sure they had a great opinion of libraries;" in contrast, Fiona spoke highly of her RADAR academic collaborator, who she believed "cemented a much better relationship" with information professionals. Similarly, Practitioner Nicole reflected on discussions with an academic colleague (outside RADAR), who she said, "regularly whinges to me about how librarians do stuff and never talk to him, but I'm not aware that he has even reached out to a librarian either." Practitioner Stella noted the success of her team rested on the fact "people are already well-acquainted with each other." She believed successful academic-practitioner partnerships emerged from purposeful work by individuals, "rather than anything that's happening in an organisational level or is particularly organised." What was clear from these discussions was that RADAR members welcomed and valued these collaborations, but that few opportunities existed to build relationships, either within or outside of information science. At institutions with information science programs, academics and practitioners were "trying to integrate" research activities (Practitioner Fiona), but such collaborations were rare. Although Practitioner Matt had three collaborative projects with academics in other disciplines, he acknowledged his experience was not the norm.

At an individual level, one of RADAR's goals was to build capacity for collaborative research among participants. By providing not only funding, but also targeted guidance from senior researchers, and community-of-practice supports at all stages of research design, implementation, and publishing, RADAR maximised time available for research and built members' confidence. The participants were positive about their personal capacity to do research in the program, but also mentioned areas where skills or knowledge could be improved. These included the selection of research methodologies (also noted by Schrader et al. (2012) and Edwards and Jennerich (2009)), the application of theory to practice, and research ethics. Practitioner Fiona highlighted publishing as an area for growth, stating "it is always really intimidating coming up to writing a journal article and how to pitch it at the right level." Hall, Cruickshank, and Ryan (2019) noted practitioners' improved confidence in approaching both research and publishing once they had a greater understanding of various research techniques. Practitioner Matt was challenged by "the conceptual stuff around actually identifying a topic that is worthy of investigation and how you're going to frame it." For Academic Colin, a major benefit of RADAR was "recalibrating how to potentially make my work more translatable and more digestible" to contribute to practice change. By bringing all RADAR members together as a community of practice, the program enabled discussions of research practice, guided by senior experts. This extended advice across the groups, thereby building research capacity beyond what a single, collaborative team discussion, or one-on-one support meeting, could provide. RADAR provided an exemplar of the research network concept described by Kennedy, Brancolini, and Kennedy (2020), where both immediate peers and the broader community must come together to foster successful research.

4.2. Moving beyond rhetoric: The need for tangible supports and recognition

The role of RADAR members' organisations in supporting collaborations was a key point raised by participants. For the academics, receipt of a RADAR grant contributed to their usual work expectations to conduct and publish research, for which they received workload time. However, as research was not part of the practitioners' work roles, the supports they received were limited. Certainly, all practitioners felt supported by their managers; participants confirmed their organisations spoke of the value of "an evidence-based approach" to practice (Practitioner Fiona), and they noted managers "encourage staff to think about doing research and using research to inform how they do their work" (Practitioner Sarah). However, they lacked tangible supports (e.g., release time; methods training) to enable them to fully engage. These two reasons - lack of time and insufficient managerial support - are among the most common given by practitioners for not engaging in research (Clapton, 2010; Fox, 2007; Nguyen & Hider, 2018; Ponti, 2012; Spring et al., 2014;). As Practitioner Brian noted, none of his colleagues "had time to do a lot of research, to write articles" while Practitioner Sarah confirmed she and her colleagues "just fit [research] in, if and when an opportunity arises; [we] do it, ad hoc," alongside other duties. Practitioner Nicole explained most information professionals "don't have the training" in research practice they need, resulting in even small projects being "done badly." Practitioner Matt's experience demonstrates the challenges of conducting research alongside one's full-time job:

> I feel guilty for taking time out [at work] to do research, which stifles it. Many people are unwilling to do work outside of work hours, which is respected and understood, but that leads to a catch-22 situation - if the rewards and supports are not in place, then the research doesn't get done.

Practitioner Stella reinforced these concerns, noting she believed employers in practice settings needed to view "research and publication as part of staff development [and be] willing to plough some of the actual staff training budget into supporting that. Whether it's attendance at conferences to present, whether it's money to backfill staff to free them up, the time spent studying or writing." For Practitioner Fiona, working with an academic in a "mentoring relationship" in RADAR, or receiving guidance from experienced practitioner-researchers, could help "build in the skill sets you need to think about [like] how to set up surveys properly and how you approach interviews, and things that are really tricky to pick up if you haven't had any training." Of course, providing tangible supports requires practitioners to clearly understand their needs and managers to understand requirements for various research designs. While some supports may be negotiated case-by-case, particularly where needs are very clear, moving to institutional-level supports provides equity of offerings and transparency of what organisations can (and cannot) provide. Although universities in some countries (e.g., Canada's University of Alberta) recognise librarians as academic staff, providing professional development funds, study leaves, and other supports as they do for other researchers, such formalised support is not the norm. This means individual practitioners must negotiate time, funding, training, or other supports, or be unable to engage in projects within the boundaries of work commitments.

In addition to up-front supports, RADAR members discussed the need for research recognition, a point that echoes Pickton's (2016) suggestions for institutional commitments to research. Academics are expected to seek funding, implement projects, and publish; and, with widespread calls for industry-engaged, collaborative projects, partnership grants like RADAR are attractive. As Practitioner Nicole observed, however, there is "little to no recognition for anyone who does research outside an academic department" in her institution. Including research activities in performance expectations and job descriptions of librarians, as

suggested by Carson et al. (2014) and Pickton (2016), may help to address this. Practitioner Brian reiterated this point, noting this was part of an overarching identity issue. He explained, "in America, the librarians are all still 'Deans;' they're regarded as quasi-academics [but in Australia, we] are no longer part of the academic staff." This means librarians' contributions to research were "not recognised by the university [as] we're still regarded as the support staff." As societal impact of research continues to expand through formalised assessment (e.g., Australian Research Council, 2021b; UK Research and Innovation, 2020) and targeted funding schemes for industry research, the pressure on practitioners to join teams and engage with academic partners, will grow. While support mechanisms are in place in some institutions, globally, to account for practice-based research, other organisations will need to consider how best to support employees in these activities.

4.3. Information science associations have a role to play

RADAR participants believed professional and scholarly associations had a role to play in supporting the field's research culture and fostering collaboration. Practitioners Brooke and Stella suggested the Australian Library and Information Association (ALIA) could provide additional professional development for research, while Academic Colin suggested approaches to reflective practice in other countries (e.g., modelled through American Library Association) could apply worldwide. Some practitioners described positive experiences with regional associations. Practitioner Sarah, for example, explained ALIA's Queensland state office and the Queensland University Libraries Office of Cooperation (QULOC) hold joint "working parties" that spark collaborations. She saw these groups supporting research by "fostering those connections and sharing ideas, and collaboration research projects might grow organically out of that." Similarly, Practitioner Brian did not believe national professional organisations were building a research culture. In his view, organisations such as the Council of Australian University Librarians, were neither "effective" nor "targeted," and he stated, "I don't see any effective moves from ALIA on [building] a research culture." Brian believed smaller organisations, such as the Victorian Association for Library Automation's (VALA), were "more effective because they still have peer-reviewed papers for their conference." The lack of a national information science association in Australia to bring researchers together (e.g., as the Canadian Association for Information Science does), and variable levels of engagement with international associations (such as the Association for Information Science and Technology), reduced opportunities for research networking and sharing results. Practitioner Stella believed the lack of research engagement opportunities meant it was difficult to identify "who the academics are in the area that you could connect with that might have an interest [in your topic]."

Participants also highlighted the value of receiving competitive funding through RADAR and discussed the need for additional, sustained funding in the discipline. As Academic Anne noted, Australian information science researchers lack their own "body of funding" which is needed for academics "to survive" in their careers. Although ALIA has a small, competitive research grants scheme for members, only library practitioners or early-career academics are eligible (Australian Library and Information Association, 2021). Academic Anne noted one of the attractions in applying for RADAR was its status as "external funding… so if you can get that, you put it on your resume and it looks very, very good." Academic Colin compared the Australian information science grants context to that in other countries, explaining that it was not "realised yet in the way it could be." As an example, he noted funding in the United Kingdom was low in information science, due to the *Research Excellence Framework*, as "funding has been cut…which resulted in lower quality research." In Canada, however, Colin believed the country's "clear intellectual competition [was balanced by a] strong disciplinary collegiality," leading to sustained funding for information science projects. While RADAR funding was viewed positively, the need for ongoing

and larger funding in the discipline was highlighted as a concern. When asked to consider if the RADAR model could be supported by library and information organisations, Practitioner Matt said "it would be a hard sell to get university libraries or even universities to fund it." In his view, until research was seen as core business for librarians, funding such initiatives would be a challenge. Despite the rise in industry-funded research, including sponsored PhD programs, few opportunities exist for funded projects within information science.

4.4. A research culture is emerging but not yet clearly defined

At a broader, conceptual level, RADAR participants' views on the state of research in information science demonstrate academics and practitioners hold different understandings of research endeavours. Academic Colin and Practitioner Nicole described Australia's research culture as being "fragmented," while Practitioner Brian and Academic Nadia described a "disconnect" between the research done by academics and what professionals believed relevant to practice settings. While some practitioners described RADAR-style partnerships as enabling them in "taking the research to a formal level" (Practitioner Brooke), others described their team's approach as an "idealised kind of plan" (Practitioner Fiona) that may not suit practice contexts. Practitioner Stella explained while some "research is perhaps…not addressing real issues in practice," other projects "don't always have a scholarly or theoretical basis." Academic Colin reinforced this view; in his experience, "many practitioners don't have a very scholarly outlook on what they do." Similarly, Practitioner Nicole explained "there's not a research mindset in practice, even in academic libraries," which she believed was necessary to foster a research culture. Balancing scholarly and professional research interests, priorities, and outcomes is critical for research collaborations intended to bridge academic and practice domains. As Practitioner Matt noted, in addition to informing practice change, "there is a lot [academic librarians] could learn from…conducting a research project and publishing it, and…speaking the same language as our academics…To actually speak from experience is very, very important…It really levels the playing field."

Without a clear understanding of the intent of research and its relationship to practice, both academics and practitioners may struggle to develop mutually supportive collaborative teams and engage in productive projects. Even when employers provide tangible supports (such as methods training), and where project funding is available, academics and practitioners must commit to working together on shared goals. Such commitment presumes a level of shared understanding that may only be realised in some settings and locations. Practitioner Matt noted he had read about academic institutions where librarians were "embedded" with academics, which he believed made a difference in fostering research understandings. He noted, "I'm seeing it as a much bigger issue than I had initially thought, this lack of research culture [in practice], because I've noticed in my interactions with academics that having an understanding of what they're going through has made me a much more effective librarian, because they do treat you different if you have some research experience." This idea, of gaining both research credibility and empathy for academic work through research experience, may be a critical component in building practitioners' confidence to engage with researchers and become active partners in collaborative teams. Matt drew comparisons to other, non-academic staff (e.g., in research offices), where those with research experience had a level of "researcher empathy" that made a difference in supporting academics' work. Yet, for the academics, drawing on practitioners' experiences to inform (for example) instrument design was critical for project success. As Nadia noted, although her practitioner partners initially positioned themselves "in a supporting role," she "consulted with them on every step…every version of the survey, every version of the interview questions, blog posts." She viewed this not only as important mentoring work on her part, but activities that enabled practitioners to "feel much more confident of their contribution and the value they bring [since] this

project would not be possible without their help." The RADAR program demonstrates that developing clear understandings in the minds of academics and practitioners about the benefits each group brings to research, is central to building a research culture to support practice change.

4.5. Limitations

As with all research, there were limitations to the RADAR project. This study was an exploratory study designed to capture participants' experiences in a unique, small-scale study that is the first in information science to combine providing funding to teams of academics and practitioners, with a scaffolded coaching program to support productive research collaborations. The qualitative study of participants' experiences throughout the funded program provides valuable insights, but a larger-scale program would provide additional, richer data to guide the development of similar programs. The program is also beneficial for providing data from the experiences of Australian researchers and practitioners who are understudied compared to their counterparts in North America and the United Kingdom. Expanding studies of research collaborations in other countries will provide additional context for understanding the various pressure and support researchers encounter, particularly given unique government and/or institutional policies and practices. Additionally, this research contributes to and extends the findings of prior work by having involved practitioners from a range of practice contexts, including public and academic libraries. However, larger samples within each type of information context (such as public or government libraries), would enable transferability of the unique requirements of these research environments. Finally, as an exploratory study, the data provide a starting point for future studies to contribute to theory development on scaffolding of collaborative research activities among researchers and practitioners in information science. Future studies will contribute to this baseline data, to ensure that collaborative, practice-based research continues to grow and thrive within the discipline in the years to come.

5. Conclusion

As noted previously, the aim of this study was to examine academics and practitioners' experiences of the RADAR program as a potential support model for practice-based, collaborative research practices. The program provided space for collaborative research teams to reflect on their experiences, and to seek guidance from peers and senior researchers in information science. While the published literature suggests an ongoing research-practice 'divide' in the discipline, the outcomes of the project demonstrate that bringing academics and practitioners together to co-design and implement research projects can be positive and productive for all. A key finding of this study is that RADAR's targeted coaching and scaffolding activities provided a useful model of best practice in building a community-of-practice across various types of practice contexts and with academics working in different areas of specialty. Participants were drawn together through a shared interest in learning more about research techniques, ethics, publishing strategies, and other key aspects of research practice, whereby peer and expert knowledge were shared in mutually supportive ways.

The results of this study provide guidance for developing community-of-practice supports and making research practice improvements in professional and academic settings. Academics and practitioners need opportunities to develop meaningful relationships; each group brings complementary skills and expertise to research, making them ideal partners to generate knowledge and inform practice change. For academics, this means exploring practice-informed research questions, translating research outcomes for adoption by practitioners, and pursuing industry-based funding alongside national, competitive grants. For practitioners, this means opening practice contexts to researchers, adopting research innovations in practice, and sponsoring

research initiatives. Once established, collaborative partnerships require funding, employer supports (e.g., research time, funding, training), and platforms to share expertise. Access to skilled senior mentors who can support teams is critical, as collaborative partnerships require guidance and support to co-design and implement research that will have an impact in practice. Participants also made clear, however, that they require support from employers, disciplinary associations, and funders to conduct productive collaborative research. While RADAR provided funding, with support from employers for the time needed to conduct their projects, participants noted many structural and logistical issues in their workplaces that make such collaborative projects challenging to implement. The ability to move beyond the rhetoric of support for practice-based research, to ensure that tangible supports are in place to support academics and practitioners to work together, remains an ongoing challenge for both practice contexts and universities.

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