Doing Case Study Research Collaboratively: The Benefits for Researchers

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Abstract

Collaborative research teams are an effective strategy to combine the knowledge and skills of like-minded researchers across tertiary education settings and international borders. Research collaborations have the potential to increase research capacity for both individuals and the team alike. The purpose of the study was to explore the experiences and perceptions of a team of seven Australasian nurse academics undertaking a longitudinal multi-site case study. We used a nominal group technique in this deductive qualitative exploratory study. The key findings from this study indicate establishing safe academic relationships is paramount to successful collaborative teams. Collaborative research teams offer opportunities to learn research processes from other members through sharing of expertise and skillsets, together with upholding a positive engagement with technology to ensure full research participation is achievable irrespective of geographical location. To conclude, in this study we have identified multi-site collaborative research teams provide an opportunity to leverage the strengths of individuals to enhance research outcomes across organisations. The synergistic effect of the team builds research blue skies thinking and capacity building through mentorship and support. The potential for positive change through mentorship and support, alongside the forged new relationships, are all key drivers of researcher wellbeing, never more important as we transition into new ways of working both now and into the future.

Keywords

collaboration, multi-site, research team, researcher benefits, nominal group technique, COVID-19

Introduction

Increasingly collaborative research teams are being developed amongst researchers from different countries and institutions to achieve collective research goals. Evidence suggests that such alliances come with benefits and challenges (Carr et al., 2013). While having a number of researchers, institutions and countries expands professional networks and enables sharing of resources, expertise, and increases productivity, challenges around team dynamics, personal characteristics, structural factors and qualities of leadership can negatively impact the success of such teams (Carr et al., 2013; Omar & Ahmad, 2014). For collaborative teams to be successful in achieving their goals a positive team culture, whereby team members are professional with a realistic and honest commitment to perform, needs to be established (Carr et al., 2013; Omar & Ahmad, 2014). Furthermore, members need to consider their

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ability to maintain engagement, develop working dissemination guidelines, and actively create and maintain non-hierarchical leadership in which individuals are prepared to both lead and follow team members (Bowers et al., 2013). Therefore, while there can be challenges with research teams, if set up properly the individual and collective benefits from such alliances can make the collaborations worth investing in.

The purpose of the study was to explore the experiences of members of a collaborative multi-site research team involved in a longitudinal case study across four nursing education providers in Australasia.

Background

The ten-member team was developed in mid-2019 to research the motivations and experiences of graduate-entry MNSc students enrolled in three universities and an Institute of Technology within Australasia and have published their findings in 2021 (Jarden et al., 2021; Macdiarmid et al., 2021b, 2021). The New Zealand team members were located within the North and South Island, and the Australian researchers were from the State of Victoria. Most of the researchers had not previously worked together in a research team, and at least half of the researchers had not known each other prior to joining the team. A memorandum of understanding was developed as a formal agreement between our institutions and team members to clarify intellectual property ownership. A working agreement was also developed to make authorship, and responsibilities, including notice of intention to leave the team explicit. The order of authorship in publications was based on the four criteria stipulated by the International Committee of Medical Journal Editors (ICMJE) (http://www.icmje.org) for contributors to a publication. Research team members also agreed to share leadership on different research projects and outputs.

Coronavirus-2019 (COVID-19) physical distancing requirements have imposed limits on the ability of researchers to work together in person, necessitating the use of virtual methods to communicate, negotiate safe research data storage, and write collaboratively (Roberts et al., 2021). Our research team had already begun using a Microsoft Teams site as a platform to communicate and store research data in mid-2019. Microsoft Teams was the option preferred because it enabled enrolment of team members across institutional information technology borders, without having to complete enrolment requirements at the host institution. By the end of 2019, we had written the research proposal for institutional ethical review as a 'living' document collaboratively on Microsoft (MS) Teams. The research team rapidly developed expertise in writing together, storing research data, and messaging each other via MS Teams. Our fortnightly videoconference meetings were also conducted using the Teams call function. When the social distancing requirements for Covid-19 were initiated in New Zealand and

Australia in March 2020, the research team was already very proficient in working remotely.

Research Collaboration

A collaborative research team can be defined as a coalition between researchers who share collective goals, aspirations and responsibilities in conducting research (Carr et al., 2013). Collaboration between institutions and across international borders brings research talent together to work on complex projects that would be difficult to conduct in isolation (Broome, 1999; Carr et al., 2013). Sharing research talent and skill in collaborative multi-site teams also potentially results in more productivity, and higher quality research outputs which has a direct impact on productivity (Bossert et al., 2002). Collaborators within and across institutions contribute their expertise to a shared process with the aim of knowledge generation (Bozeman & Boardman, 2014). A well-constructed team brings together a set of people with a collective set of resources, skills and research experience beyond that of individual researchers, some of whom may have had experience of prior research collaboration (Stanley & Anderson, 2015).

An effective team climate for collaborative research supports innovation, creativity and motivation based on shared research goals (Yuan & Jing, 2014). Effective teams require a commitment to shared goals and a sense of participative safety where team members can feel safe in sharing their ideas and giving critical feedback to one another (Anderson & West, 1998). Teams that have a high degree of participative safety, characterised by open communication, honesty, fairness and respect, are likely to feel more comfortable in sharing ideas and engaging in constructive discussions about differing viewpoints. Participative safety is likely to result in more original and higher quality results from research (Stanley & Anderson, 2015; Yuan & Jing, 2014).

Effective teams are also characterised by reflexive relationships, respect for difference and diversity among other team members, and a commitment to a shared responsibility for high quality and innovative outcomes. Positive perceptions of the team climate among team members are represented by satisfaction with how the researchers work together as a team, trust one another, share information and respect each other's contributions. Confidence in how the team works, and satisfaction with authorship practices, contribute to the overall performance of a research team (Settles et al., 2019). Factors such as lack of access to resources, and inability to meet potential collaborators with sufficient frequency, can constrain an individual's ability to build collaborative relationships within a research team (Abramo et al., 2019).

Working across institutional boundaries requires consideration of the differences between the institutions and individuals involved in a research collaboration, whereby shared values and trust become essential elements of this collaboration (Larkan et al., 2016). Research teams need to discuss and agree upon ownership and authorship early in the team

development process. Larkan et al. note that collaborations amongst researchers need to sustain reciprocal, equitable and mutually beneficial relationships between team members, including benefits such as learning new skills, fulfilling and rewarding experiences, and sharing knowledge. Honest, unambiguous and transparent communication sustains collaborations, including conversations about how members may exit the team. It is generally agreed that effective collaboration supports both the team development and implementation phases (Natland & Hansen, 2017) involved in conducting research.

Evidence shows that as research teams often operate without a formally appointed leader a shared leadership approach is often adopted (Guenter et al., 2017). This approach to leadership is a relational, collaborative process or phenomenon whereby groups or teams collectively influence one another and share duties that would normally be the responsibility of a single nominated leader (Kocolowski, 2010). In this approach, leadership is distributed among team members, can alternate depending on which team members are able to meet the needs of the team at that time, and is carried out in an authentic way that is valued by all members (Guenter et al., 2017). Guenter et al. propose that in a shared authentic leadership approach leaders maintain their personal values and convictions while ensuring consistency between their words and actions, this results in a high degree of trust and performance from followers (Guenter et al., 2017). This approach to leadership can be viewed in terms of how different individuals enact leader and follower roles at different points in time (Lord et al., 2017). One of the most commonly cited benefits of this approach is the synergy and expertise derived from a shared leadership model (Kocolowski, 2010) this in conjunction with the reduced stress levels for key leaders, as shared leadership reduces any potential burden on one single leader, makes this model attractive (Kocolowski, 2010). However, there are cited limitations to this approach in that it can be difficult for leaders to reach a consensus with decisions taking longer to reach (Kocolowski, 2010).

Virtual research teams are digital communities focused on conducting research in shared digital workspaces (Jamali et al., 2014). Conducting research online in a 'virtual team' requires a simple and transparent digital means to communicate between team members, conduct virtual research interviews, store files, and write collaborative publications (De Lora & Termini, 2020). Communication and collaboration are key to researchers remaining productive within research teams and the Covid-19 pandemic has been a driving force in researchers learning how to work effectively using online platforms such as Microsoft Teams (Bruner, 2020). The adoption of digital tools by researchers requires ease of use in research activities, suitability for the purpose of the research, and resemblance to digital tools used in other work roles.

Research suggests that teams who work together in real-time have greater satisfaction with decisions made in the conduct of collaborative research (Berka et al., 2014). Online collaborative research teams have the potential to be more productive as scheduled virtual meetings enable clarity of communication between team members on a frequent basis (Jeong & Choi, 2015). Such meetings encourage accountability for task completion among team members and enable real-time in-depth, rich conversations (Hartman et al., 2019). Hartman et al. note that online interactions also foster the development of collegial relationships among researchers who are geographically or socially distant and promote professional growth and learning among team members through sharing of expertise.

Research question. *What are the benefits for researchers of being involved in a collaborative longitudinal case study research project?*

Method

For this study a deductive qualitative design using nominal group technique (NGT) was used (Harvey & Holmes, 2012). Originating from social psychological studies in the 1960s NGT method has been used widely when conducting qualitative focus groups in aerospace, social services and environmental studies (Olsen, 2019; Van de Ven & Delbecq, 1972). As a socio-logical model, it seeks to foster creativity and various responses to a specific research question by providing a structured process for gathering information and perceptions of a particular area of interest from a group (Gallagher et al., 1993; Martinez-Leon et al., 2020). Nominal group technique is a method that brings together experts on a given topic to ascertain which issues need further, more in-depth exploration and to identify issues that may have been previously unidentified. This is achieved by enabling groups to identify, rank, and rate themes while ensuring that all participants have equal influence and input, thus reducing group dynamics, which is often a limitation of focus groups (Olsen, 2019). By combining idea generation and problem-solving in a single focus group the study outcomes are generated and do not require a process of analysis separate to the group process.

Participants

Inclusion criteria: All academics from four Australiasian nursing education providers that had participated in a collaborative longitudinal research project in 2019 were eligible to participate in this study.

Recruitment: A senior academic PA, who had no involvement in the collaborative research project, sent an email invitation to all potential participants, with an information sheet outlining the study and a consent form. Potential participants were given a week to consider their participation in the study. Those who agreed to take part in the study

Introduction: PA, acting as focus group moderator, welcomed all participants, outlined the NGT process and explained the role participants will play in examining their experiences of being involved in a collaborative research project.
Silent generation of ideas and writing: Each participant was asked to spend 15 minutes privately writing comments in response to the above research question on paper.
Listing of ideas: PA then asked each person in turn to share one idea which they had written during the silent period. Each contribution was recorded on a word document (that was displayed via PA's shared screen) using the words of the participant. Participants could opt to miss a turn and come back at a later round, this ensured all participants felt safe to contribute as they wished.
Discussion of ideas: PA lead a 30-minute discussion on all of the ideas generated. The purpose of this discussion was to clarify, elaborate, defend or dispute the ideas and to add any new ideas that may emerge from the discussion. While the group was able to add new ideas, they could not eliminate any ideas.
Ranking of ideas: All participants were asked to choose the top five ideas that they considered most important from the total list on the word document. Each participant recorded these ideas on a personal priority sheet.
Voting on ideas: Each participant ranked their top ideas in order of priority, with the highest point given to the most important idea and one for the least important.
Break: While participants had a 10-minute break PA wrote the points from all participants alongside the ideas on the word document. Once complete, the group's top ideas were listed on a new word document in order of most votes cast.
Discussion of vote: Participants then had the opportunity to discuss the nature and content of the top ideas, together with feelings about ideas included in or excluded from the top ideas.

Figure 1. Conduct of the NGT focus team.

signed and emailed a consent form back to PA prior to the focus group.

Data Collection

Data was collected via a recorded zoom focus group. A doodle poll was sent by PA to all participants to identify a date and time that suited. All participants were emailed a meeting appointment with a zoom link. The focus group was conducted using the following Gallagher et al. (1993) NGT stages (Figure 1).

The focus of the analysis was to reach a consensus regarding the benefits of working in a collaborative research team. While the participants were all members of the research team being studied and were positioned as both researchers and participants, data analysis was undertaken as part of the Nominal Group Technique focus group process, which was moderated by an academic external to the research team.

The NGT generated two forms of data: a ranked list of benefits arranged into themes by participants, and a transcript of the recorded discussion that was subjected to thematic analysis. This approach is a recognised method reported previously by

Table 1. Demographics of the participants.

Participant	Location	Age Bracket (years)	Ethnicity	Years Teaching in MNSc Programme	Years in Tertiary Education	Highest Qualification
Participant 1	New Zealand	(45–55)	New Zealand European	6	10	PhD
Participant 2	Australia	(45–55)	New Zealand European	3	7	PhD
Participant 3	New Zealand	(55–65)	Scottish	3	5	PhD
Participant 4	Australia	(55–56)	Australian Anglosaxon	1	6	MPH
Participant 5	New Zealand	(55–65)	New Zealand European	2	10	PhD
Participant 6	New Zealand	(55–65)	New Zealand European	3	21	DHSc
Participant 7	New Zealand	(55–65)	New Zealand European	3	35	PhD
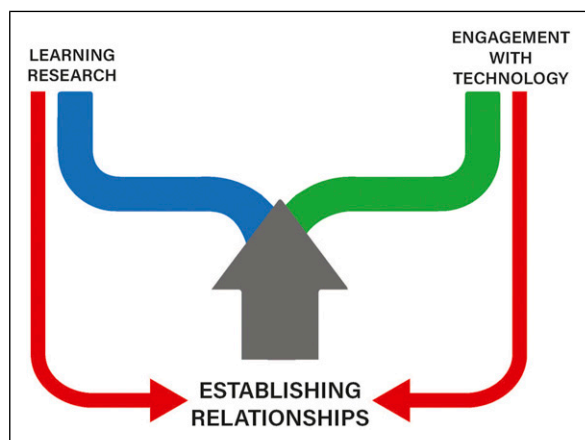
Diagram 1. Interrelationships between themes about priority benefits.

Corner et al. (2007) to enable the contextualisation of the research priorities, and share participants' voices. An iterative approach was utilised to contextualise the emerging themes. The transcript provided contextual data regarding the meaning of the benefits and rationale for identifying them as important when working in a collaborative research team. Similar to the approach by Corner et al., subsequent to data collection, the transcript was read to identify responses related to the themes and subthemes determined by the nominal group. VJ and PM-T did the data extraction from the transcript and this was then verified by two other researchers AD and KS.

Findings

A total of seven female academics participated in the online NGT session, five from New Zealand and two from Australia. Years of experience teaching in the MNSc program ranged from two to 6 years, and years teaching in tertiary education ranged from five to 35 years. Six of the seven participants held doctoral degrees (Table 1; Diagram 1).

Benefit Priorities

Consensus over benefit priorities was attained easily and resulted in three themes (Appendix A). It was identified amongst participants that *establishing relationships* and feeling safe with other team members was foundational for individuals to engage in the collaboration. This engagement and a sense of safety enabled opportunities for *learning research*. Participants identified how they were able to confidently learn from others and draw on the expertise and skill of the team. Feeling safe also facilitated *engagement with technology* and full participation in the virtual spaces created by a technology platform.

Table 2 presents each of these themes in order of priority with reference to excerpts from the team transcript.

Establishing Relationships. The highest priority theme identified for working in colloborative research teams was establishing relationships. This broad theme included team work (being in the team enabled collaboration, flexibility and leadership); Collegiality (the trust and respect members had for each other enabled negotiation and the ability to work in subteams); Safe and positive environment (it was safe to share knowledge, ideas and work); a sense of belonging (meeting and working with like-minded people); Social connections (social interactions and regular communications developed consistent social connections); Commitment to the team (there was a collective commitment to helping each other to be productive) and shared interest and goals (working in a collaborative team with like-minded academics and their individual strengths enabled individuals to contribute to the overall project).

Table 2. Excerpts from transcripts illustrating rationale for benefit priorities identified in the collaborative research team.

Benefit Priority	Subtheme	Illustration Quotes from Team Transcript
Benefit priority 1: Establishing relationships	• Teamwork • Collegiality • Safe, positive environment • Respect/similar values • Sense of belonging • Social connections • Commitment • Shared interest & goals	It's about collaborating with people with different research strengths and ideas around the possible epistemologies and ontology. It's just been a valuable component to me (Participant 2). I want to talk about strong leadership and direction. And I felt that certain times people took that lead. And I think it was really a team dynamic thing. (Participant 1). I guess, my recollection is that we started off kind of negotiating quite a lot. And we just got very good and very quick at that negotiation. So that was about trusting each other and respecting each other and believing in people's skills (Participant 7). And just having a go (Participant 6). People fore grounded and back grounded within the team. And we worked in sub groups and came back together. And that was a really great strategy because it allowed people to kind of input energy when they were able to (Participant 7). Respect for people and the process, for each other in the process (Participant 2). I just want to have all those words around courteous, respectful, exemplifying that sort of values. I mean I've always liked meeting new people. But at first, that whole idea of meeting like-minded people in establishing a team, and just keeping on moving and that, that I just really enjoyed that we all have similar goals. And I know I said that a bit but that was actually quite important last year, it was nice to have meetings with people who weren't regularly seeing, because we had a connection with people in Australia. And then you also had a hold of something, that was holding us together (Participant 6). I actually figured out that the social connections led to the other things in my mind anyway so we established the social connections with each other and got to know each other which then led to the safe space to collaborate and to enable the creative process (Participant 5). I've got social connections being wonderful during the last eighteen months during COVID. Having regular communication and working with people during that period of time that consistent social connections has been fabulous. I'd add something about COVID. It was really, really, really hard last year. And we all know that. And I think there's research for me, gave me something really positive, something to look forward and it also gave us social interaction (Participant 6). I'd also like to say, though, that we've been incredibly productive like when you think about the publications in the research process, and we share that with so many individuals, but we've been incredibly helpful and supporting each other to make us productive. It's been productive. So although we've been meeting outcomes, which is really amazing, it's very satisfying for me (Participant 1). Like it's not funded, money in it, I guess we're driving for different goals and often grant driven from my perspective is about like a different collaborative approach on a project that is more than financial rewards. Working in alignment with strengths while still contributing to the bigger project that I couldn't have done alone. A lot of this was related to why we were doing the research so we've got a shared interest I sort of feel that a lot of this was related to why we were doing the research so we've got a shared goal and a shared interest (Participant 2). I do feel quite passionate about giving this team of students information about the programme and why they've all joined up, so... otherwise there is a missing part ... whereas they're essential to the whole thing, without them we wouldn't be doing it (Participant 6). Maybe this was part of the glue that held us together (Participant 7).

Table 2. (continued)

Benefit Priority	Subtheme	Illustration Quotes from Team Transcript
Benefit priority 2: Learning research	• Mentorship • Sharing expertise • Sharing knowledge • Synergy • Learning new approaches • Research is fun	It was an example of innovation in practice (Participant 4). Drawing in people like to do the discussion, when we were so immersed in it. And you know, bringing those fresh eyes and at that point, I think was valuable with someone who had that kind of expertise (Participant 7). That attitude that we came through this together and moving things forward and driving them forward (Participant 2). For me it was share sharing the skills and knowledge of others. mentoring, learning opportunities and innovation in practice. Which includes technology (Participant 4). That's very synergistic isn't it. Yeah, that's, that's really creative. It was that positive environment for learning from each other. Feeling okay with, like the uncertainty of the project that was evolving (Participant 2). Because we know that what we want, we all understand somehow that we're all wanting the same thing. And it doesn't feel at all threatening. I can't actually even remember which bit started out as my writing which is so neat. And I think, I don't know whether it's something about having that electronic document, and we're all online together talking. And it just happened very smoothly. And it feels like a very collaborative creative process together. And it's been just such fun, really fun (Participant 5). It made research fun for me. So research has always been the last minute. And I now I put it first, because it's a plan together (Participant 6).
Benefit priority 3: Engagement with technology	• Enabling • Adaptability • Creativity • Flexibility of delivery • Innovation	I want to add a wee bit about adaptability into the online focus, it was all about a way when it was appropriate for COVID. And for us as researchers, I felt that we were willing, that being positive and solution focused (Participant 1). Hearing the others speak, I think technology fits with the idea of adaptability and creativity, you know it was part of the way we managed (Participant 7) Yes, I agree technology was a tool that enabled us to adapt and be creative (Participant 5). And that what.........talked about around the writing together were we could see each other's initials in the document and see each other's cursors moving (Participant 7). It was collaborative and creative and also safe, which is interesting (Participant 5). I don't think we would have ever done the work that we've done, or had the synergy of ideas in working together, the way we were approaching it. That wouldn't have been possible ever (Participant 2). I also had flexibility down saying I thought that allows individuals and the idea of working in such good team and 'virtually' like this was that there's a lot of flexibility. So for those of us who were teaching at certain times or had different pressure points, because of the way we worked we had the ability to go in and out as we could and were available as needed, so you sort of felt as though you were keeping up with everything. If you didn't make a couple meetings, you could still make it because it was sort of all virtual for all of us, if that makes sense (Participant 1). I think it also affected change, particularly in regards to the research project, that we have embraced technology in the implementation part of the research. So using zoom meetings, exploring other ways that we can engage with the student cohort (Participant 4).

Note. *Pseudonyms are used in place of participant names throughout this paper.

Team discussions revealed the rationale for prioritising establishing relationships as the top benefit of being involved in a research collaborative team. The participants recognised the importance of developing safe and respectful relationships, and this fed into the notion that people were more able to commit to the team, and share collective interests and goals. The ability to negotiate roles and contributions within the team was a motivating factor in staying connected, particularly when team members had competing commitments in their work roles.

We managed to work very well, we had strong leadership, when it needed to be there. And that people stepped into the breach, that other people were quite happy to be the support role. And I think that was a real strength of our team. That people were able to take different roles (Participant 1).

Participants felt safe about sharing their ideas and collaborating with colleagues within the research team, and felt confident their contributions would be valued and respected.

I'm normally the sort of writer who likes it looking pretty nice before I show it to somebody else. And that my comment about safety was, like, we just write something and we put it in there, and then it becomes everybody's, and everybody is, you know, free to edit and move it around and make it better (Participant 5).

Working in the research team also provided social connectedness for the participants, particularly during the social restrictions imposed during the Covid-19 pandemic. Belonging to the team gave participants a sense of purpose and commitment to something that was meaningful for them. The benefit of this social connectedness was opportunities and outcomes that they could not have achieved alone.

Learning Research. Learning research was the second highest priority theme identified and the following six key areas were raised: Mentorship (ablity to learn from other academics) sharing research expertise (drawing on the expertise of academics from across the countries); Sharing knowledge (individuals generously shared time and knowledge in order to reach the collective goals of the team) synergy (ideas were built on by others to create something new); learning new research approaches (working collaboratively created opportunities for individuals to learn new approaches to research) and that research is fun (working together to achieve outcomes made research fun). Participants reflected on the key area of sharing research expertise, enabling members from small nursing schools to draw on a wide range of expertise among the team.

For me, it was a great mentorship model. It was a great learning opportunity (Participant 4). Our nursing schools here in New Zealand, are really quite small. So this pursuit has kind of extended our ability to have other great colleagues (Participant 7).

I've appreciated the generosity of people's time and knowledge and sharing (Participant 2).

Participants felt that the synergy of individual researchers coming together to undertake and achieve research goals was enhanced by the collective sharing of knowledge and expertise.

Yeah, knowing that our colleagues could take an idea and fly it to a totally different place, you know, that I had something in my mind and maybe other people did and then just kind of blew it up (Participant 7).

The degree of trust that participants experienced within the team enabled them to take risks and work outside the comfort zone of what they had known before.

I'm so used to having a very prescribed protocol that I adhere to right throughout and have to write up any deviations. But this is a very much an evolving project with different ideas that have been embraced along the way. And I guess it's been challenging sitting with that uncertainty and developing, I guess, trusting the process and knowing that that's okay (Participant 2).

Engagement with Technology. The third top priority was engagement with technology and the following five key areas were raised from the team: Enabling (IT enabled the team to work on documents separately or collectively); Adaptability (technology enabled the project to develop and evolve as needed when the context changed); Creativity (IT facilitated a collaborative and creative approach to working in a team); Flexibility of delivery (the virtual nature of the space allowed individuals to engage in the research as they were able); and innovation (IT allowed the research to adapt when there was a change in challenging circumstances).

Participants identified how technology enhanced their ability to work collectively as a team, to undertake the research and produce outputs. It facilitated the connectivity amongst the participants as a team in real time. In Australasia, during the Covid-19 restrictions from March 2020, academics were isolated from their peers due to social distancing requirements, and being able to work in this virtual world collaboratively, enabled academics to maintain collegial relationships.

The relationship between teamwork and technology has really enabled us (Participant 7). I think enabling is a great word about what's happened over the last eight months. I think the technology enabled the teamwork, because we are distant and because we got locked down. For all those reasons that relationship between the technology and teamwork was pivotal (Participant 4).

Working through the MS Teams site facilitated participants in working flexibly, where they could participate as their workload and other commitments allowed. Participants could move into and out of the research space

knowing that their colleagues appreciated their presence when they were available, and understood their absence when they were unable to attend. The TeamSite also captured the work of the team so that there was always a repository of the team's work.

Discussion

The findings from this study highlight that collaborative research teams provide an opportunity for likeminded academics, irrespective of research experience, to share knowledge and develop research profiles in a proficient yet enjoyable manner. Most notably these participants identified that collegiality, authenticity and working alongside researchers with shared aspirations and goals were important aspects of the collaborative process and, as such, align with previous studies by Carr et al. (2013), Bozeman and Boardman (2014) and Yuan and Jing (2014). Furthermore, participants' personal values such as trust and respect were key to the team becoming a cohesive unit through which creativity flourished.

In keeping with previous literature (Guenter et al., 2017), the participants identified that not having a singular leader, but that leadership was distributed across the team dependent upon their availability, interests and skills set, allowed for the greatest productivity in the shortest amount of time. Moreover, this collaborative research team identified that the benefits of this synergistic, shared leadership approach, as identified by Kocolowski (2010), resulted from the commitment of the participants to shared goals, achieved through establishing reflexively congenial and safe professional relationships.

This study further highlights that while establishing the foundations for a successful and enjoyable collaborative research team is essential, the benefits of doing this go beyond the immediacy of the relationships developed and publications achieved. These participants identified that this collaborative research practice offered opportunities for novice researchers to learn research processes, be mentored by experienced practitioners, and share ideas in a safe environment, thus aligning with Anderson and West (1998) who suggest that participative safety is a priority if teams are to be effective in achieving positive outcomes. Members of this team developed social capital by spending time working together, as described by Koliba et al. (2017). Social capital among collaborators results when they spend time with each other and exchange resources and the emotional bonds that contribute to trust being established. While the notion of uncertainty was expressed by participants in relation to the evolving nature of the project, interpersonal trust among team members was important in managing the iterative development of research work streams. Trusting relationships, characterised by an appreciation of one another's skills and abilities, enables researchers from diverse backgrounds to negotiate differences and uncertainty respectfully (Abou Hamdan et al., 2021; Settles et al., 2019). None of these experiences, however,

would have been possible without each participants' engagement with technology, given the geographical challenges presented by the participants workplace locations (Morrison-Smith & Ruiz, 2020), together with the impact of the Covid-19 global pandemic.

As such, the participants in this study highlight that competence in negotiating online communication platforms is essential for team success. In keeping with previous literature (Berka et al., 2014; Hartman et al., 2019; Jamali et al., 2014; Jeong & Choi, 2015) the virtual platform used by this collaborative research team provided a transparent, adaptable, and flexible means of communication through which real time decisions were made regarding specific projects. Furthermore, the use of the online platform to produce collaboratively written publishable works offered time pressured academics the opportunity to contribute to the teams work at times to suit their personal schedules, while the online meetings encouraged personal accountability (Hartman et al., 2019), resulting in increased productivity (Bossert et al., 2002).

While this study describes the experiences of academic staff across both New Zealand and Australia, the findings are likely to be generalisable across many academic disciplines. This is particularly relevant given the constraints placed on traditional research methods and meetings due to the Covid-19 global pandemic. As such, this study highlights that through using an online communication and writing platform, this collaborative research team were able to continue being productive throughout multiple lockdowns across both countries while simultaneously providing a feeling of connectedness during the anxiety provoking unknown of the pandemic.

This study offers, therefore, a robust insight into the benefits of creating and being a member of a collaborative research team through the experiences of academic staff from four institutions across two countries. As such, the findings of this study highlight the complex nature of developing a successful collaborative research team, including the need for authenticity, collegiality, participatory safety, and a desire to be productive for the advancement of knowledge. Moreover, it suggests that the complexity of these interrelated findings must be upheld by all members of the research team as a means of accountability to ensure successful outcomes. While, however, this research is focused on the practices of a collaborative research team in Oceania, these findings may be relevant to other research teams, particularly given the current restrictions on, and curtailment of, in person networking opportunities.

Conclusion

Collaborative teams enable researchers to work in productive relationships with like-minded colleagues. Working together in a multi-site collaborative research team brings together expertise across institutional boundaries, creating a greater pool of collective knowledge and skill, providing opportunities for

researchers to learn new approaches. Relationships between researchers are central in collaborative teams, particularly being able to feel safe and respect each other's capacity to participate in the research according to their strengths and limitations. The relationship between technology and teamwork is enabling for research teams, where capability with technology is at the core of an effective multi-site collaboration. The work of research, and relationships between researchers, are most productive when the process is enjoyable.

Limitations

This study presents findings from the experience of a small scale collaborative research team. While the research represents findings from three tertiary educational facilities in New Zealand, only one Australian University was represented. The nature of the NGT methodology, potentially limited the depth and richness in representations of participants' experiences. However, a strength of this technique was that data analysis was undertaken by the participants during the focus group, which aligned well with the collaborative approach the team had taken in conducting the research.

It was also situated in the researchers' experience of teamwork using the information technology strategies they had used to conduct the multi-site case study.

Author Contributions

Patricia McClunie-Trust: research conceptualisation, analysis, data curation, writing – original draft, writing – review and editing, visualisation, supervision, and administration; Virginia Jones: research conceptualisation, methodology, analysis, data curation, writing – original draft, writing – review and editing, visualisation, supervision, and administration'; Rhona Winnington: research conceptualisation and writing – review and editing; Kay Shannon: research conceptualisation and writing – review and editing; Andrea E Donaldson: research conceptualisation and writing – review and editing; Rachel Macdiarmid: research conceptualisation and writing – review and editing; Rebecca Jarden: research conceptualisation and writing – review and editing; Rosemary Turner: research conceptualisation and writing – review and editing; Eamon Merrick: research conceptualisation and writing – review and editing; Patrea Andersen: data curation, analysis – review and editing.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Appendix A

Items Listed in Response to the Question, *"What are the benefits for researchers of being involved in a collaborative longitudinal case study research project?"*

Statement	Rankings Received from participants 3 = Highest benefits 1 = Lowest Benefits
Sharing knowledge √√√	3
Working together √√	2
Teamwork √	1
Adaptability √√	2
Flexibility √√	2
Collegiality √√√	3
Safe positive environment √√	2
Learning √√√	3
Technology √√√	3
Meeting new collaborators	0
Social connection √	1
Mentorship √√	2
Innovation √√	2
Creative	0
Sense of belonging	0
Expertise √√	2
Research is fun	0
Respect for each other/common values	0

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