Creating collaborative capacity in early career research writers

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TEXT Special Issue 59: Creating communities: Collaboration in creative writing and research
eds Alex Philp, Ella Jeffery & Lee McGowan, October 2020

James Cook University and Purdue University

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Abstract:

Given evidence of enhanced productivity and citations achieved by collaborative writers, it is important for researchers to develop collaborative capacity (Abramo, D'Angelo & Di Costa 2009; McCarty, Jawitz, Hopkins & Goldman 2013). Our theoretical paper defines the concepts of Collaborative Capacity and Informed Research and incorporates them within a Collaborative Research Culture Framework. We also present five stories that illustrate how elements of the Framework, including Collaborative Capacity, can help the collaborative research writer to overcome challenges and engage successfully in collaborative opportunities. One story focuses on a student and supervisor collaboration to highlight the role of trust and respect; another describes how student collaborations can enrich and enable informal, formal and sanctioned networks; a third describes the innovation, inclusion and initiative achieved through writing collaboratively; a fourth demonstrates how leadership capacity facilitates the creation of a successful edited book, and the last examines how writers as informed researchers can engage with critical communities and resources.

All the stories occur in global and cross-disciplinary contexts and exemplify the potential for developing new collaborative writing approaches. While the stories are generic they are loosely based on collegially shared or reported experiences. The power of adopting a narrative approach in this paper is that it allows the exploration of the particular in ordinary, everyday instances (Clandinin 2013; Donnelly, Gabriel, Özkazanç-Pan & Kara 2013). The stories demonstrate how a writer can develop Collaborative Capacity, by showing leadership and being an informed researcher, supporting access to different networks, genres and media that progress their research endeavours within and across disciplines and sectors (e.g., government, industry, community and the non-profit). We conclude that the Framework enables strategic reflection by those seeking to successfully collaborate through development of Collaborative Capacity.

Biographical statement:

Susan Gasson is a Senior Lecturer in the Graduate Research School at James Cook University. Her research interests are in research education and early career research futures. She has published in highly ranked higher education journals and has a blog posted with the Research Whisperer.

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Queensland. Her research contributions focus on information literacy, higher education learning and teaching and higher degree research study and supervision. She authored *Seven Faces of Information Literacy*, and *Informed Learning,* and was lead editor of *Information Experience.* She works with colleagues on the application of informed learning theory to research and practice, and on developing new theory emerging from this process, notably informed systems, information experience, informed learning design and information experience design amongst others.

Dr. Clarence Maybee is an associate professor at Purdue University's Libraries and School of Information Studies. His research on information literacy in theoretical and applied contexts is published in highly ranked information science and higher education journals. Dr. Maybee is one of the leaders of a national program hosted by the Association of College and Research Libraries to develop librarians' teaching expertise. In 2018, Dr. Maybee authored the book, *IMPACT Learning: Librarians at the Forefront of Change in Higher Education,* published by Chandos Publishing.

Introduction and the context

This theoretical paper considers the collaborative research writer through the lens of a Collaborative Research Culture Framework (Gasson & Bruce 2020). The target audience for the framework is researchers and research communities seeking to establish, evaluate and maintain collaborations. The previous Framework identified three levels of collaborative research culture: trust and respect (Roots), shared interest groups (Fields), and inspiration, innovation and inclusion (Fruits) (Gasson & Bruce 2018). An examination of the role of the creative writer (Lynch, McGowan & Hancox 2017), the role of the researcher in collaboration (Rajalo & Vadi 2017) and researchers' information experiences (Bruce 2008; Maybee 2018; Somerville et al. 2019) led to the recognition that Collaborative Capacity should be included as an additional component of a revised Framework (Gasson & Bruce 2020). Through a comparison of the features of the creative writer and the role of the individual in collaboration, Collaborative Capacity was defined as being comprised of two elements: leadership (Browning, Thompson & Dawson 2017; Kok 2017; Torfing 2019) and Informed Research, which draws together a suite of information experiences for research, research collaboration and research writing (Bruce 2008). The incorporation of Collaborative Capacity extends the Framework to include explicit roles (i.e., leading and informing) for collaborators.

The Collaborative Research Culture Framework continues to be developed through engagement with the literature, discussions, experiences and reflection on the nature of collaboration and research, and is employed in workshops and conferences to support understanding of collaborative practices (Gasson & Bruce 2018). The value of collaboration for building research productivity and citations has been well documented (Abramo et al. 2009; Kumar 2015; McCarty et al. 2013). Challenges in building academic writing partnerships are often framed in terms of acknowledgement and author order, particularly for Early Career Researchers (Nicholas et al. 2017; Winston 1985). We propose that by making writers aware of the Framework it will support them to build and participate successfully in healthy and productive research writing collaborations.

The first layer of the Framework is the Roots of collaboration, where trust and respect are formed and nurtured. The Framework emphasises the importance of trust and respect in successful collaborations (Bozeman, Gaughan, Youtie, Slade & Rimes 2016; Bruneel, D'Este & Salter 2010; Sargent & Waters 2004; Tan 2016). The second layer is the Fields of collaboration, where informal, formal and sanctioned networking occurs, acknowledging the various expectations and outcomes of differing collaborative contexts (Garrett-Jones, Turpin, Burns, & Diment 2005). The third layer, the Fruits of collaboration, is where innovation, inspiration and inclusion are achieved as outcomes of successful collaboration, recognising the importance of monitoring and reporting collaborative outcomes (Payumo et al. 2017). The layers can be used to reflect on the development and maintenance of healthy and productive collaborations and the repair or closure of collaborations that are not supporting and enabling the researcher and their research community.

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We present five stories through the paper of the collaborative research writer operating across these layers using their Collaborative Capacity to illustrate its application. Collaborative Capacity is intended to articulate the significance of individual roles that engage information and encourage collaborative success (Rajalo & Vadi 2017), the key role of leadership in research, research management and research collaboration (Browning et al. 2017; Johnson 2012; Kok 2017; Lase & Hartijasti 2018) and the importance of information experiences for successful research, collaboration and writing (Bruce 1997, 2008; Maybee 2018; Somerville et al. 2019).

By introducing leadership to the Framework, we can now consider the role of leadership in collaboration as well as the leadership capacity of individual collaborators. Distributed leadership occurs in collaborations, and has a role in supporting and enabling research and the collaborative process (Torfing 2019). The notion of leadership applied in this Framework also resonates with notions of shared leadership:

> The key distinction between shared leadership and traditional leadership models is that the influence process involves more than just downward influence on subordinates by an appointed or elected leader. Rather, leadership is broadly distributed among a set of individuals instead of centralised in the hands of a single individual who acts in the role of superior. In this project, organisational members are enabled through information-centred workplace learning facilitated by co-designed organisational systems. (Somerville & Howard 2010)

Leadership within the Framework is demonstrated where a researcher shows the capacity to activate collaboration. Stories are used to demonstrate leadership, as researchers contribute to the writing process by setting timelines, identifying potential writing projects, modelling writing and research practices and guiding and providing feedback to other writers.

Discussions about informed learning design (Maybee 2018) and the informed learner (Bruce 2008) led us to reframe the seven faces of information literacy (Bruce 1997) to meet the needs of the collaborative research writer. We constructed the concept of informed research to engage with information systems (Somerville et al. 2019), research professionals and research stakeholders (Browning et al. 2017; Kok 2017). Systems, professionals and stakeholders contribute to the richness of research and writing processes by focusing on access and engagement with information, data, training and equipment. The five stories illustrate differing Informed Research contexts and how they were applied to support research writing collaborations.

The purpose of the paper is to focus on how Collaborative Capacity building can occur. In doing this we also speak to the nature and function of Collaborative Capacity within the Collaborative Research Culture Framework. Our aim is not to provide an exhaustive list of strategies and systems, but to emphasise some common practices of successful and productive collaborators that may assist the collaborative research writer to build their capacity, overcome challenges and realise opportunities. The use of stories acknowledges the power of stories to present the specific and to highlight practice (Clandinin 2016) and they have been designed to

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reveal contexts and practices that are relevant and meaningful to those seeking to work as collaborative research writers.

The Collaborative Research Culture Framework

The Framework was developed through an ongoing process of reviewing and analysing the literature (Ceballos, Galeano, Juarez & Cantu-Ortiz 2017; Pare 2019; Ratten, Braga & Marques 2018), reflection on collaborative research experiences between co-authors and discussions using the Framework in a range of contexts including conferences, workshops and seminars (Gasson & Bruce 2019). A suite of resources, based on the Framework, have been developed to support the delivery of workshop and seminar offerings. The discussions in workshops and seminars support the continuing refinement of the Framework. The addition of the Leaves of Collaborative Capacity to the Framework is intended to highlight that leadership and informed research are explicit activities individuals should be aware of in developing and maintaining collaborations.

As noted above the Collaborative Research Culture Framework is composed of three layers the Roots, Fields and Fruits of collaboration. To optimise the success of a collaboration a culture of trust and respect must spring from the Roots. Trust and respect can be challenged where researchers are in competition or have conflicting views about method, theoretical perspective or desired outcomes. Collaborations come in different forms and with differing levels of formality, contributing differently to the researcher's fields of opportunity. The time and energy expended to maintain networks is rewarded when research outcomes are achieved. While an individual may initially seek specific publications and grants as outcomes of collaboration, overtime the fruits of collaboration may be far more long lasting and far reaching. Outcomes may be unexpected involving: different ways of researching, higher levels of impact or longer term career benefits as suggested by the Fruits: inspiration, innovation and inclusion. Collaborative Capacity is shown as leaves of different sizes and compositions. These leaves grow from the roots, appear in the fields and form around the fruits growing with the collaboration.

Collaborative research writers may participate across all the layers and levels of the Framework. A challenge for each collaborative research writer is to determine the necessary capacity required from them to ensure the sustainability and success of the collaboration. Variability in the capacity required is illustrated in the Framework by the varying sizes and compositions of the leaves. Application of sufficient and appropriate Collaborative Capacity is essential to the realisation of fruits of good quality and quantity. Capacity also ensures continuity of meaningful access to valued Fields. The application of Collaborative Capacity is required to demonstrate and inspire continuation of trust and respect, thus activating collaboration.

To inform the discussion of the Framework (Gasson & Bruce 2020) is provided below for reference:

Figure 1: Collaborative Research Culture Framework V3

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The Roots of collaboration

An introduction to the Roots of collaboration

The beginnings of any collaboration can be found in the establishment of trust and respect between the collaborators. A sustainable and successful collaborative relationship is one where trust and respect evolves over time (Bruneel et al. 2010). The writing process requires a level of risk taking and experimentation. Trust can be seen occurring when a person has sufficient confidence to reveal their vulnerability to others (Bouty 2000; Bozeman et al. 2016). Disclosing first drafts requires that the relationship is strong enough to endure the challenge of requesting and receiving feedback and scholarly review. Without trust the candidate or Early Career Researcher is unable to provide a draft of their thesis to their supervisor, fearing the work is flawed. Similarly more mature researchers may be cautious about exposing their writing to peers, or sending it for review. Respect involves a willingness to listen to, acknowledge and take shared accountability for alternative perspectives and value systems (Bozeman et al. 2016; Sargent & Waters 2004; Seeberg & Qiang 2012). Without respect, harsh and critical journal, or grant reviewer comments, can lead the authors to call a halt to the writing process. Respect for the review process will allow the writer to see that the provision of extensive feedback as evidence of time invested because of engagement and enthusiasm for the work. Trust and respect need to be demonstrated and modelled at every step of collaboration if writers and writers as reviewers are to work together successfully. For co-authors this may involve adoption of common work styles, timely feedback loops and discussion fora where new ideas and information are considered to progress creative and research processes.

The Roots of collaboration at work within the framework

Trust and respect operates within the fields and fruits of collaboration, and is evidenced in the participants' Collaborative Capacity. Trust and respect for the self and collaborators is critical to creating, maintaining and extending a successful writing group. The ability to appreciate the value of collaboration, while being aware of the competitive context that may surround some research groups and activities, can challenge the level of trust and respect that can be achieved (Van, Hemlin & Van 2012). Though groups have been able to work and produce output with minimal levels of trust and respect, lack of these values will impact the quality of the output, as collaborators fail to exchange information, make resources available, or establish shared and productive knowledge creation processes (Bouty 2000; Ring & Van de Ven 1992; Stead & Harrington 2000). 'To sustain over time, the participants need to hold shared values, to understand and respect each other's personal-social identity, and to act equitably' (Seeberg & Qiang 2012: 239). Lack of trust and respect may lead to one member of the group taking the lead on all writing, while others fail to contribute; or members working competitively and not taking advantage of the potential benefits offered by collaborators.

Story One – Student and supervisor collaboration – Trust & Respect

Our tale begins when Olaf and Amelia enrol independently in PhD studies. Amelia is deeply invested in producing quality scholarly outputs as her studies are sponsored by a national funding scheme that requires thesis by publication. She also aspires to a career as a creative writer and is planning a book to include as part of the thesis. Olaf's project depends on access to data from a community organisation. He is keen to ensure that his research outcomes benefit the community, and that he can demonstrate the social impact of his work, to ensure future employability in the sector. Stories they have heard have made them aware of potential challenges in student and advisor collaborative writing relationships.

Their enrolling institutions require documentation of discussions about possible collaboration between student and supervisor. This opens the way for Olaf and Amelia to approach their advisors and explore their concerns. As both are doing interdisciplinary research, they receive very different advice from supervisors in different disciplines about authorship and collaborative arrangements and the potential for scholarly and creative outputs.

Olaf and Amelia both learn which advisors are more amenable to writing with them in particular spaces, and are more able to make the team work effectively. Based on early experience they learn who to rely on at different phases of the writing process, and are encouraged to seek out trusted critical friends and peers to ensure rigorous review and input. Amelia has carefully chosen an advisor who she believes can support her practice as a creative writer, and builds a peer and mentoring researcher network to learn the best academic publications to target and the strategies for successfully submitting creative work to publishers. Olaf must find research and community networks that are sympathetic to his intended social impact, though his advisors are keen to help and learn from his experience within the field. He must consider how best to disseminate his findings and learnings using social media, opinion leaders and influential stakeholder groups that he needs to engage with to conduct and ensure the social impact of his research. Their immediate writing communities are their advisory teams and critical friends. They each have a set of disciplinary rules to learn, in time the rules help them develop realistic dissemination plans.

Olaf is initially resistant to the rules as articulated by his supervisory team to meet his goals. He fears that he may be seen as manipulative of or manipulated by various interest groups and not true to his research objectives. Amelia readily accepts the rules, wishing to progress her publication plan. However, later she comes to feel resistance and resentment toward the rules as she realises these rules will constrain the scope and range of the research achievable during her PhD.

They must come to **trust and respect** their supervisors sufficiently to follow the rules as provided, or to be able to negotiate alternative goals and rules. If they cannot share their concerns and overcome them then there will be challenges in

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maintaining a working relationship with their supervisors and in realising their goals. Their collaborative creative writing potential will be compromised by lack of trust and respect.

Fields of collaboration

An introduction to the Fields of collaboration

The ability to network is important for collaborative success across three Fields: the informal, the formal and the sanctioned. Fields are separated to support conceptualisation and discussion, however, it is understood that they are not in reality discrete and separate. Research writers may operate across these Fields, depending on the type of writing activities and writing partners they have or wish to engage in or with. Informal networks involve professional friendships, formed as shared interests lead to mutual trust and respect. Formal communities include organisational groups, that bring together individuals with shared interests and expertise, who are required to work on strategically defined projects. Sanctioned research communities are typically individuals from disparate sites whose collaborative work is governed and defined by funding or other contracts that articulate the achievement of set outcomes.

The Fields at work within the Framework

The researcher can use different Fields, to build confidence in themselves and others. In informal fields they can test the strength of their writing and thinking with trusted friends. Valued feedback that shows respect for their contribution will help them progress, to engage in collaborative research activities with others in more formal networks. Having the support of a formal research community, particularly for an Early Career Researcher, will support the approval of formal agreements that frame sanctioned networks with other research groups as well as funding or publishing agencies.

> *Story Two – Student to student collaboration - Fields*
>
> Olaf and Amelia are encouraged, to become part of a student research community involving students from across the discipline, to offer each other support. This includes **informally** meeting for coffee or lunch to discuss how their research is progressing and sharing resources they may discover through their independent investigations. They also participate in more **formal** events where they see presentations and may have the opportunity to contribute by giving feedback on written and oral work. Events may range from student conferences to workshops and doctoral milestone events. Excitingly as they build confidence and perspective and pass confirmation they are eligible to seek formally **sanctioned** funding to participate in national and international meetings.
>
> Students in the community help each other by sharing friendship networks globally to access cheaper accommodation. They also share tips as individuals learn to use

Dropbox and Google Docs while travelling, and confront the need to use different online abstract submission tools. Through reviewing the work of others they come to appreciate the challenges of getting and giving written feedback, and providing timely feedback when drafts arrive at times when they are busy. They learn to give measured feedback that is clear and specific about changes required, as well as acknowledging positive aspects of the work reviewed. The standard of the work of the group improves further as they share valuable advice and insights from their various advisory panels. They appreciate a key role of their feedback is to inspire and enable creation of a new and improved draft. Models from supervisors and open peer feedback supports continuous improvement as students come to gain confidence and shape their identities as reviewers and writers.

Olaf appreciates the exemplars of academic writing he is asked to review that are to be submitted to high end journals. He is able to consider how his writing would stand up should he wish to get scholarly publications. He enjoys Amelia's creative works and decides to learn more about reflection, the approach she uses to explore her writing practice. Amelia is grateful to learn about a range of social media Olaf is using to share ideas and information about his research. She realises there will come a time when her potential to be published as a creative author will be enhanced through reaching out to non-academic audiences.

Olaf identifies through a friend at another university, a student group operating globally to discuss a research method of interest to him. He shares the link to the group with others and some join. They notice people in the global group are regularly using Twitter to communicate about their research achievements. Olaf can see this may lead to higher citation rates as well as augmenting his research network.

Fruits of collaboration

An introduction to the Fruits of collaboration

Innovation, inspiration and inclusion, the Fruits of collaboration, may occur synchronously, and can vary depending on the capacity of the writer, and factors such as access to knowledge management tools and expertise. The quality and quantity of innovation, inspiration and inclusion can be used to evaluate of the health of a collaborative research culture. The capacity to realise the Fruits, and their attendant outputs such as papers, patents, grant applications or creative works, relies on shared understandings between the collaborators about the objectives of their work and their outcomes. These shared understandings cannot be assumed, particularly in terms of the value placed on knowledge (Bruneel et al. 2010). For researchers, their position and prestige in the research world relies on the capacity to disseminate their research outcomes widely in quality journals, while for creative writers the value of new innovation and inspiration is essential for their success in generating creative work that secures new outlets and audiences.

The Fruits at work within the Framework

The benefits of networking and collaboration for the research writer, are spelled out in the Fruits. Knowledge sharing and collaborative learning lead to the potential for innovation, inspiration and inclusion (Ratten et al. 2018; Torfing 2019). **Innovation** is stimulated in collaborative contexts where the researcher can readily access knowledge and learn about different ideas and approaches (Ratten et al. 2018). As the nature of problems become more complex and globally focused, the potential for individuals to work independently to solve them has become increasingly unrealistic. The move to collaboration is a natural next step to solutions driven researchers, as they seek to access the required information to meet Grand Societal Challenges (Jakobsen, Fløysand & Overton 2019). Innovation can be measured in patents and the social impact of applied contributions to industry and the community.

Researchers seeking **inspiration** will find it in collaborative opportunities, where they can access different resources or facilities and exposure to new questions or different challenges (Haman & Hertzum 2019). Inspiration can be measured in the development of grant applications, and the formation of new formal and sanctioned research networks.

Collaboration also offers researchers the chance to be included and prompts them to ensure their research is inclusive. One challenge often referenced is establishing authorship and ownership of new knowledge. The ability to resolve authorship and ownership is essential if the impact of the fruits generated are to be realised. Inclusive acknowledgment of disciplinary norms, regarding authorship and publication, need to be accounted for and negotiated with care (Bozeman et al. 2016). **Inclusion** represents the opportunity to benefit from communicating in novel ways with different audiences. Inclusion can be measured in co-authored publications and acknowledgements in reports, and evidence of contributions from different voices in various social media used for sharing collaborative research outcomes.

> #### *Story Three – Collaborators seeking inspiration – Fruits*
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> On submitting his thesis for examination Olaf had also generated a community blog, a chapter in an edited book, reported at the annual meeting of his community group and travelled overseas to present his findings at an international conference. He took a leaderly role in preparing the publication plan that led to these outcomes. He included in the plan questions about how to fund his trip, if he could host the blog on a university server, the need for advisors to attend the community meeting and proposed authorship and acknowledgements. This thoughtful management of planning helped guide timely conversations and resolution of issues to support the realisation of his goals.
>
> On returning to work in the community Olaf missed undertaking scholarly work, and was inspired to write up two journal articles from the thesis. He took the lead in asking his advisors to co-author work and support the write up, they readily engaged, reassured again by the detail in the publication plan presented. In turn his advisors asked him to host a new PhD student who was looking for a three month industry internship. Olaf allowed the student to shadow him as he developed and

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wrote up the community group's strategic plan. The student saw the plan as a perfect example of the practices he wished to examine in his thesis and asked if Olaf could be an external advisor so they could include his valuable insights on the business side of the planning process. Olaf enjoyed supporting the write up of the thesis that included a reflection on the process used in developing the plan. In reviewing the thesis he discovered some techniques and approaches that he decided to incorporate to improve the planning process for the following year. When he mentioned this in conversation his advisors and the student offered to contribute to future research exploring continuous improvement in planning.

Amelia on submission of her thesis had written two academic papers and one creative work and a chapter in an edited book. The creative work, included as an exegetical component, was the focus of discussion in the analytical paper. Most of her works had been sole-authored, consistent with disciplinary practice. Her engagement in social media supported promotion of her proposed creative work and led to a publishing house taking interest in the work. She maintained contact with supervisors through a writing café they had encouraged her to join where new works were launched. She had approached them for advice about a publication house and they had helped her find a literary agent who also managed the café.

Her chapter in the edited book led to an invitation to speak at an international conference. She approached the invitation cautiously, checking that it was not a predatory conference before accepting the invitation. In accepting the invitation she asked if the hosting university would like her to run a short seminar or workshop for students. A key researcher in her area from the host university readily accepted the offer and they also arranged time to catch up and talk about their shared interests while she was at the conference.

Amelia and Olaf have remained in contact and are considering working on an edited book together. They wish to include chapters by people from their diverse networks. Based on their experiences in contributing to such a book they are confident they can inspire others and understand the workload involved. Their co-authored chapter will spell out the innovative contribution made by the diverse approaches presented. That innovation is possible because of the inclusion of such a diverse group of authors from a range of business sectors and community groups as well as the academy and government.

The Leaves of Collaborative Capacity – An introduction to Leadership

Leadership is one of the two aspects of Collaborative Capacity used in the Collaborative Research Culture Framework. Leadership is seen as a key strategy for ensuring collaboration is well managed (Bozeman et al. 2016). Leaders, and leadership roles can be critical in establishing management practices, and in building successful collaborative groups. Key leadership roles include approving, if not establishing, most aspects of collaboration (i.e., managing budgets, authorising access, approving travel, as well as, supervising and mentoring

others) (Travaille & Hendriks 2010), and negotiating with each collaborative research writer the role they will play in leading the collaboration.

Leadership at work within the Framework

Leadership roles can support a culture of collaboration by modelling suitable collaborative researcher practices. Suitable researcher practices include those that champion research policy and process, and that support the development of trust and respect within and beyond the disciplinary team (López-yáñez & Altopiedi 2015). 'Leadership of collaborative innovation is essentially distributive, horizontal and adaptive, and seeks to respect the self-regulating character of collaborative innovation processes' (Torfing 2019: 8). Leadership is shared across the research team in ways that enhance use of information and active collaboration (Somerville & Howard 2010). All collaborators have the potential to demonstrate leadership within their areas of expertise and in the practice of collaboration.

> *Story Four – Collaborating on an edited book or journal – Leadership*
>
> As PhD students Olaf and Amelia initially maintained contact within their research community while not working or writing together. They are approached as part of that research community to contribute a chapter to a book that will draw on their expertise but also require them to articulate their emerging theoretical positions as part of a unified book. Ultimately the book will have up to 25 separately authored chapters representing diverse disciplinary and theoretical positions with the intention of articulating a new transdisciplinary research domain.
>
> Olaf is initially reticent to dedicate time to the chapter, given that book chapters are not highly valued within his discipline. Amelia is unsure if her creative perspectives will be acknowledged by a wider scholarly community. Once they see the author list, they appreciate the potential prestige of being associated with the publication. As their chapters develop they are closely mentored by the editorial team, who have a clear vision for the book, and are given the opportunity to review transcripts of fellow contributors. As a result they become increasingly aware of the standard of writing required, and of the potential scholarly impact and application of their work resulting from being part of the book.
>
> Their final acceptance to contribute rested on their willingness to trust and respect the editorial team's advice and guidance. The opportunity to contribute ultimately exposed them to a strong **leadership** model that helped them to develop their identities as emerging discipline field leaders. The result of the global explosion of the new discipline articulated in the book saw Olaf and Amelia receiving invitations in the years to come to keynote at international conferences and develop resources and academic articles that furthered their profiles and perspectives.

An introduction to Informed Research

Informed Research is the second element of Collaborative Capacity articulated in the Collaborative Research Culture Framework (2020). The concept of Informed Research builds on the earlier notion of Informed Learning (Bruce 1997). Informed Research may encompass a range of information experiences in the conduct of research including information awareness, control, construction, extension, and wisdom. Informed researchers can identify and access networks and systems that will lead them to appropriate sources of information. Informed researchers can also compile and analyse that information in meaningful ways and apply that information within their research collaborations to guide thinking and writing that will both generate new knowledge and apply it in ways that benefit society.

Informed Research at work within the Framework

To develop as a community of informed researchers, collaborators will engage with resources and networks within and beyond the research discipline including systems, research services professionals and the wider community. The capacity to evaluate information sources, retrieve and manage information, and use it in the creation and application of new knowledge is essential if the collaborative research writer is to make a contribution within a collaborative research community.

> *Story Five – Informing partners support research - Informed researchers*
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> Olaf and Amelia were high performing coursework students. However, they both had a break before undertaking their research studies. When connecting with library, research office and career staff at course orientations they both identified reasons for maintaining contact to support their research and researcher development. Amelia was deeply grateful for help in avoiding predatory publishers, while Olaf benefited from advice on resources for locating materials for his literature review and methods chapters. In examining the literature, both Olaf and Amelia recognised how their research topics were explored from various theoretical perspectives within the field. Prompting discussions with advisors, other students, librarians and other professionals, led them to further hone their research questions building on ideas encountered in the literature.
>
> Research staff opened doors to research grant opportunities, offered advice on grant writing and resources to ensure they could comply with globally agreed codes of research conduct. Knowing the requirements, understanding how to navigate intellectual property and collaborative agreements, and funding and ethics applications enhanced their ability to extend knowledge through innovative endeavours by capitalising on opportunities made possible through research grants.
>
> Olaf chose to participate in a mentoring program during candidature and Amelia worked hard after graduation to get high exposure of her creative work through social media and online discussion fora. Olaf was able to use information gathered online to locate a position that allowed him to use the knowledge emerging from

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his research to benefit his local community. Fostering her creative side, Amelia used online networks to connect with like-minded individuals and eventually located a position in which she designed and taught creative writing workshops for undergraduate students.

As Early Career Researchers Olaf and Amelia kept in contact with their student research community, their supervisors and those who had deepened their informed research experiences. Having access to examples of writing for different audiences and feeling confident about discussing social and professional issues in online discussion fora was a valuable part of life beyond the PhD.

They continued to exchange ideas and knowledge about how to join and participate effectively in networks, accepting invitations to speak to share their knowledge with new students and mentor more advanced students. They also came to see how their ability to access and use information continuously influenced their industry and community engagement and the potential social impact of their work.

Reflections on application of the Framework

In moving the discussion of the Framework into the collaborative research writer context our intention is to demonstrate the Framework's potential to support writers to overcome challenges and take advantage of opportunities offered through collaboration. The application of the Framework to the writer has allowed us to consider how collaboration supports the development of the writer and their ability to navigate new and existing collaborative writing contexts. The aim is to demonstrate the potential pivotal role collaboration can play particularly for the developing writer. Building a collaboration requires deliberate attention and strategic consideration from the writer:

- Who do they trust and respect enough to write with?
- What collaborative writing opportunities are available?
- Can they see a role in those collaborations for themselves as a leader and for informed research?
- Is it a role they can dedicate the required time and resources to complete?

The Framework is intended to assist the collaborative research writer to consider these, and other questions, as they develop their individual Collaborative Capacity. Reflection using the Framework would be an effective professional development activity for writers, helping them to build their Collaborative Capacity and collaborations.

Conclusion including limitations and future work

The benefit of collaboration for writers has been demonstrated as increasing productivity, and co-authorship has been shown to increase citation rates (Abrams & Nolan 2016; McCarty et al.

2013). The cultural Framework (i.e., the roots, fields, fruits and leaves of collaboration) has previously focused attention on the importance of trust and respect for those wishing to build effective and sustainable collaborations (Gasson & Bruce 2019b).

The Framework has been used in this article to present stories of collaborative writing experiences and processes. The Roots stories highlight that by attending to issues associated with resourcing, timelines and outputs, writers can show trust and respect for their collaborators, and realise longer term engagement with key stakeholders. The Fields stories illustrate levels of formality required to gain access to new ideas and approaches, and engage in novel collaborative spaces. The Fruits stories encourage recognition of a range of outcomes that contribute to ongoing success in collaborative research, and personal goals and expectations. To encourage development of research writer collaborators the revised version of the Framework has been developed (Gasson & Bruce 2020). There are three contributions derived from the revised Framework.

The first theoretical contribution of the article is to incorporate Collaborative Capacity into the Framework. Collaborative Capacity is defined as leadership and Informed Research. The concept responds to literature that speaks to the role of leadership and the information literacy experiences of the researcher in collaboration. The second theoretical contribution is the concept of Informed Research and its incorporation within Collaborative Capacity. Informed Research is defined as the role of informed learning when applied to the researcher experience.

The practical contribution is making explicit the role of Collaborative Capacity in collaboration. The Framework and stories illustrate capacity that can be applied in response to the needs of the collaboration and the skills, and roles of the collaborators. The varying sizes and compositions of the leaves in the Framework speaks to the dynamic nature of the collaborative process, conveying diverse approaches to collaboration. The stories provide examples of leadership and Informed Research operating in research collaborations, reinforcing the need for capacity to respond to the collaborative context. The stories demonstrate the various benefits of collaborative research writing, and the numerous ways Collaborative Capacity can be exhibited in the life of the collaborative research writer.

The Leaves of Collaborative Capacity prompt the research writer to reflect on how leadership and Informed Research can support a research collaboration. Some may discover that they need to build their capacity to effectively participate and engage. Others may need to consider how they can apply their capacity in a complementary way, accounting for the contributions of other collaborators. Examining Collaborative Capacity is a way of ensuring readiness to commit to a collaboration or of considering ways to support a collaboration that may be experiencing challenges.

Limitations of the current study are its largely theoretical perspective. In future work researchers may look for evidence of the Framework operating in collaborative contexts; seek to apply the framework to report collaborative outcomes and impacts, or to document the Framework's influence on the establishment of or repair of a collaboration.

The Framework, and associated resources are available for anyone to use in professional development activities or other discussions aimed at supporting understanding and formation of Collaborative Capacity to support writing success.

Available resources

An audiovisual presentation explaining the [Framework](#) (Gasson & Bruce 2019)
A workbook [What happens if I collaborate](#) (Bruce & Gasson 2017)
The Collaborative Research Culture Framework [Version 3](#) (Gasson & Bruce 2020)

Acknowledgements

The authors wish to acknowledge the contribution of those who supported discussion of the framework at key events. They acknowledge:

- Co-presenters Sandra Nordahl, Director of Contracting and Compliance San Diego State University Research Foundation and Silke Blom, Director of Research, SOAS University of London with whom Susan Gasson presented a session on *Global Research Projects: Making them work*, at the Society of Research Administrators Meeting on October 2017 in Vancouver, Canada

- Catherine Arden; Marcus Harmes who co-hosted Professor Christine Bruce who presented an *Eminent Visiting Scholar program* in September 2017 at the University of Southern Queensland

- Catherine Arden; Marcus Harmes, Douglas Eacersall who co-hosted a SoLASE Seminar, *Exploring a Research Collaboration Framework*, with Professor Christine Bruce and Susan Gasson in August 2018 at the University of Southern Queensland

- The Quality in Postgraduate Research Conference, April 2018, where the authors presented an earlier iteration of this framework.

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