Developing research skills and capability in higher education: Combining collaborative research with mentoring

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Abstract

Mentoring provides an effective way of assisting emerging researchers to understand more fully how academics engage in research activities, enhance their research skills and gain confidence in pursuing their own research interests. Although mentoring can be constructed in diverse ways, the most valuable mentoring is that tailored appropriately to meet the developmental needs of the mentee (Brown & Daly, 2009). In this paper we examine mentoring as a form of researcher development and our own approach which emphasises mentoring with, and alongside, other researchers. Two academics assembled a research team for a collaborative project and, while they oversaw the project, roles were assigned to individuals through discussion and consensus. This paper identifies the parameters for the collaborative venture, identifies the focus for mentoring and provides the reflections of the two mentees who look back on their experiences of being part of a research team. We affirm our contention that mentoring can be an evolving process as well as an active relationship in which assistance and reflection go hand in hand. The narratives provided by the mentees indicate that mentoring as part of a collaborative research project is not an occurrence, but an ongoing developmental process and an opportunity to learn and contribute simultaneously.

Keywords: *Tertiary research; mentoring; research culture; collaborative research*

Introduction

Internationally, the higher education environment is undergoing continual change. New Zealand is no different, having experienced changes to the funding of tertiary institutions over the last two decades (Mapp, 2009). Within this context there is often a tension for experienced academics in fulfilling professional responsibilities, meeting personal objectives, and supporting and nurturing newer researchers. The increasing quantity and speed of demands now placed upon academics can result in the stifling of quality mentoring (Mullen, 2007), yet supporting emerging researchers to extend their skills and expertise is of benefit to both academe and the researching community, especially in the context of increased performance expectations (Lee & Boyd, 2003). Despite this tension, many academics do work to guide younger (or more junior) colleagues and postgraduate students into the practices that are useful for negotiating the research terrain.

This paper provides insight into the perspectives of two emerging researchers who, when invited into a research team, experienced informal mentoring from two more-experienced researchers. They worked within a developmental (or evolving) mode, favoured by Brown and Daly (2009), placing mentoring at the core of a collaborative research enterprise. Ritchie and Rigano (2007) have observed that collaborative research can build confidence in newer researchers. By dovetailing collaborative research relationships, with the aim to support researcher "transition to independence" (Brown & Daly, 2009, p. 311), the two researchers combined professional responsibility with professional support. Ritchie and Rigano (2007) claim that researchers, who have worked to develop solid mentoring relationships, should consider articulating their roles and contributions through publications while Zellers, Howard and Barcic (2008) also recommend that there should be increased

publication of the actual experiences of mentoring from the mentees' perspectives. This paper addresses those imperatives.

While many academics in higher education are encouraged and sometimes pressured by their institution to undertake individual research, some choose to work in teams, preferring the collaborative model. The advantage of working with other researchers is that skills and expertise can be pooled via multiple contributions, often resulting in a higher quality outcome (Smith, 2001). Working alongside others can create a supportive environment where the workload is shared and research capability enhanced. However, in New Zealand there is a demand for activities that are focused upon high productivity, especially at the individual level. Thus emerges a conflict for some academics, between institutionally-driven individual accountabilities and their recognition of wider professional objectives that might include collaboration and mentoring.

While we acknowledge these conflicting challenges, in this paper we offer our perspectives on the strengths of collaborative research and in particular, the potential for researchers to integrate the team research process with the mentoring of 'emerging' researchers. Collaborative research can provide a useful mechanism for accessing and developing different perspectives, gaining extra methodological skills and developing greater confidence through the support of colleagues and peers (Ritchie & Rigano, 2007). This team approach also offers a useful means for mentoring less-experienced researchers and postgraduate students who can actively contribute and learn within a research community of practice (Harris, Freeman, & Aerni, 2009). Thus, collaboration and mentoring can occur together, providing an opportunity for developing positive academic relationships, producing research outputs and enhancing research capability. Coffin and Leithwood (2000) have identified the positive spin-offs from collective researching for both institutional relationships and academic partnerships, although it must be noted that not all collaborative ventures are successful (Goddard, Cranston, & Billot, 2006). We reflect critically on this issue by looking back on the process of a research project which aimed to examine research undertakings in higher education, while at the same time facilitating the mentoring of newer researchers.

Firstly, the authors examine mentoring as a form of researcher development and discuss how the mentoring relationship can be beneficial to all parties. Secondly, we examine how mentoring can be incorporated into a research enterprise. We draw on Crow and Matthews (1997) who believe that mentoring is not only a form of guidance and advice, but a means of showing and teaching others to work things out for themselves. By identifying the research project as a collaborative venture, we draw together the processes of collaboration and mentoring. Although working in teams is sometimes much more challenging and slower than doing research alone, we believe that it is one of the professional duties of academics to show guidance to research students and involve them in projects. The parties can learn from each other, gain satisfaction and increased competency, as well as earn an enhanced reputation through the successful outcomes of a project. In this paper there are four voices: those of the two project initiators and those of two of the postgraduate students, who explain their personal experiences of being a research mentee.

Finally, we offer suggestions for future collaborative and mentoring practices, noting how some design and relational issues may work more effectively than others. Our deliberations on the outcomes of the collaborative project remain positive, yet we can also identify forms of improvement. In this co-authored paper, we personalise our contributions. When the principal researchers (and mentors) speak as mentors, the pronoun '*we*' is used (italicised to differentiate it from when the co-authors are writing collectively) and when the mentored researchers provide their stories, their narratives will use the first person pronoun 'I'. In the conclusion we provide a collective perspective.

Background

The tertiary research environment in New Zealand has shifted over the last two decades with an increased focus on productivity and accountability of all parties. In particular, there is a changed significance to research productivity which is now tied to external institutional funding (Middleton, 2005). Since academics work within institutional constraints and sector parameters, evaluating the mode of work requires consideration. Institutional funding is obtained through an assessment of an institution's collective productivity, with a significant emphasis placed upon external assessment through the Performance-Based Research Fund (PBRF). A significant component of this assessment is through the evaluation of individual academic outputs and contributions. While the PBRF has resulted in a more obvious institutional focus on research productivity, since the academic has become the unit of external assessment, one unintended consequence has been a reduced value for collaborative work, a mode often appreciated by academic staff.

External policies now require tertiary institutions to reach certain performance levels and so there has been an institutional thrust to extend research capacity and capability. This has been accompanied by a refocused pressure on individual staff to lift their research productivity and work on exclusive and particularised outcomes. While these issues may seem closely inter-related, it has been observed across the sector that there exists some misalignment between them (Billot & Codling, forthcoming). Since institutional funding is partly derived from the research activity of individual staff, one might expect that a tertiary institution would construct a supportive and thriving research environment so that individuals could research more effectively.

The emphasis on individual performance is tied to promotion and seniority in an institution, so it is not surprising to observe that academic staff are placed in a compromised position. On the one hand, promotion and seniority depend on individual outputs, yet academics also place value on an environment that comprises collegiality and collaboration. Since the nature of the academic context is fundamental to staff allegiance and cooperation with institutional objectives, it is ironic to observe the tension that has arisen between institutional agendas and individual purpose and focus. Amidst this potential clash of values and goals, less experienced academics are striving to cope with an unfamiliar territory, one that comprises change and conflict.

So within this milieu, our team undertook a collaborative endeavour with a strong yet informal mentoring component. The rationale for the project initiation was due to the principal researchers believing that there is a need to induct budding academics, including research assistants and postgraduate students, into research teams. This encouragement enables them to act as full partners, rather than merely being allocated tasks of coding, transcribing or undertaking the tasks that are considered to be more mundane (Angelique, Kyle, & Taylor, 2002).

Mentoring

Mentoring has multiple interpretations, but Crow and Matthews (1997) provide a helpful insight into its meaning. By tracing the history of the term, they identify its conceptual nature, through 'mentoring as teaching' and protection of the less experienced, through to guidance in a dynamic context. Essentially, they view mentoring as a focus on the development of individuals. Similarly, Roberts (2000) saw mentoring as a process, in particular a supportive relationship, one that involved helping, reflecting, career development and acted as a teaching-learning process.

There are varied options for mentoring, ranging through formalised programmes, to peer mentoring (where individuals are usually at the same stage, age or experience level) or informally developed mentoring. Mullen and Hutinger (2008) have reported on a formalised process in which they identify specific roles and a

practice which is assessed through participant feedback in order to make improvements. This type of programme is institutionalised and often represents an effort to "reculture organisations" (p. 200). Zellers et al. (2008) recommend that the context for formalised mentoring needs careful evaluation, for organisational circumstances demand different outcomes, while Bouquillon, Sosik and Lee (2005) warn of the need to customise training for mentors and protégés in such programmes. Angelique et al. (2002) identify peer mentoring as different from formalised mentoring, in that "mutuality rather than complementarity" characterises the relationship (p. 199).

Angelique et al. (2002) provide a further and different interpretation of mentoring where "social justice is placed in the foreground, so that power relations within the group are always open and able to be challenged" (p. 205). Within this scenario, members find themselves as co-researchers in their objectives for improving skills and advancing their careers. "Musing" (p. 205) replaces mentoring, the term *musing* being used to emphasise the focus on the people involved. Angelique et al. view this process as an action "rather than a static concept" (p. 205). The foundations of musing involve the connections of naturally developing relationships, the valuing of interdisciplinary differences as a source of enrichment, the implementation of shared power (op cit.), and the development of both professional and personal relationships.

A further perspective on mentoring is provided by Brown and Daly (2009), who used a developmental approach to the mentoring relationship, stating that "the astute mentor is aware of important developmental differences [within mentees] and consequently applies an appropriate developmental approach when mentoring" (p. 307). Mentees can benefit by understanding how professionals address research challenges and "work on real problems" (p. 307). This approach is similar to that identified by Buell (2004), who identified an 'apprentice model' in which the 'apprentice' works *with* a mentor in order to become a more proficient professional.

While mentoring models vary, in effect the priority is for the mentor to provide a significant role model for a mentee's future progress. The primary aim for mentoring is the extension of capabilities and skills so allowances need to be made for different interpersonal styles and expectations. Mentees already undertaking postgraduate research are more able to apply themselves to the more sophisticated aspects of a research project, although they do need to juggle their responsibilities carefully. While benefits are more usually identified for mentees, mentors also gain personal satisfaction and with self reflection can also learn from the experience. The level of trust between all parties enhances compatibility and this is facilitated through "honest, transparent, and straightforward communication, empathy, positive regard and genuineness on the part of the mentor" (Brown & Daly, 2009, p. 311).

Within the research project referred to in this paper, the two principal researchers (Jennie and Richard) specifically aimed to mentor less experienced researchers (Reshmi and Jiao) and while the intention was explicit between them, it was not stated directly to the research team. In effect *we* unknowingly (at the time) combined the developmental approach of Brown and Daly (2009) with the musing approach of Angelique et al. (2002). *We* allowed the mentoring to unfold, encouraging openness, suggestions and consistency. While *we* aimed to develop a researching environment of trust, *we* did not know the final outcomes until we embarked on this paper. Part of our approach was to provide opportunities for the team members, keep discussions dynamic, and reward interactions and suggestions with praise and encouragement. Only the quantitative analyst received payment for project work, so in light of the successful completion of the project and the ongoing nature of all relationships, we feel confident that positive outcomes were realised.

Mentoring within collaborative research

The research project which became the setting for the collaborative research team was initiated within two

Auckland tertiary institutions, one a polytechnic (Institute of Technology) aiming for university status, and the other, a more recently designated university. The aim of the project was to examine how these two institutions experience a working research culture. In light of the complexities surrounding what comprises a 'research culture' the selection of these institutions was no coincidence, as all team members worked within them and they provide examples of tertiary providers aspiring to increased status. At the time of the project, the two institutions were strategising to improve their research productivity in the context of the PBRF which places pressure on both staff and institution to increase their research outputs and in the process impacts upon academic professional identity. The research aimed to uncover staff perceptions of this changing environment and gain an insight into how institutions support staff through developing a research culture (Billot & Smith, 2008; Smith & Billot, 2007).

As the study was located in two separate tertiary institutions, a team approach was planned with a collaborative modus operandi. The selection of the team was important. We needed representation across both locations as well as researchers who could provide complementary skills, so three academics were selected from each institution. Two of us as senior researchers (one from each institution) had an appreciation of the need for mentoring, so initiated and designed the project as a collaborative venture, because we were keen to make use of the chance to assist others in the same way. As the principal researchers, *we* were aware that project outputs would be shared, but *we* were motivated to assist and nurture researchers who wanted to learn and become 'research active'. The selection of the team was neither accidental nor coincidental; *we* wished to provide opportunities for promising researchers and so selected them on that basis. The other four members of the team comprised one research assistant and three postgraduate students, all motivated to be involved.

Three case studies were selected for the project's sample, namely the Schools of Education, Design and Nursing; these cases permitted a comparison across differing disciplines and between the two institutions. The research design included initial interviewing (Dick, 1990) with the two institutional heads of research, followed by a survey of 106 staff (a response rate of 44% from a sample of 240), using an online questionnaire through SurveyMonkey. Semi-structured interviews with 32 staff across both institutions provided further in-depth data. While *we* created the overall design for the project, input from the rest of the team occurred once the project was underway. Responsibilities were allocated based on experience and expertise, although everyone was involved in most activities, from reviewing the literature through to data collection, data handling and analysis. The less experienced researchers undertook the interviews initially in pairs, so that they could give each other support and talk over the interview afterwards. When it was helpful, the experienced researchers role-modelled some of the data collection techniques. Meetings provided an opportunity to de-brief on the data collection and this encouraged everyone in the team to share experiences and address any concerns.

All interviews were recorded and transcription was done by a professional transcriber. Following this phase, *we* held group meetings to 'brainstorm' the significant themes from the interview data. One of the postgraduate students who was adept at handling quantitative data, managed the survey data analysis. We all shared the reporting process, which included a later collaborative conference presentation.

Collaborative projects do need guidance (Lucas, 2005; Roberts, 2003) so while the research procedures were managed through discussion and consultation, certain directions came from the principal researchers, who created processes to scaffold the venture. *We* were aware that working alliances are crucial and, as Stead and Harrington (2000) claim, "[s]uccessful research collaborations are fundamentally based on the meaningfulness and strengths of the relationships between the researchers" (p. 325). From the outset *we* aimed to encourage an environment of trust and openness and clarity of expectations and responsibilities. *We* worked towards this aim

by working individually with the mentees in their own institutions as well as ensuring that during meeting times there were opportunities to share challenges and discuss issues that might have arisen. Sometimes this objective was not possible, as unforeseen events occurred and personal circumstances changed, but where possible group meetings were held and peer support was provided.

Along the way, we learnt from each other, using the opportunity to identify our personal strengths and challenges and extend our capabilities. Ritchie and Rigano (2007) warn that emotions and personal relationships impact on the research process, so it is advisable to enhance feelings of membership and belonging, and mutual professional respect for each other often develops alongside such cohesion. *We* had been keen to foster "non-exploitive relationships" (Ritchie & Rigano, 2007, p. 145), in order to encourage the free expression of ideas and suggestions. At the preliminary team meetings, roles were discussed and responsibilities identified and, after discussion, were distributed. During these shared meetings *we* identified our own responsibilities and completion dates for required outcomes, illustrating the shared nature of the project. In this way *we* aimed to enhance an atmosphere in which everyone could express their concerns and share the progress of the project. Also, by developing an affirmative collaborative experience with positive outcomes, *we* were able to mentor simultaneously. Since no mentor will have all the necessary skills, in combination *we* were able to provide a broad range of them. In addition, *we* were aware that successful mentoring relationships depend upon transparency and participation by everyone, so *we* committed to ensuring that our own relationship was open and trusting.

In the process of sharing the research journey we came to appreciate the differences between us and the need to negotiate our roles and responsibilities, especially before the commencement of a project. Team solidarity is not always experienced equally across the whole team, so flexibility and personal awareness are important components to any research collaboration. Such learnings now provide us with guidelines for structuring future studies. Significantly, while one of the final products was a collaborative research output, one valued outcome was enthusiasm to do more research. The next section consists of two narratives, which outline the personal experiences of the two mentored researchers. Their unabridged versions offer insight into which issues are significant for them and how they viewed their roles within the collaborative project.

Reflecting on mentee experiences

This section contains the reflections of two mentees and, while their accounts are personalised, when perspectives overlap, underlying themes can be seen to be linked. Both researchers had come to New Zealand from other countries, so their experiences identify not only research learnings, but also some reflections on their acculturation in New Zealand. The first mentee, Reshmi, explains her experiences in this way:

> *I was really excited to be given the opportunity to be part of the research team. As an international student from a Pacific Island country, I was interested as I had heard a lot about collaborative research but never had any opportunity to pursue it back home. I thought this will be a great learning opportunity for me, especially when I return home to resume work as an academic at a medical institution catering for the South Pacific island countries. I also thought that by participating in this research, I would be able to get more insights about cross-discipline research and use the experience gained to initiate collaborative research back home.*

Reshmi identified some of her early apprehensions as occurring within the initial meetings:

> *At the first team meeting, each of the team members' roles were identified, agreed and explained. The experienced members were responsible for ensuring that the research ran smoothly and was completed by the proposed date. In addition, they would act as mentors for the rest of the*

team and provide guidance and assistance throughout the research period. During the meeting, it dawned on me that I hardly knew anything about the topic under investigation and felt quite apprehensive. However, I was relieved that the two mentors discussed the research details and provided reading materials on the topic under investigation. As a result, I was in a better position to understand the focus of the research and what was involved in it. This allayed any doubts that I had initially.

Concerns about relationships within the team were also identified and these are outlined below:

There were several challenges that I faced as part of the research team. I was the only one still pursuing my master's qualification, in comparison to the rest of the team who either had a PhD or were working towards it. This caused me to be anxious to some extent at the beginning of our collaboration because I wondered if I will be able to fit in or not. I felt comfortable with the researcher from my institute but was still unsure of the reactions of the other team members from the other institution. However, my anxiety was short-lived.

Reshmi had some of her concerns alleviated through the way in which the project and team were organised as the following suggests:

I noticed that my mentors were quite thorough, well-prepared, organised and efficient in the manner they worked and exchanged information with the rest of the team. I found that everyone was given an equal opportunity to contribute towards the decisions regarding the research. We were able to share our ideas freely and brainstorm on some of the ideas, the data collection approach and the preliminary findings of the study. This helped us to better organise our research and to reach a collective decision as well. Our communications were through emails and face-to-face meetings on specific dates. However, there were occasions when, due to having to meet other work related commitments, the mentors were unable to respond immediately to the queries of the team. This had both its advantages and disadvantages. The drawback was that the team could not have immediate clarification about some aspects of the research. The good thing behind this was that it gave me the time to think over the question and try and answer that. If I was still stuck then I was able to liaise with the other 'newer' researchers and this provided me with some new insights or other ways in which to address the question on hand.

Reshmi identified some team relational issues that she needed to address and suggested:

By being a part of the team, I was exposed to different personalities as well as cultures. I was an international – same as another team member who was from China. However, language was not an issue for me as my education was in English from my first day at school. Being of Indo-Fijian ethnicity, I shared similar cultural values with the colleague from China, and the team interactions were quite an enriching experience for me. I noticed that we were able to know each other more at a more personal level than just as research colleagues. We were able to share information about our family, as well as stuff related to our work or leisure. This created a relaxed environment and allowed free flow and exchange of information, whether it was at a personal or professional level. In the process we created a good rapport with each other and developed a sense of mutual trust amongst the team.

The opportunity to be involved in a project provided Reshmi with an understanding of what is needed when undertaking academic research as she observed:

Despite finding the total project design and objectives clear, the focus of the study was new to

me. To be effective as a team member, I had to understand the concept of PBRF, its application in tertiary education and its impact on the academics and the institutions. I had no idea where to begin but the two senior academics gave me a briefing and relevant information and documents which detailed the research. After having access to this information, I better understood the concept of PBRF and was ready to collect the data for the investigation.

One of the significant areas in which Reshmi found herself challenged was actively collecting data. During this time she identified an occasion when she felt unprepared as the following illustrates:

The mentees were to interview a certain number of the participants as part of the research data collection. The mentors provided us with face-to-face interview schedules and guide questions, which were helpful during the interview process. The schedule and questions were quite helpful, but I noticed that although I asked the interviewees the same questions, they were not in the same order. This is something I had learned from interviews I had conducted for my master's thesis earlier that year but no mention of this possibility had been made by the mentors. The reason for not following the sequenced order was related to the fact that some of the interviewees talked about some of the questions with respect to the previous questions asked so I decided to let them continue. This approach avoided any disruption in the flow of the information.

The mentors had suggested that we try to interview at least one participant together as a pair and then do interviews on our own. They felt that this approach will help us to practise how to go about doing the interviews and allow us to ask any questions that the other interviewer may have missed. I liked the approach but feel that it focused more on getting the interviews done properly and not missing out on any of the questions. I think more could have been done to reduce some anxieties that my colleague and I had regarding the participants themselves and the interview process. We were new to interviewing and found that we had to struggle with coming to terms with an unfamiliar context and people.

I interviewed seven participants at the institution I was studying at and three participants at the collaborating institution. The interviewees were people who were at managerial or senior academic levels. At times my role as an interviewer was alternating between an 'insider' and an 'outsider'. As a student from overseas, I felt a bit intrigued as to what the interviewees' responses would be. I also thought that some of them may even question me about my role and even my credibility. These feelings introduced a sense of 'role' conflict for me as I felt that I could be viewed as a student interviewing the lecturer and/or academic instead of a researcher interviewing the research participant. When I was interviewing at my institution, I felt that my 'insider' role was activated. Knowing that I was a student at the same institution, some of the interviewees may have attempted to avoid any conflicts of interest and not always given me the full information, despite my emphasising about confidentiality. As an 'outsider' conducting the interviews at the collaborating institution site, I did not share any conflicts of interest and this may have allowed the interviewees to be more open in divulging information to me. However, after the first couple of interviews, my defences went down and I started to enjoy the process. At our team meeting, this point was emphasised and the mentors agreed that it was an oversight on their part and that they could have better prepared us for the interview process.

Final reflections have allowed Reshmi to consider the benefits of being in a research team, as well as the issues

that she identifies as being significant for positive outcomes. She notes these in the following:

> *As a member of the research team, I have learned a lot about collaborative research and the research process. I have realised that collaborative research encourages the development of networks with others. However, for this to be possible, it is important to acknowledge the experience and knowledge that each individual brings along as a member of the team. Also, collaborative efforts can help researchers to jointly study similar phenomenon at different locations. This further helps to determine the similarities and differences that the locations might project on the phenomenon under investigation. Further, I have realised that effective communication is a very crucial tool in the success of the research process. The role as an interviewer has made me more confident in engaging with others and it has taught me communication strategies that I can use with different people. Finally, collaborative research helps to increase the efficiency and internal evaluation of the research process as many people are involved in ensuring its validation.*

Jiao's reflections focus on what skills he developed and the personal development that he believes he underwent; he expressed these as:

> *In my later life, I will say the experience of doing this collaborative research influenced me as an interviewer, researcher, writer and as a person.*
>
> *I experienced fluctuation of emotions throughout that research process. Mentoring was an invaluable source of support and affirmation. There were times when I felt excited about the resonance between my thoughts and my readings; there were times when I felt overwhelmed by the amount of literature I had searched and struggled to see what was the most relevant to the research question; there were times I was challenged to put my thoughts into academic writing. In addition to the body of knowledge and skills I acquired and my understanding of the way research in my discipline operates, I certainly gained confidence in my ability to conduct and report research, and to handle complex and unpredicted situations. The challenges I encountered broadened my repertoire of research theories and practices. I am also aware that this apprenticeship experience prepared me well for my doctoral study, which is a stepping stone into a research career. My capacity for independent, critical thinking has been raised and developed throughout the journey and has been demonstrated in the process of conducting my doctoral research.*

Jiao was able to identify the stages in his researcher development and suggested:

> *The literature I searched, the interviews I conducted and transcribed, the process of analysing and presenting, provided me with opportunities to gain apprentice knowledge on my journey towards becoming a researcher. When I listened to the interview audio records and read the transcripts, I sometimes felt embarrassed with the questions I asked, and the interruptions I made. I believed that I would have done it better with my reinterpretation of the topic and the interview skills fine-tuned throughout this collaborative research process. In another sense, while acknowledging naïveté, I am proud of my courage at that stage of my life.*

Being mentored through a research project enables application to other areas of study and development. Jiao noted that his experiences in the project were transferrable to his own study and support of peers for example:

> *The apprenticeship experience [is] deemed most effective for cultivating self reflection [and] informing my doctoral study. With benefits from the experience of working with the research*

team, I purposefully developed a 'research group microclimate' (Walsh, 2010, p. 545) among peer students in my doctoral study. This apprenticeship experience served to encourage an interest in 'theoretical considerations', which helped me to develop a capacity for critical analysis and reflection in relation to my own values and beliefs and their bearing on my learning practice, and hence the capacity to perceive and interpret the world from a range of perspectives, thus gaining a deeper understanding of the lives of others and my own.

A final comment from Jiao highlights the perceived ongoing benefits of being a mentee:

I must acknowledge that I was more creative and confident than I had been in the past, which helped me address some of the complex problems of my ongoing and future doctoral study. I had gained a deeper understanding of the team members. Experienced researchers' friendliness and openness allowed me to share my struggles with my work, ask 'naïve' questions, and disclose my personal challenges and to reflect on ways to handle them.

Implications

Reflection is a potent mechanism (Goddard, Cranston, & Billot, 2006) and in this paper we have used that technique to examine past practices and identify what worked as well as potential improvements for mentoring researchers. The mentees have identified not only the positive outcomes of the mentee experience but also the power of reflection. It was in the process of developing their contributions to this paper that they realised the extent to which mentoring has provided ongoing personal and professional benefits.

Our mentoring process combined collaboration with mentoring which is one way of achieving multiple rewards. Genuine collaboration involves sharing decisions, seeking others' perspectives and suggestions and accessing funding that supports all team members and the project itself. Naturally, some decisions fall to project initiators who take responsibility for milestones being met and the project completed. There are also times when less experienced researchers look to their more senior peers for direction and advice. This is facilitated by the development of trust and respect.

From his research, Hall (2008) identified that mentoring strategies to enhance maximum professional growth will result in varied outcomes for each individual mentee, but that one essential objective is in "developing the protégé's strengths and abilities by deliberately compelling him or her to engage in accurate and productive self-reflection" (p. 451). Both Reshmi and Jiao have not only learnt skills from their experience but also the ability to be reflective. Undertaking the co-authorship of this paper has resulted in them engaging in this process of reflection which Jiao expresses in this way:

The most important thing mentors passed on to me is self-reflection. More sophisticated work is yet to come and the skills required to handle higher level research are yet to be obtained through practical investigation and reflection. The reflection [process will] definitely support me in planning and conducting further research.

Roberts (2000) undertook a thorough analysis of the concept of mentoring, and while concluding that there appears to be a lack of consensus as to what mentoring comprises, he does admit that mentoring is a complex, socio-psychological activity. Roberts viewed the informal mode as requiring 'contingent' attributes (as against essential attributes within formal mentoring), comprising coaching, sponsoring, role modelling and assessing. In our exposition of our mentoring process, *we* acknowledge that our process was both informal and dynamic. As circumstances and individuals required, *we* made adjustments, for as Roberts also states, the state of mentoring is one of perception, it varies according to each person.

Mentoring has been sometimes viewed more as a component of a vertically structured model (Ritchie & Rigano, 2007), or as traditionally identified as a "hierarchical relationship" (Angelique et al., 2002, p. 198), but our project was designed to dovetail a more horizontal structure within the process. *We*, as the two principal researchers, gained much satisfaction through sharing our expertise and experience with others in the team and observing how team skills developed and confidence built. Varied strategies were used, including role sharing, group feedback sessions, shared milestone meetings, peer data collection and collaborative analysis.

The reflections of the mentees assist us to identify some of the central elements for constructing a research project and illustrate the importance of determining each person's role and responsibilities with clarity at the outset of a project. Clearly allocated tasks and an agreed timeline reduce the potential for misunderstandings, delays and frustration but there also needs to be scope for changes when the need arises. Since there was a combination of leading and mentoring, perhaps *our* expectations were broad and our goals lofty. However, *we* observed as mentors, as did Mullen and Hutinger (2008) in their study of mentee development, that mentored researchers can gain significant independence through being provided with varied scholarly commitments and activities. In order to explore the reality of the experience, two versions have been incorporated into this paper. The project initiators and the mentee researchers have offered their perspectives in a way that provides a valid interpretation of research mentoring in action.

Since we have identified that a more informal mode of mentoring can offer positive benefits for emerging researchers, further research could assist in identifying what types of situations and contexts provide the most appropriate environment for such a model. The mentoring experience outlined in this paper raises some questions. For instance, is an informally constructed process a disadvantage in certain situations and should it be only applied when there already exists a relationship between the mentor and mentee? How mentee-centric can mentoring be? Is there a potential model in which the mentee drives the mentoring process, through raising their own issues rather than the mentor providing the guidelines? These and other questions could assist in developing context and individual specific mentoring.

The reflections of the mentees as part of this paper have encouraged the mentors to reflect further on how they might have worked differently and might do so in the future. As more experienced researchers it is important to anticipate issues that less experienced researchers may face. Encountering new concepts, unfamiliar literature and untried research methods are prime examples of when mentees might feel self-doubt or lack confidence. Whilst we addressed the more practical concerns of interviewing skills, we were less quick to identify Reshmi's 'insider/outsider status' and 'role conflict' or Jiao's concerns at the large amount of literature he researched. Having themselves experienced times of nervousness and uncertainty in new situations, it is important that mentors recognise the potential challenges of entering less familiar environments and working within different circumstances. These issues are core to working effectively as mentors, whether it be within a developmental (or apprentice) mentoring model or any other.

While contributing to the discourse on mentoring and collaborative research, we have widened the space for dialogue between all parties, as well as the opportunity for reflection by all team researchers and this is an ongoing process as we write up further articles from the research. Recursive reflection can be beneficial to both experienced and emerging researchers. At the same time, we proffer a counter to the tendency to focus on individualised academic activities in a challenging research environment. Ritchie and Rigano (2007) have noted that collaborative research brings together expertise and experience and enhances productive outcomes. Jiao summarises the enduring influence that he has taken away from the experience: "*This valuable experience resulted in my developing greater confidence with the research process, competencies in organising my*

academic work and social life, and my capacity to embrace complex schemes and ideas." We affirm that what we learnt through mentoring helped our own practice and recommend that since "mentors can play an important role in helping to accelerate learning" (Zea, 2009, p. 18), given its value "it is incumbent on institutions to foster valuable reward structures for this valuable activity" (Brown & Daly, 2009, p. 312). Both Jennie and Richard as *mentors* feel privileged to have worked in collective ways with Jiao and Reshmi as *mentees* and acknowledge that *we* learnt and gained much from this collaborative research exercise. *We* feel that institutions should actively promote such activities since they benefit all involved personally and professionally, as well as creating opportunities for intellectual growth and development for more emergent researchers in the current PBRF environment.

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