Developing Research Skills for the Future Workplace through Interdisciplinary Near-Peer Mentoring

Claire Wagner

https://orcid.org/0000-0001-6758-2891 University of Pretoria, South Africa

claire.wagner@up.ac.za

Jacques du Toit

https://orcid.org/0000-0002-9589-4128 University of Pretoria, South Africa

jacques.dutoit@up.ac.za

Abstract

Experiential learning is touted as an effective way of imparting research skills. This suggests that master's students undergoing training in research psychology should be exposed to supervising and managing interdisciplinary research teams and projects before entering the workplace. The Departments of Psychology and Town and Regional Planning at a South African university developed a near-peer mentoring programme in which the psychology master's students mentored undergraduate urban planning students who were writing their final-year research reports. Focus group discussions with the psychology students about their experiences of the programme were analysed using phenomenography. The psychology students experienced their role as mentor in five hierarchical variations. The first four were seen as challenging, while the benefits were only experienced at the highest level of the hierarchy. Lessons learnt from the mentoring relationship that mirror certain workplace research skills are discussed followed by recommendations for improving the mentoring programme.

Keywords: research psychology; mentoring; interdisciplinary; near-peer mentoring; phenomenography

Background

A coursework master's degree is required to become a psychologist in South Africa. One of the five specialisation routes is 'research psychology' that trains students in a broad range of skills in the social sciences while specialising in psychological research. Research psychologists register with the Professional Board for Psychology at the Health Professions Council of South Africa (HPSCA) and have a scope of practice that regulates the acts they can perform (see Department of Health Form R.704 2011; Department of Health Form R.933 2008). Broadly, they "are involved in planning, developing and applying psychological research methods which have broad scientific validity among scientific peers" (HPCSA 2014, 13). Graduates from the master's programmes in research psychology are employed in diverse contexts ranging from public and private sectors, NGOs, and academia, while some are self-employed (Laher 2005). Areas of research typically include marketing, health, monitoring and evaluation and psychometrics (Rascher 2016). In practice research psychologists often lead interdisciplinary teams and are responsible for designing projects, managing fieldwork, analysing data, writing reports, and presenting findings to clients (Nkadimeng, Lau and Seedat 2016). This requires flexibility, good decision-making, strategic thinking, excellent writing and presentation skills, and a keen eye for detail.

The debate on how to prepare professionals for an ever-changing and complex world with an uncertain future is becoming more urgent as this group is seen to be a major contributor to a skilled and productive workforce (Vu and Dall'Alba 2011). According to a recent McKinsey study only one in four employers felt that graduates were prepared for the workplace (Mourshed, Farrell and Barton 2013). Authentic learning, where students are trained "in contexts that promote real-life applications of knowledge" (Rule 2006, 1), is offered as one solution, yet less than 30% of students surveyed by McKinsey reported work-related training as an instructional technique in their curricula (Mourshed et al. 2013). Students learn the practice of their professions as they participate in activities similar to those that they will engage in as professionals (Vu and Dall'Alba 2011). Also known as experiential learning, this approach is espoused as an effective way of imparting research skills (Kiener, Zelinske and Green 2015). In order to simulate the interdisciplinary and professional skills that the workplace currently requires of research psychologists two lecturers, respectively from the Departments of Psychology and Town and Regional Planning at a South African university, implemented a near-peer mentoring programme in which master's students in research psychology mentored a subgroup of undergraduate urban planning students to help them write their final-year research reports as part of a four-year

professional bachelor's degree. One of the aims of the programme was to give the psychology students experience in supervising a team undertaking a research project that would reflect some of the competencies required of them in the workplace.

Although mentoring is regarded as beneficial to both mentors and mentees (Colvin and Ashman 2010), much of the research on mentoring focuses on the experiences of mentees (Beltman and Schaeben 2012) even though a shift in the literature to the perspectives of mentors has been noted (Ghosh and Reio 2013). Typical benefits for mentors include personal, academic, social and professional outcomes (Beltman and Schaeben 2012; Colvin and Ashman 2010; Stout and McDaniel 2006). Risks for mentors have also been reported by a small number of studies including difficulties in managing time constraints and other commitments; a mismatch with mentees in terms of personality or expertise; a lack of a clear delimitation of the roles and responsibilities of mentors and mentees in some mentoring programmes; and power-relation issues where there is (perceived) resistance from mentees to perform their duties and to actively participate (Colvin and Ashman 2010; Heirdsfield, Walker, Walsh and Wilss 2008; Straus, Johnson, Marquez and Feldman 2013; Townsend 2011).

In the South African higher education setting studies on the use of mentorship to enhance research capacity tend to focus on developing emerging academics (see e.g., Nundulall and Dorasamy 2012; Nundulall and Reddy 2011; Strebel and Shefer 2016; van der Merwe 2011) or completing a postgraduate qualification (see e.g., Michau and Louw 2014). Globally, few studies investigate how mentoring experiences parallel research competencies that may be important for the mentor beyond the university context (see e.g., Edgcomb et al. 2010; Thomas and Gillespie 2008), while none seem to have used interdisciplinary near-peer mentoring as an example. The aim of this paper is to report on the psychology students' conceptions of their role in the mentoring relationship and how the findings may be used to develop research skills for the future workplace. Recommendations for future applications of the mentoring programme are also made.

Description of the Mentoring Programme

The mentoring programme that we implemented most closely fits Edgcomb et al.'s (2010, 18) definition of 'near-peer mentoring' as an "approach [that] allows for the students with more experience, regardless of age, to serve as a peer or near-peer mentor on a research project, which can also enrich the experience of the student mentors and result in a number of learning gains for the peer-mentors themselves". Although neither group of students

volunteered to be mentors or mentees, we proposed the mentoring programme to each group and they agreed to participate. The lecturers paired the mentors with the mentees by matching students with similar academic performance in terms of their ranking within their own groups.

The subgroup of urban planning students (10 in total), who selected a departmental research project about recycling behaviour in enclosed housing estates, were required to plan, conduct and write up the results of a household survey for their final-year research report. The psychology students (six in total) were required to mentor the planning students in planning the project, conducting the research and writing up the results as part of a module in environmental psychology. As lecturers we were available throughout the collaboration: securing entry for fieldwork in the enclosed housing estate, providing information and feedback during meetings, and overseeing the research process. Although we provided the questionnaire for the survey, the planning students were encouraged to formulate their own research questions and hypotheses for their individual reports. The urban planning lecturer assessed the final research reports submitted by the planning students while the psychology lecturer evaluated the quality of mentorship that the psychology students provided.

The mentoring spanned the course of one semester (from July to November) and included four group meetings: Meeting 1 was an introduction for the two groups of students and the lecturers and to explain the structure, purpose, roles and responsibilities of the near-peer mentoring programme; in Meeting 2 both groups of students presented literature reviews from the perspective of their own discipline which they compiled as a group; in Meeting 3 the psychology students did fieldwork training with the urban planning students (including a role-play for administering the questionnaire); and in Meeting 4 the psychology students provided guidance to the planning students on data analysis using SPSS. Thereafter each urban planning student was assigned a psychology student as a mentor and the research process began. After the urban planning students submitted their final reports and the mentoring process was complete, the psychology students' experiences of the mentoring programme were explored using phenomenography.

Research Design and Methods

Phenomenography was used for this study as it allowed us to examine the variation in the psychology students' experiences of their role as mentors instead of focusing on their individual responses (e.g., see Tight 2016). Data were collected using focus group discussions since we were interested in the interaction between the students that would

generate their shared (and varied) experiences of the mentoring programme. In order to obtain a range of experiences of the mentoring programme all of the students were invited to participate in the focus group discussions.

The psychology students participated in two focus groups, one that included only the mentors (Group 1, n=6) and the other a random selection of half the planning students and half the psychology students (Group 2, n=8 made up of 3 psychology and 5 planning students). An independent research consultant facilitated the focus groups. Though we were not involved in any of the focus groups, we briefed the consultant beforehand and provided a semi-structured focus group discussion guide based on the following research questions; How did the psychology students experience the interaction with the mentees and their role as mentors?, and How did the psychology students perceive their role as mentors in relation to their research education? Probing questions aimed to elicit the psychology students' conceptions of the mentoring programme, for example, "What were the most important experiences you had?", "What aspects of the mentoring programme did you find most helpful?", "What aspects of the mentoring programme did you find challenging?", and "What did you learn about research?".

Ethical approval was obtained from the Faculty of Humanities while all participants signed an informed consent. Each focus group lasted between one and two hours and was sound-recorded. An independent transcription company transcribed the focus group recordings. Scribes were not able to identify students or label transcriptions as students would simply speak without necessarily identifying themselves. The transcriptions were handed to us without the original sound recordings to ensure anonymity of responses.

Phenomenographers have a range of practices for analysing data and validating the process of analysis (Tight, 2016). We chose to follow Reed's (2006) description of phenomenographic analysis. The first step was to carefully read the transcripts and select individual meaning units that focused on the participants' experiences of the mentoring programme. We then copied these sections to a new document to form a "pool of meaning" (Marton, 1994, p. 4428). A pool of meaning thus consisted of all the pieces of data that referred to a particular aspect of the experience of the mentoring programme. Our focus then turned to determining the meaning held in each quote and placing similar units into a single category known as a 'category of description'. We then sorted and resorted the data until we were satisfied that the following criteria were achieved: (1) each category describes a different critical aspect of the experience of mentoring, (2) each category contains the least ways that portray the variation in the sample's experiences, and (3) the categories are

logically related (e.g., see Hallet, 2013). We identified five hierarchical variations of the ways in which the psychology students conceptualised their roles as mentors. Using the literature on mentors' experiences we also established whether each category could be viewed as a benefit or a risk to the participants and, furthermore, how these benefits and/or risks could be opportunities for skills development related to the future workplace.

Findings

Table 1 shows how the categories advance in complexity of how the students perceived the mentoring relationship, from being simply about activities (Category 1) and the relationship between themselves and their mentees (Category 2), evolving into the roles that they played in the mentoring programme and the research project (Category 3), to reflecting on the broader context of interdisciplinary boundaries (Category 4), and finally, their personal and professional development (Category 5). The first four conceptions of the mentoring programme are seen as risks while the fifth is seen as a benefit.

Table 1: Hierarchical variations of psychology students' conceptions of the mentorship programme

	Conception	Benefit/risk
1	Activity	Risk
2	Relationship	Risk
3	Roles	Risk
4	Interdisciplinary endeavour	Risk
5	Personal and professional development	Benefit

Mentoring as an Activity

The psychology students conceptualised mentoring as an activity that required them to do certain tasks like guide their mentees' research questions, give feedback on their written work, or support them when they needed help.

> They sent me their [drafts] and I corrected them and copied the lecturers as
> well so that they can see what's going on. [Group 1]

> [The psychology student who presented the SPSS workshop] did training
> for half-an-hour and then the mentees had to work [while] we were there to

support them. So then [the planning students] would work on their own research questions…and we were just there when [the planning students] got stuck. [Group 2]

There were certain risks involved for the mentors such as being overwhelmed with the amount of work they had to deal with at the time and the sequence in which the feedback had to be provided:

We should have broken it up into smaller sections that they sent us, because I believe it would have been more manageable. [Group 1]

It would have been easier if [the planning students] had feedback from us, fixed it, and then feedback from the supervisor. [Group 2]

They should have decided on their research questions before [the SPSS workshop] and then we could have helped them with the analysis for those questions, otherwise there are so many ways in which you can analyse the data. [Group 1]

Mentoring as a Relationship

The amount and nature of the interaction was an issue to the psychology students. Some of them experienced the interaction as one-sided and also as stressful because the planning students tended to wait until the last minute to request guidance:

I think [the planning students] would have benefitted from more interaction…because they didn't contact me and ask me any questions…then all of a sudden I got this panic response 'I'm not sure if I'm doing the right thing' – literally the day they had to hand in the first draft. Everything became a kind of panic and I would have preferred more interaction facilitated by the lecturers. [Group 1]

It felt like one-sided interaction. You open yourself to them or invite them – 'if you need help you can email me, you can WhatsApp me' [but] they will just send their document and expect you to give comments. [Group 1]

I think the word 'one-way' is very important in this case, because that is exactly what it felt like. The mentees sent you their stuff, you make comments on it… [Group 1]

Mentoring as Fulfilling a Certain Role

Lack of Clarity about the Respective Roles of the Lecturers and Mentors

The psychology students experienced confusion about the roles of the lecturers (supervisors) and mentors and wanted greater clarity about what was expected from each party:

There were so many dark spots where we didn't know what to do. [The lecturers] facilitated us, but I felt like I was left in the dark for most and I had to act on my own decisions and whims, so I didn't even know if what I did was right. [Group 1]

I think [a clarification of roles] was an important thing that [the lecturers] missed at the beginning of the study. They should have said 'okay, the master's students' roles are to supervise and whatever comments they make should be implemented by the planning students.' Or, 'the master's students are there just to give advice, take it or leave it.' [The lecturers] should have clarified that. [Group 1]

You end up making a lot of technical comments because you feel that constitutes thorough [feedback]…[yet] if there is an oversight you don't comment on that [but then] the lecturer takes it and says 'you should have known that' – that's also going to reflect badly on your mark. [Group 1]

Lack of Authority for the Psychology Students in the Mentoring Process

The psychology students felt they did not have much authority in the mentoring process and would have preferred more intervention from the lecturers:

…schedule sessions where the mentor and mentee meet with one of the lecturers so they can discuss issues with the draft in front of the lecturer. I

think the student would be much more inclined to change stuff if that happened. [Group 1]

My mentee actually asked me why we were [involved], what our role was. [The planning students] thought we were just there to make suggestions. They didn't see us as 'authority'. I don't want them to, but that's why they didn't take us seriously. [Group 1]

You feel so bad about the comments you write, because no matter how you put it, it sounds evil and accusing. I think [the planning students] got a shock and they might have ended up disliking us. If I got a document looking like that I would not have felt good at all. So I don't know whether we made them feel bad. Because we didn't have authority, they think we were just being mean basically. [Group 1]

Lack of Clarity about the Psychology Students' Role in the Research Project

As the psychology students were not involved in the design of the questionnaire and collection of the data, they felt they lacked 'ownership' of the project and that they should have been part of research design and planning:

There would have been an overall benefit if we were involved from the start, then we would have known what was going on. That discrepancy between the supervisor and us would have been smaller. Because we were sort of, 'okay, there is a study, there is already a questionnaire, there is this, there is that, okay, we will work with that.' So if we were part of the process then I think we would have been able to do our jobs better. [Group 2]

It felt like I was stuck behind a desk – it would have been nice to actually do our own research. I wouldn't have minded doing the extra work to gain experience. [Group 1]

I would have liked to go [into the field] with [the planning students] at least once to help them…because you really had no control over what happened [in the field]. [Group 2]

Mentoring as an Interdisciplinary Endeavour

The psychology students felt that the research was just a means to an end for the planning students and that this separated the two disciplines with regard to what research meant to each group:

… to us the research was an end in itself. But to them it's kind of just a means [to an end] and that's why they didn't take the methodological aspects seriously…a bit of disparity between the goals of the two groups at least. [Group 1]

The psychology students also questioned how they should have located the interdisciplinary research themes and concepts into a broader context:

I found it quite odd that it was [the planning students'] project, so why were we doing a literature review? … surely it should have been on town planning theory or something… [Group 1]

Mentoring as Personal and Professional Development

The psychology students experienced a number of benefits from their role as mentors. The advantages included self-reflection as researchers in the making, developing confidence in their research skills, as well as being able to transfer knowledge to others:

I thought it was very helpful…you…become complacent assuming that everyone knows how to do research. When you work with students you notice subtle differences between people who can do research and people who can't. That contributes indirectly to our understanding of research. So I actually learned quite a lot. [Group 1]

I actually realised how much we know … you realise that you are actually specialising in [research], so that made me feel quite good and it also gave

me insight into writing my own thesis – I will be more meticulous when I

write my own! [Group 1]

I learned that I was able to help someone with something, because I always

felt like I would never be able to communicate something to someone. I

was really able to give [my mentee] knowledge that she didn't previously

have and that was quite nice for me. [Group 1]

Discussion

What promise does interdisciplinary near-peer mentoring hold for developing workplace skills required of master's students in research psychology? Whereas the psychology students conceptualised the first four levels of the mentoring relationship as risks, we conceptualise them as skills development opportunities that mirror the variety of situations they may encounter in their careers.

The research psychology profession is not without complexity and unpredictability. The first potential development opportunity is linked to the conception of mentoring as an activity and the importance of learning that tasks are not always presented in the 'correct' sequence or in manageable amounts. Research psychologists should be flexible to meet current circumstances and be willing to work unpredictable hours at short notice to meet deadlines. Mentoring provides mentors with the opportunity to develop organisational and time management skills (Heirdsfield et al. 2008), which are essential competencies to cope in this environment.

Good interpersonal skills and the ability to work with people can further enhance the careers of research psychologists (e.g. see Kuther and Morgan 2013). The second development opportunity is related to mentoring roles and the realisation that co-operation between various stakeholders is important as research is often conducted by teams of people who play different roles at various points in a project. The need to clarify roles at the outset was demonstrated by communication problems between the lecturers and the mentors, the lack of clarity about roles that left the psychology students uncertain about what they should be commenting on in the planning students' reports and to what extent they had the authority to enforce their comments. Furthermore, the mentors' questioning of their role in the research project presents an opportunity to learn about the amount of control one has over the kind of research that one does and one's involvement in the project. The psychology students were disappointed that they were given a project without their input or being able to

participate in the fieldwork. Yet, graduates that enter research careers soon learn that projects are based on client or organisational needs and not necessarily on their own interests (Kuther and Morgan 2013).

In the conception of mentoring as a relationship, the mentors encountered resistance from the mentees in forming reciprocal relationships, wanting help and doing their work timeously (as was also found by Colvin and Ashman 2010). This is a third development opportunity, i.e. to learn the valuable lesson that members of a research team may not be passive recipients of a project manager's hierarchical position. Although the mentoring literature recommends giving mentors and mentees the opportunity to select each other according to preferences (O'Neil et al. 2015; Sambunjak et al. 2010; Straus, Chatur and Taylor 2009), such as on the bases of shared demographics (which is less effective), or perspectives and values (which is more effective) (Hernandez, Estrada, Woodcock and Schultz 2016), one cannot always choose whom to work with on research projects.

The fourth development opportunity is related to the interdisciplinary aspect of the mentoring programme. Research teams may consist of professionals from various disciplines, while the value of developing interdisciplinary alliances for professional psychologists has been noted (Toporek and Vaughn 2010). Mentoring students from another discipline may thus prompt the ability to build a bridge between one's own background and perspectives from other fields. Although the psychology students struggled with the interdisciplinary nature of the mentoring relationship, they were able to see how it could possibly contribute to the development of their personal and professional identities as future researchers. This corresponds with what Reid and Petocz (2002, 9) refer to as "intrinsic meaning" - people's view "that their professional work is related to their own personal and professional being" - which is at the highest level of perception that one can have about one's career identity. This leads to the fifth development opportunity related to the conception of mentoring as beneficial to one's personal and professional development.

More encouragingly, our findings concur with similar conclusions that there can be multiple positive outcomes for mentors (e.g., see Beltman and Schaeben 2012; Colvin and Ashman 2010; Stout and McDaniel 2006). Providing feedback to the mentees on their reports gave the mentors an opportunity to reflect on what they needed to be cognisant of in their own research practices, including writing their master's dissertations (e.g., see Shrestha, May, Edirisingha, Burke and Linsey 2009; Stout and McDaniel 2006; Wong, Waldrepp and Smith 2007). The confidence that the mentors gained in their abilities, the affirmation that they had

specialist knowledge in research methodology (at least relative to the planning students), and that they could also impart knowledge (about research) to their mentees, all contributed to their personal and professional identities.

Implications for Teaching Practice

As the debate continues about the best way to prepare professionals for the workplace, an interdisciplinary near-peer mentoring programme may be one approach to address certain key competencies for research psychologists. Although the mentoring programme implemented in this study held risks for the mentors, we were nevertheless able to identify how these risks could also translate into opportunities to rehearse for the real world of research practice. We, however, recommend some adjustments to the programme to improve students' experiences.

Our findings show that the roles and responsibilities of the various parties (mentors, mentees and lecturers) in the mentoring programme should be clearly communicated at the outset. Discussing roles with the mentors throughout the mentoring process could address their need for clarity about what is expected from each party, especially when it comes to (1) being both a mentor and an assessor (see e.g., Ambrosetti and Dekkers 2010; Bray and Nettleton 2007) and (2) differentiating their role from that of the lecturers (see e.g., Colvin and Ashman 2010).

Perhaps training in how to mentor would also be beneficial (Ramani, Gruppen and Kachur 2006), for example, what to do when encountering resistance from mentees (e.g., see Beltman and Schaeben 2012; Colvin and Ashman 2010). Resistance may, to some extent, be countered by allowing mentors and mentees to select each other according to preferences (Hernandez et al. 2016; O'Neil et al. 2015; Sambunjak et al. 2010; Straus, Chatur and Taylor 2009).

Furthermore, the rationale for interdisciplinary collaboration should be emphasised throughout the process. Although we assumed that we made the rationale for collaboration clear at the outset, there appears to have been a need for re-emphasis, also in terms of how different disciplines bring unique insights and skills to collaborative student projects (see e.g., Goring et al. 2014; Juhl, Yearsley and Silva 2007; Margolies et al. 2014). Lastly, involving mentors in the research design and planning at the outset may serve to foster greater 'ownership' of the project, leading to more positive experiences of the mentoring programme and practical research experience for the mentors themselves.

Conclusion

Our study used phenomenography to understand the variation of conceptions held by master's students in research psychology about a mentoring programme in which they mentored undergraduate students in urban planning who had to write final-year research reports. The findings of this study showed that, besides the positive effects of mentoring reported in the literature, the experience also presented opportunities for the psychology students to become aware of the challenges that they may encounter in the real world of professional research. While there is a small body of literature on how mentoring activities parallel research competencies important for the mentor beyond the university context, our study echoed these findings with regard to interdisciplinary near-peer mentoring.

Although our study did not set out to measure the effectiveness of the mentoring programme there is no evidence that it lead to actual acquiring of the skills required of research psychologists. The use of cross-sectional designs in mentoring research has been criticised (Allen et al. 2008), and this study also only provides a glimpse of what the process entailed. Using focus groups as the method of data collection may have limited the study in two ways. Firstly, even though students were told that they would not be identified individually in the transcripts some of them may have expressed what they thought their lecturers, peers or mentors wanted to hear. Secondly, the transcripts of the focus group discussions showed that students may have struggled to express themselves in the groups because they were conducted in English which, although one of the languages of instruction at the University, is the second or third language for some of the students. For future research, a revised version of the mentoring programme can be repeated after having incorporated insights gained from this study, and a comparison made of the psychology students' experiences of the revised programme with those reported in this study.

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