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**TOWARDS “OPERATING WITHIN” THE FIELD:
DOCTORAL STUDENTS’ VIEWS OF SUPERVISORS’
DISCIPLINE EXPERTISE**

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ABSTRACT

Aim/Purpose	This paper considers the role of supervisors’ discipline expertise in doctoral learning from a student perspective.
Background	Doctoral students need to develop expertise in a particular field of study. In this context, developing expertise requires doctoral students to master disciplinary knowledge, conventions and scholarship under the guidance of supervisors.
Methodology	The study draws on a mixed-method approach, using an online survey and semi-structured interviews conducted with doctoral students.
Contribution	The paper brings to the fore the role of supervisors’ discipline expertise on doctoral students’ research progress.
Findings	The survey data suggest that doctoral students nominate their supervisors on the basis of their discipline expertise. They also view supervisors’ expertise as key to the development of ‘insider’ knowledge of their doctoral research.
Recommendations for Practitioners	Supervisors play a pivotal role in helping doctoral students overcome intellectual barriers by imparting their discipline knowledge as well as balancing satisfactory doctoral completion rate and high quality student experience.
Impact on Society	Doctoral supervision equips doctoral students with the right arsenal to be able to competently operate within their field and prepares them for their future research or professional career that demands a high level of discipline expertise.

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Future Research	The scope of the findings leaves open a discussion about the experiences of doctoral students matched with non-discipline expert supervisory teams; for example, the extent of the mismatch and its ramifications.
Keywords	discipline expertise, research expertise, doctoral students, PhD students, supervisors, doctoral learning support, student-supervisor fit

INTRODUCTION

Where research output and on-time completion among doctoral students are increasingly emphasized, recent directives to review Australia’s research training system that aims at assessing the “capacity for learned inquiry innovation and productivity” (Department of Education and Training, 2015, para. 4) receive no less attention. These directives to reframe the status of supervision are linked to an array of supervision styles and doctoral students’ expectations (Halse & Malfroy, 2010). Against this backdrop, our work considers the role of supervisors’ discipline expertise in doctoral learning from a student perspective. While it is valuable to evaluate how the development of discipline expertise may be brought to the wider labor market in the longer term, a more immediate challenge would be to investigate supervisors’ role in helping students master a disciplinary area through original research. This consideration is based on a broad goal of doctoral education in developing one’s expertise in a field of study. Such a goal is accomplished in the context of research supervision. Although the alignment between the research interests of doctoral students and supervisors is often desirable (Moxham, Dwyer & Reid-Searl, 2013), matching the research expertise between supervisors and doctoral students can be challenging partly due to the rising number and diversity of students enrolled in postgraduate research programs (McCallin & Nayar, 2012). So far, few studies clarify how supervisors’ discipline expertise contributes to doctoral students’ learning process. This paper builds upon this consideration by exploring the role of supervisors’ discipline expertise through the perspective of doctoral students.

SELECTING SUPERVISORS: MATCHING DISCIPLINE EXPERTISE AND RESEARCH TOPIC

Selecting a supervisor for doctoral research generally requires finding a match between the supervisor’s expertise (or interest at least) and a doctoral student’s research topic (Wilks, 2006). Potential doctoral students are often advised to examine their potential supervisors’ scholarly background and expertise (Abigail & Hill, 2015). Such a match in supervisors’ expertise and students’ research topic is endorsed by the idea that supervisors should possess specialist knowledge in a specific discipline (Fraser & Mathews, 1999), which enables supervisors to guide doctoral students’ research (Gill & Burnard, 2008). However, matching the discipline expertise of a supervisor and a topic of a doctoral student is often a decision based on institutional arrangements (e.g., staff availability) and the subject nature of a doctoral student’s research topic (e.g., multidisciplinary) (Wilks, 2006). In examining the supervisor allocation practices of universities, Ives and Rowley (2005) revealed that doctoral students were mostly and informally assigned to supervisors; that is, supervision interest was decided on the basis of mutual scholarly interests. There were also cases where doctoral students nominated supervisors on grounds of personal knowledge (i.e., they knew the supervisors through previous work experience). Although most of their participants chose their supervisors on the basis of their research expertise, those few who did so on the basis of personal reasons could run the risk of being supervised by academic staff members who have little expertise in their area of research. In another study, Moxham et al. (2013) surveyed 53 doctoral candidates and 31 supervisors to explore the doctoral students’ research higher degree experience. Their results indicated that both groups held divergent views on what to expect in a doctoral journey, such as the selection of research topic and access to facilities. However, Moxham et al. also found that both supervisor and student groups agreed on the importance of supervisors’ expertise on doctoral students’ research topic. Accordingly, one aspect to consider is the views of doctoral students on having supervisors knowledgeable in their research topic.

Supervisors are considered as key agents to the integration of doctoral students in a particular discipline (Golde, 2000). For example, Satariyan, Getenet, Gube and Muhammad (2015) found that doctoral students with discipline-expert supervisors are better exposed to appropriate literature in a particular area of study. This finding implies that supervisors' discipline expertise contributes to development of a well-structured thesis, thereby enhancing its quality. Despite the multitude of learning opportunities for doctoral students provided through initiatives that target specific research skillsets (e.g., training on theories, data analysis programs, research writing), one could argue whether the role of supervisors in providing discipline-specific guidance could be replaced by other forms of training. This argument takes on significance within the purview that coursework programs (in Australian context) are not necessarily subject-specific and mostly involve generic research skills training (Carter & Laurs, 2014). Since discipline-specific training is not available in research skilling provisions, the role of supervisors in facilitating doctoral students' development of discipline expertise deserves scrutiny. While exploring the experience of students with mismatched supervisors is worthwhile, it is an aspect beyond the scope of this paper.

DISCIPLINARY KNOWLEDGE IN ACTION: A CONCEPTUAL STANDPOINT

To understand how supervision helps develop doctoral students' acquisition of discipline-specific knowledge, it is important to reiterate that part of the goal of pursuing a doctorate is developing expertise in a particular field by conducting original research. This expertise can be demonstrated through successful immersion in and mastery of a subject matter (Mashau, Mulaudzi, Kone & Mutshaeni, 2014), which can be characterized by showing competence and confidence in the content area of a doctoral student's research. There is a widespread recognition that "PhD graduates are expected to have substantial knowledge in their areas" (Bernstein et al., 2014, p. 6). Embedded in this expectation is the role of supervisors in facilitating the progression of doctoral students' from being a novice to an expert in a particular research topic, which "implies advanced knowledge in a particular field of study" (Wilson & Weissman, 1970, p. 251). Halse and Malfroy's (2010) described supervisors' expertise as follows:

It is scholarly expertise, supervisors argued, that equips them with the knowledge and insights to recognise gaps in knowledge in their discipline and in the thinking and work of doctoral students, and is sustained by a passionate, personal pursuit of learning and knowledge for their own sakes. (p. 86)

Such a development of discipline expertise can also be seen as a form of apprenticeship in which an expert researcher exposes a novice researcher to an environment to develop specific skills so that he or she may acquire the thought processes to perform relevant research tasks (Bégin & Gérard, 2013). Apart from imparting discipline-specific knowledge to students, there remains a hierarchical relationship between supervisors and students (Greenberg, Clair & Maclean, 2007). This relationship is crucial to highlight in recognizing the characteristics of discipline expertise because of the knowledge difference between both parties. Such difference creates a knowledge distance between supervisors and doctoral students, allowing supervisors to be positioned as an authority in a field of study. For doctoral students to be recognized as experts in a field, it is crucial to point out what is expected of them in terms of knowledge attainment. Taylor's description (2010, pp. 60-61) of disciplinary knowledge makes it possible to emphasize that expertise is not simply about developing awareness on a body of knowledge. She summarized the core elements of discipline knowledge as follows, providing a conduit to define discipline expertise:

1. Substance (what do we know and what do we study?)
2. Language and symbols (how do we express and communicate knowledge?)
3. Modes of inquiry (what methods are used to identify questions and to collect, interpret, and judge evidence?)
4. Organization (how do we organize knowledge within our discipline and in relation to other disciplines?)

5. Values (what assumptions and values influence the knowledge we pursue and how we pursue it?)

Such a conceptual viewpoint of disciplinary knowledge can reveal how supervisors’ discipline expertise is at play in doctoral students’ research process. In doing so, it will also be possible to question how many of the above elements have been prevalent within the context of supervision? In other words, does the contemporary doctoral training still emphasize knowledge gain in a particular discipline through supervisory interactions? As Carter and Laurs (2014, p. 112) put it, producing a thesis requires “insider awareness of discipline convention”. Putting this awareness into practice and building on Taylor’s (2010) view above, requires immersing oneself in particular epistemological and axiological standpoints (i.e., how a research problem is studied and the values embedded in that research) (Parry, 1998). For instance, as the literature on methodology (e.g., Denzin & Lincoln, 2005) would suggest, science disciplines may favor positivistic and quantitative approaches that use statistical data, while social science disciplines commonly employ interpretive approaches in research that utilize descriptive and textual information. From this angle, one can assume that disciplinary knowledge is associated with specific research practices.

When one embodies these practices, for example in thesis writing, doctoral students’ development of discipline expertise contribute to a shift in scholarly identity (Carter & Laurs, 2014), where they eventually become doctoral level graduates who demonstrate “systemic and critical understanding of a substantial and complex body of knowledge at the frontier of a discipline or area of professional practice” (Australian Qualifications Framework Council, 2013, p. 63) and to eventually take up “a position of expertise and authority” (Kamler & Thomson, 2014, p. 16). This shift in identity does not mean that one should rely solely on supervisors to develop technical and research skills. Yet, paradoxically, without the guidance of experienced scholars in a specific discipline, doctoral students may need to acquire such skills through other means, perhaps through undertaking unguided readings or consulting academics beyond the supervisory team.

Demonstrating discipline expertise is embedded within supervisor-student interpersonal relationship as both parties exchange and construct knowledge through supervision (Reidy & Green, 2005). A frequently addressed issue in the literature of doctoral supervision is with regards to the interpersonal relationship between supervisors and students. In exploring the views of supervisors and doctoral students, Ghani and Said (2014) found an expectation gap with respect to common research interests. Their results showed that having common research interests was the least important consideration in selecting supervisors from supervisors’ point of view. In contrast, common research interest was a key criterion for doctoral students’ selection of supervisors. This study implies that there exist mixed views about whether supervisors’ discipline expertise should be the key driver of a thesis work.

The literature on doctoral supervision has traditionally focused on relational issues (e.g., Overall, Deane & Peterson, 2011) and student satisfaction (e.g., Heath, 2002). These studies have frequently focused on examining institutional, background and interpersonal factors that contribute to the progress of a doctoral research, such as the personal qualities, supervision practices and supervisors’ engagement with students (Bui, 2014). A less clear picture emerging in these discussions, however, is the views of doctoral students on the importance of working with supervisors who possess discipline-specific knowledge in the area that students are researching. Put differently, to what extent is supervisors’ discipline expertise valued by doctoral students? Therefore, in focusing our study on understanding how supervisors’ discipline expertise contributes to doctoral students’ research, our paper contributes to the knowledge base with reference to education discipline within the context of internalization by addressing the following research questions:

RQ1. How significant is a supervisory team’s discipline expertise on doctoral research from students’ point of view?

RQ2. What specific forms of research support do supervisors with discipline expertise provide to doctoral students?

METHODS

This study employed both quantitative and qualitative methods to address the research questions mentioned above. The quantitative data were useful to understand and explore, for example, participants' level of agreement on the importance of supervisors' expertise alignment with doctoral students' research. The qualitative data were used to understand doctoral students' personal attitudes towards the support they received from their supervisors.

Employing convenience sampling method, this study was conducted in an education faculty with the support of an institutional unit that monitors the quality processes in a regional university in Australia. The education faculty was selected for two reasons. First, the faculty was an ideal location for participant recruitment due to proximity to our academic location. Second, the faculty had a reasonable balance of domestic and international students, contributing to a growing research record in a wide range of areas in the education discipline, such as mathematics, literacy, science education, health and physical education, early childhood education and teaching English to speakers of other languages.

The participants were selected from the education faculty to offer consistent views from a single academic discipline. All participants were enrolled as PhD or EdD international and domestic students. We focused on enrolled doctoral students to ensure that participants report ongoing experiences within the same institutional setting (rather talking about past experiences in retrospect), thereby enhancing the validity and trustworthiness of data (Krefting, 1991).

DATA COLLECTION AND INSTRUMENT

The findings presented in this paper are part of a larger project conducted in an Australian university. The project received ethics approval from Tasmania Social Sciences Human Research Ethics Committee (Ethics Reference: H0041236). The study drew on a mixed-method approach, using an online survey and semi-structured interviews. The survey instrument was developed, distributed and analyzed jointly by the authors during the larger project. Drawing on Colton and Covert's (2007) iterative process for survey instrument development, we developed the survey through selection of standards and literature based items, pilot testing, expert review and further revision. Because of the nature of our research aims, a mixed-methods design allowed us to explore the question at hand from two different perspectives (Watkins & Gioia, 2015), that is, the views pertaining to the importance of supervisors' discipline expertise and its associated practices that contribute to doctoral students' learning of disciplinary knowledge. This approach, as a whole, lent itself useful to gaining a quantitative representation of the significance of having discipline-expert supervisors (from doctoral students' point of view) and descriptions on supervisory practices associated with discipline-expert supervisors.

PROCEDURES

The survey was distributed to 87 doctoral students of an education faculty at an Australian university using SurveyMonkey, an online survey platform. Twenty eight (32.2%) participants responded to the online survey. All participants who completed the survey were invited for a follow up interview and subsequently 11 (out of 28) doctoral students agreed to participate. All participants in this paper are referred to using pseudonyms. Demographic information in relation to the participants' origin (international or domestic), year levels (first, second or third years) and gender was also collected through the questionnaire. Building on Taylor's (2010) principles to understand how discipline-expert supervisors support doctoral students' knowledge development in a discipline, this paper focuses on findings from a series of Likert-scale questions and interview questions that explored participants' level of agreement on the importance of supervisors' expertise alignment with students' research area and their views on the support they received from their discipline expert supervisor. For example, participants were asked "the level of knowledge of my supervisor/s in relation to my area of research has contributed to intellectual absence (e.g., unable to contribute to discussions on highly complex sub-

ject matter) during supervisory interaction’, where would you place yourself on this scale?” (with 1 = strongly disagree and 5 = strongly agree).

DATA ANALYSIS

The descriptive statistics examined: (1) the participants’ beliefs on whether a supervisory team’s level of expertise aligns with students’ research topic; and (2) level of agreement on the importance of supervisors’ expertise alignment with students’ research area. A series of one-way analysis of variance (ANOVA) tests for the entire sample was conducted. The purpose was to identify the significant mean difference of the participants’ level of agreement on the importance of supervisors’ expertise alignment with the students’ research areas in relation to international and domestic and year levels. Post hoc analyses were then used to identify the significant mean difference.

The interview data were used to illustrate how the supervisors made a difference in their doctoral learning from the doctoral students’ perspective. To achieve this analytical goal, all comments related to the discipline expertise of supervisors were extracted from the qualitative data pool of the project for further scrutiny. First, each set of data was transcribed. The transcripts were read several times to obtain an overall sense of the data. This analytical reading was to inform the structure of the codebook (La Pelle, 2004), which resulted into broad themes such as supervisory support and research expertise. These themes were then exported to Excel to tabulate relevant themes (Cresswell, 2009) under the heading of research expertise. The responses on research expertise were inspected further, allowing us to specifically identify descriptions on supervisory support associated with supervisors’ discipline expertise. For instance, responses on methodological expertise were excluded in this step, leaving the participants’ comments on supervisors’ discipline expertise for illustration in the sections to follow.

RESULTS

DEMOGRAPHICS

Twenty eight (32.2%) doctoral students from the total of 87 doctoral students in the Faculty of Education at a regional Australian university participated in this study (Table 1). At the time of data collection, 1252 HDR students (including students pursuing Masters by Research) were enrolled at the University. The participants represented a diverse country of origin (International and Domestic), years level (First, Second and Third years), studying (full-time and part-time) and gender.

Table 1. Demographic data of participants

Study Mode			Origin			Study Year				Gender		
Full-time	Part-time	*	Domestic	International	*	1 st	2 nd	3 rd	*	F	M	*
23	4	1	14	12	2	8	9	9	2	21	6	1

* I’d prefer not to say

Most participants were enrolled as full-time (N = 23); another four were enrolled as part-time (N = 4) and one participant did not disclose his/her enrolment status. A notable number of participants were domestic students (Australia) (N = 16). With regards to gender, more than half of the participants were female doctoral students (N = 21). As shown in Table 1, participants were from all levels of study, first year (N = 8), second year (N = 9), and third year (N = 9).

OVERALL BELIEFS OF DOCTORAL STUDENTS ON SUPERVISORY TEAM’S LEVEL OF EXPERTISE

In the online questionnaire, participants were asked yes, no and not sure questions, which examined the participants’ beliefs in relation to the importance of their supervisory team’s discipline expertise.

As shown in Table 2, a large number of participants underlined the importance of having expert supervisors for successful supervision processes.

Table 2. Beliefs on whether supervisory team's level of expertise align with students' research topic

Items	Responses (N (%))		
	Yes	No	Not sure
Do you believe that your supervisory team (all supervisors combined) has a similar level of expertise in the area you are researching for your doctoral study?	11 (39.3)	13 (46.4)	4 (14.3)
Do you believe that your primary supervisor has expertise on what you are currently researching for your doctoral study?	16 (57.1)	10 (35.7)	2 (7.1)
Do you believe that your co-supervisor/s have expertise on what you are currently researching for your doctoral study?	20 (71.4)	6 (21.4)	2 (7.1)
Do you think having (a) supervisor/s that has/have a disciplinary expertise on your topic is important for your overall supervision experience?	22 (78.6)	3 (10.7)	2 (7.1)

More than 70% of participants (N = 22 [78.2%]) believed that having supervisors with similar expertise on the topic students were researching was important for their overall supervision experiences. A significant number of participants (N = 13 [46.4%]), however, did not believe that their supervisory team(s) have a similar expertise in the area they are researching. Interestingly, the number of respondents who did not believe their primary supervisor has expertise in what they were researching (N = 10 [35.7%]) is greater than that of their co-supervisors (N = 6 [21.4%]). This means a large number of participants had co-supervisors who had similar expertise with what they were researching than their primary supervisors. A large number of participants (N = 22[78.6%]) showed that having supervisor/s expertise aligned with the topic they are researching is important for their overall supervision experience.

PARTICIPANTS OVERALL LEVEL OF AGREEMENT ON THE IMPORTANCE OF SUPERVISORS' EXPERTISE

As shown in the comments of the doctoral students above, many valued the importance of having discipline-expert supervisors and recognized the advantages they brought to the doctoral students' work. From their point of view, the qualities of the supervisors with discipline expertise seemed to have had sped up their research progress by connecting them with appropriate literature and contacts in the field. To further probe the significance of supervisors' discipline expertise, Table 3 shows that a large number of participants either agreed or strongly agreed on the importance of supervisors' expert knowledge in the process of their doctoral study.

To highlight a few items, for example, over 50% of the respondents either agreed (N = 8 [28.6%]) or strongly agreed (N = 9 [32.1%]) with M = 3.7 that having supervisor/s who have expert knowledge in the area they are researching is essential for successful candidature. Although over half of the participants disagreed (N = 15 [53.6%]) on the negative impact of having non-expert supervisors on the quality of feedback on the respondents' written work, the respondents held that academic expertise/knowledge is an important consideration when nominating a supervisory team (M = 3.70). Supervisors' discipline expertise remained to be a key criterion when choosing supervisors upon admission in a doctoral program. The results suggest that more than 70% of the participants agreed that the level of knowledge of their supervisors have in in relation to their area of research meant that they were comfortable in approaching them about aspects their research area (M = 3.93; SD =1.0).

Table 3. Level of agreement on the importance of supervisors’ expertise alignment with students’ research area

Items	Responses* N (%)					M (SD)
	SD	D	U	A	SA	
The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the quality of their feedback on my written work.	4(14.3)	15(53.6)	2(7.1)	2(7.1)	4(14.3)	2.52(1.28)
The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the supervisory relationship.	8(28.6)	13(46.4)	2(7.1)	2(7.1)	2(7.1)	2.15(1.16)
The level of knowledge of my supervisor/s in relation to my area of research has contributed to intellectual absence (e.g, unable to contribute to discussions on highly complex subject matter) during supervisory interaction.	8(28.6)	11(39.3)	1(3.6)	3(10.7)	4(14.3)	2.41(1.42)
The level of knowledge of my supervisor/s in in relation to my area of research has had a positive impact on my overall experience as a PhD candidate.	1(3.6)	3(10.7)	6(21.4)	9(32.1)	8(28.6)	3.74(1.13)
The level of knowledge of my supervisor/s in in relation to my area of research has meant that I am comfortable in approaching them about aspects of my research area.	1(3.6)	2(7.1)	4(14.3)	11(39.3)	9(32.1)	3.93(1.01)
Academic expertise/knowledge in my research area was an important consideration when nominating my supervisory team.	0(0.00)	4(14.3)	2(7.1)	7(25.0)	13(46.4)	4.12 (1.10)
Having supervisor/s who have expert knowledge in the area I am researching is essential for successful candidature.	0(0.00)	7(25.0)	3(10.7)	8(28.6)	9(32.1)	3.70(1.20)

PARTICIPANTS OVERALL LEVEL OF AGREEMENT ON THE IMPORTANCE OF SUPERVISORS’ EXPERTISE AS A FUNCTION OF ORIGIN AND YEAR LEVELS

A series of one-way analyses of variance were conducted to evaluate the relationship between participants overall level of agreement on the importance of supervisors’ expertise as a function of origin, studying, gender and year levels. The significant mean difference is observed only on the independent variables origin and year levels. The independent variables, origin, included international and domestic whereas year levels included, first, second and third years.

As shown in Table 4, there was a mean difference on participants overall level of agreement on the importance of supervisors’ expertise as a function of origin and year levels across all the items. However, a significant mean difference is observed only on two of the items, that is, “having supervisor/s who have expert knowledge in the area I am researching is essential for successful candidature” as a function of origin and “The level of knowledge of my supervisor/s in in relation to my area of research has had a negative impact on the supervisory relationship as a function of year level.”

Table 4. Participants overall level of agreement on the importance of supervisors' expertise as a function of origin and year levels

Items	Origin				Year Level					
	International (N = 9)		Domestic (N = 16)		First (N = 8)		Second (N = 9)		Third (N = 9)	
	M	SD	M	SD	M	SD	M	SD	M	SD
Academic expertise/knowledge in my research area was an important consideration when nominating my supervisory team.	4.50	0.54	3.81	1.28	4.25	1.17	4.25	1.17	3.63	1.06
Having supervisor/s who have expert knowledge in the area I am researching is essential for successful candidature.	4.22	1.09	3.25	1.13	3.25	1.39	3.89	1.17	3.75	1.16
The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the quality of their feedback on my written work.	2.78	1.09	2.31	1.25	2.38	1.50	3.33	1.41	1.88	0.35
The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the supervisory relationship.	2.11	0.93	2.13	1.26	1.38	0.52	3.00	1.50	2.00	0.76
The level of knowledge of my supervisor/s in relation to my area of research has contributed to intellectual absence (e.g. unable to contribute to discussions on highly complex subject matter) during supervisory interaction.	2.44	1.33	2.37	1.50	2.50	1.60	2.67	1.66	2.25	1.16
The level of knowledge of my supervisor/s in relation to my area of research has had a positive impact on my overall experience as a PhD candidate.	4.00	1.00	3.56	1.21	4.00	1.06	3.11	1.36	4.00	0.76
The level of knowledge of my supervisor/s in relation to my area of research has meant that I am comfortable in approaching them about aspects of my research area.	3.67	0.87	4.00	1.21	4.38	0.74	3.56	1.42	3.75	0.89

A further ANOVA analysis was conducted from a normally distributed sample with homogenous variance. As shown in Table 5, two of the ANOVAs were significant, revealing a significant mean difference as a function of origin existed on participants' agreement on the item "Having supervisor/s who have expert knowledge in the area I am researching is essential for successful candidature" ($F(3,81) = 9.07, p = 0.036 < 0.05$). Follow-up tests (Post Hoc) were conducted to evaluate pairwise differences among the significant means. International doctoral students regarded highly ($M = 4.22$) than domestic doctoral students ($M = 3.25$) having supervisor/s who have expert knowledge in the area they are researching is essential for successful candidature. Similarly, a significant mean differ-

ence as a function of year level existed on participants’ agreement on the item “The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the supervisory relationship.” ($F(3,70) = 11.53, p = 0.016 < 0.05$). The Post Hoc analysis indicated that the mean difference only existed on first and second year doctoral students on this particular item. Second year students ($M = 3.00$) highly regarded than first year doctoral students ($M = 1.38$) on the negative impact of the level of knowledge of their supervisors have in relation to their area of research on the supervisory relationship.

Table 5. Mean differences agreement on the importance of supervisors’ expertise as a function of origin and year levels

(I)Origin/Year Level	(J)Origin/Year Level	Having supervisor/s who have expert knowledge in the area I am researching is essential for successful candidature		The level of knowledge of my supervisor/s in relation to my area of research has had a negative impact on the supervisory relationship	
		Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
International	Domestic	0.97 ^a	0.036	-0.014	1.000
First Year	Second Year	-0.639	0.708	-1.625 ^a	0.016
	Third Year	-0.500	0.845	-0.625	0.617
Second Year	Third Year	-0.139	0.995	1.000	0.210

^aThe mean difference is significant at the 0.05 level.

SUPPORT FROM SUPERVISORS WITH DISCIPLINE EXPERTISE

As the foregoing section has shown how the participants tended to view supervisors’ discipline expertise in many aspects of their doctoral experience as important, it is relevant to highlight how such expertise translated into research support. That is, how discipline expertise made a difference in the research of the doctoral students. After categorizing the different types of support from supervisors, some participants’ interview responses provided clues on how supervisors’ discipline expertise contributed to the doctoral students’ research by enabling them to connect more strongly with their disciplines. In practice, supervisors with discipline expertise were more able to provide support in relation to research direction and content-specific feedback.

Research direction

Most participants felt that discipline-expert supervisors were capable of providing them with research direction. A common form of research direction was providing guidance in literature search and understanding the literature in the field. For instance, Susan recounted how she struggled with locating appropriate literature in her field initially, and then her supervisor recommended her to read some key texts in her area: “My primary supervisor is an expert in my area. And how I have asked for specific guidance really has been to help me navigate my way into the literature in my field of studies”. Consistent with this comment was Rita’s description of her supervisor’s assistance in distinguishing relevant and less relevant literature for her thesis:

I believe it is important to have supervisors with experience in methodology and the processes of research however, highly important for supervisors to have an understanding of the disciplinary field that their student is operating within. This is because knowledge of the ‘field’ can guide a student’s inquiry rather than them spending too much time on elements of the research that may not be entirely relevant.

A related point to Rita's comment about supervisors' knowledge of the field was their ability to guide doctoral students' understanding of the literature. Alicia described an interaction in a supervision meeting with her supervisor whom she thought was highly knowledgeable of her research topic:

We agreed that I go read about something like [a theory] okay. And then when I come back to him, we... uh although I prepared some documents and then I provide some things on that point, I read this, I know this, I know that and I give him the... a report or a sentence via email. I assume that okay that I've done my part and I've learned this, but it's not enough for him. When we have meetings, he puts the documents aside and then he asks me, 'What did you understand? What did you learn? And then tell me.' And then we share and we had a conversation about that topic. Then, um, obviously it's in a way that he really knows more than me. Although I've just recently updated my information about that particular topic. Still he is the person who knows really better and he can pick the things that I didn't understand then he explains and I go and read it again. So, this is one part about learning. He encourages deep learning. It really means a lot to me.

Alicia's account seems to hint that her discipline-expert supervisor was in a better position in pointing out the gaps in her knowledge of the literature. In turn, the explanation she received from her supervisor served as a useful point of reference of what to read further and more deeply in her research. On the other hand, Lisa, a doctoral student supervised by academic staff members who were less knowledgeable in her specific area, provided a contrasting example. When in need of assistance related to the discipline-specific area of her research, she would turn to the people she met in the professional organizations and conferences: "although I do not have the content expertise in my supervision team, I do have it through the education association and the people I have met through the association and conferences".

Content-specific feedback

Apart from research direction, some participants believed that discipline-expert supervisors were able to give them content-related feedback. From their point of view, this is when supervisors pointed out what was omitted in their writing. Linda mentioned how her supervisor asked her to clearly define certain terms, include relevant or exclude irrelevant literature, and comments in her thesis:

He'll come back with hundreds of comments... they're comments about... things like I may have forgotten something or I um... a comment might not make sense to him and he wants further clarification, or he'll say 'don't forget to add this bit', and ideas on how to reword it, if need be. And also, sections that are uh good, he makes comments there as well: 'this is fantastic, brilliant or well done'.

Although Linda added that the numerous comments from her discipline-expert supervisor seemed daunting, she showed no objection at all: "I know there's gonna be so much to address and read. Um but that's fine, that's what I want". For Rick, his discipline-expert supervisor gave him input when he brainstormed for his thesis chapters, such as commenting on his butcher's paper and telling him to "look at so and so" (relevant citations) to enrich his ideas. Similarly, among the different types of feedback Peter received from his supervisory team, he talked about a specific scenario of how his discipline-expert supervisor commented on his use of theory in his thesis:

The other feedback was probably [when] you use the theory and he says, 'This theory does not work well with what you're doing. So, try this one, read about this one and see how best it can fit'. So, when I used that, I read and probably find that it actually is in line with what I'm doing. Then I read and get it and send [it] through and [he] gives me feedback to try to help me on how best it can fit into... to flow [of] the study.

This feedback of Peter from his supervisor seemed to have had shaped his writing in a way that made his study more coherent because of the supervisor's ability to judge the appropriateness of the theory Peter once used. More broadly, in acknowledging the support of her discipline-expert supervisor, Chrissie asserted that "you need someone that can tell if you are missing any key literature, who has contacts in your field, and knows from the research field, the context of your study." Chris-

sie’s latter comment pointed to broader aspects of academic networking that goes beyond research support at the level of thesis writing.

The common feature of the above two themes is the likelihood of discipline-expert supervisors in propelling doctoral students’ research progress. In sum, as Luke phrased it, “A supervisor having expertise in the discipline can make the PhD experience worthwhile. Otherwise it’s a stressful situation for both the candidate and the supervisor”.

DISCUSSION

In addressing RQ1, the responses of the doctoral students represent their collective views toward the value of their supervisors’ discipline expertise, which extend our understanding of the implications of supervisors’ discipline expertise on doctoral learning experience. The doctoral students who had discipline experts in a supervisory team reported that they were associate supervisors (or co-supervisors—members of the supervisory team who do not assume a primary supervision role). This finding seems to suggest that most primary supervisors were not discipline experts but the associate supervisors, which may be a result of staffing arrangements related to academic workload. Staffing arrangement with regards to its impact on supervision arrangement is an area that needs further examination. More broadly, mismatch in supervisors and students could be attributed to the changing institutional arrangements in universities (Wilks, 2006) and the widening research interests of doctoral students (Group of Eight, 2013). It is then important to consider to what extent a particular faculty’s research profile matches that of the students. That is, how extensive a faculty’s research profile is to cater to the needs of doctoral students. The findings here support previous studies (Abigail & Hill, 2015) that having supervisors who are experts in students’ research area can enhance doctoral learning experience. The reason behind this match was made explicit by the participants. This is where they felt they received support specific to their discipline conventions and academic network. In other words, doctoral students are more likely to progress more smoothly with their candidature given the discipline-specific knowledge (Mashau et al., 2014) they could acquire from their supervisors. This point is illustrated more closely as we examine the implication of the interview responses.

Furthermore, the analysis shows differences between the views of domestic (Australian) and international doctoral students regarding the importance of supervisors’ discipline expertise. This aspect is relevant to the internationalization of research profile in doctoral student bodies at school and faculty levels. The comparison made between domestic and international doctoral students suggests that the latter emphasized the importance of supervisors’ discipline expertise more. Even though there could be many reasons for pursuing postgraduate studies abroad, it seems viable for international students to seek specialist knowledge in a field or research opportunities that may not be available at home. This speculation, however, needs further investigation beyond the scope of this paper to understand its significance. Similarly, the quantitative analysis indicated that a difference existed across year levels (first and second) on the type of support students expect from their supervisor. Second year students highly regarded discipline related supports than other types of supports (such as emotional support). This finding is similar to previous studies such as Bui (2014) who showed doctoral students’ expectations on the kind of support changing over time, which in turn shaped and challenged supervisors’ strategy to meet their doctoral students’ expectations.

Turning to RQ2, the participants echo the notion of Taylor (2010) that being familiar with a disciplinary structure can help students appreciate not only specialist knowledge, but also the values associated with it. What is clear from the data is that discipline-expert supervisors were more capable of providing them research guidance, particularly in helping students locate relevant texts for their writing. That is to say, the doctoral students were positive about staying more focused in their research under the guidance of a discipline-expert supervisor. Related to this point is the content-specific feedback of supervisors on doctoral students’ writing as the data also indicate that such form of support is valued by the students. The doctoral students felt more supported in a sense that disci-

pline-expert supervisors could point out what they omitted in their writing in terms of content. In observing these findings using Taylor's vocabulary, discipline-expert supervisors are more likely to guide students with their modes of inquiry, that is, the ways in which researchers gather, identify and judge the evidence they have (e.g., appropriate literature or materials for their thesis) to substantiate their propositions in their research. Such an observation is reasonable given that literature review is a section that requires students to demonstrate their grasp of their materials they draw upon for their research. When selecting appropriate literature to review, as Kamler and Thomson (2014, p. 49) exemplified, "Getting the best search terms relies on detailed knowledge of the field, something beginning doctoral researchers cannot, by definition, have". Although supervisors' discipline expertise is highly valued, this study records no explicit negative experience associated with doctoral students who were supervised by staff who were less knowledgeable in their research area. Even though some participants anticipated the challenges associated with the absence of academic staff members who were familiar with their specific area, it would be a remiss to neglect the support of supervisors who had no discipline expertise. As Satariyan et al. (2015) reported elsewhere, these supervisors tended to offer methodological expertise, editorial and emotional support to doctoral students. Meaning to say, non-discipline-expert supervisors also play an important role in the doctoral learning process.

While the knowledge of supervisors in a discipline is vital, ascertaining its impact on the quality of supervision is not straightforward. This is perhaps the case of doctoral students who chose to work with supervisors based on personal preference. On the other hand, it is crucial to investigate whether a mismatch in supervisors' discipline expertise and students' research topic would be detrimental to the doctoral learning experience. In our analysis, second year doctoral students tended to agree on the negative impact of having supervisors who do not possess specialist knowledge in their field on their studies. The difference could be explained by the increased exposure of doctoral students to knowledge in their respective disciplines. Assuming that second year students were more immersed in the literature in their field compared to first year students, knowledge gaps of supervisors in their discipline areas could be increasingly noticeable to them.

CONCLUSION AND WAY FORWARD

While the data reported here cannot be generalized because of the small sample size, the findings provide a glimpse into the ways in which doctoral students benefit from supervisors' discipline expertise. The scope of the findings also leaves open a discussion about the experiences of doctoral students matched with non-discipline expert supervisory teams. For instance, how widespread is this mismatch in other faculties? If so, why and what are its ramifications? We could not directly address these questions with further inquiry—it was too sensitive a topic and we would have met with reluctance on the part of students who were still enrolled in the university, especially if they were on the receiving end of undesired supervisory arrangements. Nonetheless, our analysis supports the assumption that supervisors' guidance on discipline-specific knowledge is valued and can help accelerate doctoral students' progress. If this assumption is to be scrutinized, further work is needed to investigate whether the same observation on supervisors with discipline expertise holds true, and if so, how it may influence doctoral learning progress in other academic disciplines. However, when pursuing this line of research, alternative methods should be considered because of the sensitivity of the topic. These methods include the use of (fictional) case studies as stimulus to open up conversations on sensitive issues without having to direct the questions on the participants' own experience too explicitly. Macfarlane (2015), for instance, employed this approach to explore the (controversial) practices in deciding authorship order among faculty members and students.

Since doctoral students navigate the unknown terrains of research as they reach the knowledge boundaries of their specific disciplines, supervisors play a pivotal role in helping doctoral students overcome intellectual barriers by imparting their discipline knowledge. Ultimately, it raises questions with regards to the role of supervisors' discipline expertise alongside the intense demands placed upon supervisors to balance satisfactory doctoral completion rate and high quality student experi-

ence. This role is not trivial as it resonates with Brabazon’s (2013, para. 18) advice for potential doctoral students to choose a supervisor who can “turbocharge” their research:

The appropriateness of a supervisor’s field of research is critical because it can save you considerable time. Supervisors who are reading, thinking and writing in the field can locate a gap in your scholarly literature and – at speed – provide you with five names to lift that section. A generalist will not be able to provide this service.

If this advice is to be taken seriously, then it may be possible to question whether this climate in doctoral education—that places great emphasis on high completion rate and quality student experience—will put the role of supervisors’ discipline expertise at stake. Is doctoral education just about ticking the supervision “checklist”, helping students jump through the hoops of candidature and examination requirements? Is it just about helping them write the “perfect” thesis? If we go beyond the mechanics of thesis writing and heed the views of our participants, it becomes difficult to resist the idea that doctoral supervision is more about equipping them with the right arsenal to be able to competently “operate within” their field, which prepares doctoral students for their future research or professional career that demands a high level of discipline expertise.

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