Learning to complete the PhD thesis

Khairul Akmaliah Adham
Universiti Sains Islam Malaysia
Huong Ha
Singapore University of Social Sciences, Singapore
Shifa Mohd Nor and Zaleha Yazid
Universiti Kebangsaan Malaysia

Research competencies are pertinent to academic researchers. Due to increasingly demanding work situations, academic researchers are forced to rapidly develop competencies in both qualitative and quantitative research. However, studies on how doctoral candidates develop competencies to complete their PhD theses are limited. This study, therefore, examines the types of learning method including the processes and drivers of learning among academics, who have successfully employed qualitative methodologies in their doctoral research. We used the perspectives of learning theories, doctoral education processes and network perspective as the study's conceptual framework. We employed a qualitative design comprising in-depth interviews with ten researchers in the field of management. The findings suggest that researchers learn qualitative methodologies through both formal and informal methods of learning. Self-study, guidance from supervisor and network support which are closely tied to one's own self-reflection contribute to the successful application of qualitative methodology in doctoral research.

Introduction

The expectations for research competencies have become more pertinent in the contemporary research environment. Highly demanding key performance indicators of higher education institutions require researchers to rapidly develop their competencies in conducting research, publishing their research output, teaching research methodologies, and performing other teaching and research tasks. These increasing work demands can pose significant challenges for researchers in the course of acquiring their research competencies. Given this context, therefore, it is important to understand the process of developing research competencies.

Although the topic of learning quantitative research has been actively discussed (Murtonen & Lehtinen, 2003; Murtonen, Olkinuora, Tynjälä & Lehtinen, 2008), not much is known about how one develops his or her competencies in completing his or her PhD thesis via conducting qualitative research. Despite many authors (Lattuca, 2002; Kim, An, Kim & Kum, 2018; Shank & Villella, 2004) discussing various types of integrated research approaches which include staged research, multiple methods, or mixed methods, the qualitative methodology is one of major approaches utilised by researchers in many fields. Its strength lies in its ability to support the examination of phenomena within their contexts, and thus, it has a distinct advantage in addressing the "how" question (Merriam, 2009).

Using qualitative methodology is challenging as it is time and resource-consuming. It also requires sound understanding of the underlying philosophies to conduct the study (Creswell, 2012). In addition, acquiring a particular competency involves various learning approaches. However, not much is known about how one develops his/her competencies in conducting qualitative research. Therefore, this study aims to provide insights into the learning process of PhD candidates and how they can complete their PhD theses by adopting qualitative methodology. Thus, the research questions that guide this study are:

1. What are the learning methods through which academic researchers learn about qualitative research methodology?
2. What are the types of knowledge gained through these different learning methods?
3. What are the drivers of learning for these academic researchers to complete their theses?

In answering the research questions, we utilised a qualitative methodology and developed a conceptual framework based on learning theories, a doctoral education perspective and a network perspective. Learning theories explain the methods of learning and the types of knowledge gained during the doctoral program, while doctoral education perspective describes doctoral research as a process that occurs in stages (Buckler, 1996). In achieving completion of a study, the learner leverages various learning methods and capitalises on his/her networks of relationships, comprising the supervisor, and others in their social and professional networks. This behaviour can be explained by the network perspective. Based on this conceptual framework, we developed the questions to be utilised as the main instrument in conducting interviews with selected PhD graduates in the discipline of management. The interviewees had utilised qualitative methodology in their theses.

Literature review

Learning processes and competency development

Learning is defined as a change of one's behaviour as a result of a particular experience or situation (Wakefield, 1996). The outcome of learning can also exist in the form of "know-what", through which the learner gathers new information and insights about something (van Eekelen, Boshuizen & Vermunt, 2005). Learning by individuals can be observed through their understanding about a certain fact, or ability to perform a certain task or function which previously was beyond their abilities. Thus, learning occurs as a process of competence development that progresses over a period of time.

According to Cheetham and Chivers (2001), individuals go through four phases of competency development. First, *unconscious incompetence* is a situation in which one is not yet aware of the competency gap. Second, he/she then moves to the *conscious incompetence phase* in which he/she becomes aware of the competency gap, but has not yet overcome it. Once this awareness is established, the learner usually takes the effort to overcome the competency gap, which brings him/her to the third phase of competency development - *conscious competency*, through which he/she performs the required task/function, and

attempts to become good at it. Then, the learner progresses to the final phase of *competence development*, in which he/she performs the task effectively without much effort.

Defining knowledge

The development of knowledge in individuals begins with their acquiring and processing of data into information. According to Nonaka (1994), it is from this information, in combination with their foundations, understanding, experience, and beliefs, that knowledge is created in persons. An individual's knowledge exists in the form of explicit knowledge, which is a form of an individual's knowledge that can be easily transferred to others through various modes of communication, and tacit knowledge, a form of knowledge that resides in an individual's mind and is not easily transferred (Smith, 2001).

Learning approaches and methods

Buckler (1996) suggested that learning occurs through the *taught* or *discovery* approach. The taught approach is usually teacher-centred and most appropriate to impart explicit form of knowledge, while the discovery approach hinges on learner experimentation and intrinsic motivation to learn, with the types of knowledge gained usually more complex or tacit.

In the context of doctoral education, candidates need to develop a number of competencies, including abilities to understand academic research, to write based on academic conventions, to synthesise existing knowledge, to think analytically, to apply theories, to logically link their arguments, to use appropriate research methodology and to analyse data accordingly, and to bring the thesis project to a successful closure. A central point in a doctoral program is the development of competency in applying a particular research methodology through formal and informal learning approaches.

Formal learning usually refers to a structured approach to learning with clear learning objectives, i.e. the learner has explicit intention to learn (OECD, 2015). Formal learning within the context of doctoral studies can be defined as formal research methodology and statistics classes or related coursework, provided by the institutions to doctoral candidates.

Informal learning refers to all other forms of learning outside of classes, which include learning through interaction with a supervisor, or experts in the discipline, or communication with peers. Informal learning comprises two types. The first type is when learners intentionally make a purposeful effort to learn something. The second type occurs when there is no set objective, and learners have no specific intention to learn (OECD, 2015). The first type of informal learning may involve attending a workshop with the clear intention to learn something (purposeful informal learning). Meanwhile, the second type of informal learning may involves interacting with other researchers with no clear intention of learning something, but learning did occur coincidently (incidental learning).

Purposeful informal learning methods may include interaction with the supervisor when a candidate has a specific intention to learn something. Role modelling and experiential

learning can occur in the form of purposeful or incidental learning (Cheetham & Chivers, 2001). Doctoral candidates can perceive their supervisors or other experts in their area as a role model, and thus they can model their behaviour to those of experts (Bandura, 1986). Learning can also occur through the support of mentoring from the supervisor and others (Patton, 2009).

Experiential learning occurs when the candidates' experiences result in them learning something, although this experience might not be purposely sought. However, the candidates will only learn something from the experiences if they are able to reflect on the lessons learned from the experiences, a situation called reflective learning (Boyd & Fales, 1983). This explains why different people might not have the same effect in learning, although they had similar experiences.

Other forms of learning include learning by doing, reading, thinking, and interaction. Learning by doing involves directly performing a specific task, and becoming good at it through trial and error, while learning by reading involves self-study (Van Eekelen et al., 2005). These forms of learning require thinking and reflecting on the tasks that are performed. Self-study through reading books, journal articles, and theses could be an important method utilised by doctoral candidates. Learning by interaction involves getting information from others which is then reflected by the learner (Van Eekelen et al., 2005). The use of interaction as a source of learning can be explained by the network perspective (Borgatti & Cross 2003). From this perspective, a person is networked to his/her social and professional groups (e.g. peers in the university, virtual/online peers) which can serve as sources of awareness and information, and provide the social support for the person's work and life (Cross & Cummings, 2004). Doctoral candidates can also learn relevant knowledge and technical skills through participating in workshops and seminars.

Stages of learning process and motivations to learn

The six stages of learning according to Buckler (1996) are: (1) ignorance; (2) awareness; (3) understanding; (4) commitment; (5) enactment; and (6) reflection. A learning process begins at the first phase, i.e. ignorance phase. The technique of questioning may be beneficial at this phase to encourage discovery of the existence of the knowledge. The second phase is the awareness phase when learners are alerted to the specific matters that they need to learn. Learners need to self-reflect to establish the need for learning. Then, they will move to the third phase of learning - the understanding phase. The learners' increased understanding may result in them further establishing the necessity of learning, which will take them to the commitment phase. In this phase, the learners' own intrinsic motivation to learn helps them sustain interest in the learning process. Some forms of external/extrinsic motivation may strengthen learner commitment in the learning process. In the next phase of enactment, the learner is able to demonstrate the knowledge gained from the learning process. Extrinsic motivation for learning will generate the learner's creativity and strengthen the application of the knowledge. In the last phase of reflection, the learners continues to think through their actions and outcomes, thus further increasing their understanding.

Progressing through these phases requires learners to overcome numerous barriers and challenges, including emotional aspects, family expectations, and financial commitments, and thus they need to be continuously motivated (Cotterall, 2013).

Doctoral research process

Grover (2007) explained that the doctoral research process comprises four stages: (1) exploration; (2) engagement; (3) consolidation; and (4) entry. To succeed and graduate, doctoral candidates must have the motivation and relevant competencies, and be able to effectively manage the research process (Brailsford, 2010).

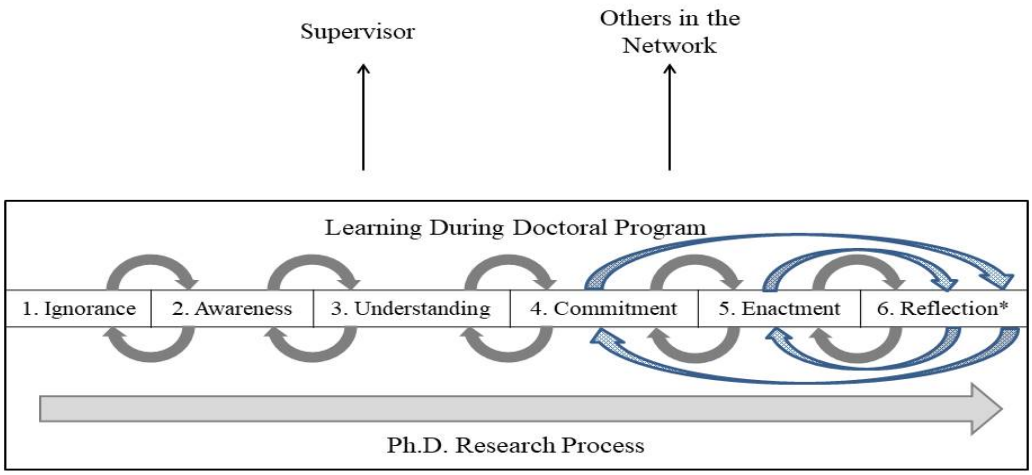
Grover (2007) suggested that in the exploration stage, the candidates start to realise the reality of the doctoral studies. They usually gather information about doctoral studies from senior candidates. They should be proactively familiarising themselves with the faculty environment, the resources they are entitled to use, and the rules and regulations which bind them throughout their studies. In the engagement stage, the candidates have to build good rapport with their peers and faculty members. They become socialised into the academic community through engaging in publication works. They should consider opportunities to attend conferences which can enhance their knowledge and be beneficial to their studies. In the consolidation stage, candidates have to be clear with their research ideas (Grover, 2007). Normally, this stage begins after the candidates pass their comprehensive exam or finish taking pre-requisite classes. While writing their thesis, they start to network with experts in their field. In this stage, the candidates have to build good relationships with the supervisor to ensure that they can graduate within the time frame, as the duration to complete a doctoral degree has increased significantly (Kearns, Gardiner & Marshall, 2008). Finally, the entry stage is when the candidates enter the work life. At this stage, the candidates should decide wisely and be aware of the trade-offs between finishing their studies and getting jobs (Grover, 2007).

Conceptual framework

The process of learning qualitative methodology during a doctoral program can be explained by learning theories, as well as doctoral education and network perspectives. These perspectives form the conceptual framework in this study (Figure 1). Learning theories explain the methods of learning and the types of knowledge gained during the doctoral program, while the doctoral education perspective provides a model of the doctoral research process.

Based on Buckler (1996), learning a particular research methodology in support of a doctoral research process occurs in the six stages (Figure 1). In parallel to these learning stages is the doctoral research process, which comprises four stages, namely exploration, engagement, consolidation, and entry. In pushing through these stages, the learners leverage on various learning methods and capitalise on their networks of relationships with the supervisor, and with those in the social and professional networks. Learning through interactions can be viewed from the network or relational perspective. Moreover,

candidates have to be continuously motivated intrinsically, and their efforts have to be supported by relevant external environments.



*Continuous iteration from Reflection to Commitment, Reflection to Enactment, Commitment to Reflection and Enactment to Reflection

Figure 1: Conceptual framework

Methodology

In this research we utilised a qualitative study design to gain understanding of the phenomenon of learning qualitative methodology from the interviewees' perspectives. The need for understanding their learning methods, the knowledge gained, and the drivers of their learning provided insights into how competencies in qualitative methodology were achieved. The application of the qualitative design in this study followed the procedures of Merriam (2009).

Respondents

The study's respondents were academics who undertook successfully a PhD program in the discipline of management, and had utilised qualitative methodology in their studies. At the time of the study, all interviewees were PhD graduates and are currently faculty members in various Malaysian universities. We conducted interviews with 10 PhD graduates, with the series ending after we had conducted interview number 10, as no new insights were gathered from additional interviews, arriving at what Merriam (2009) defined as the point of saturation.

The 10 interviewees were seven females and three males, who began and completed their studies between 2002 and 2013. Five interviewees did their PhD program in the UK, four in Malaysia, and one in Australia. All interviewees completed their doctoral degree under a dual or committee-based supervisory structure, except for one who was in a single supervisory structure. Three interviewees followed a US-style PhD program structure (two

years of coursework and completion of comprehensive exams before moving to the thesis stage), with their thesis being a partial fulfilment of their PhD degree. The others followed a UK or Australia-style PhD program structure in which their thesis was the sole requirement of the degree. All interviewees attended at least one year of pre-requisite coursework in their PhD programs. Table 1 shows the profiles of interviewees and the types of qualitative methodology they utilised.

Data collection

Data were collected through in-depth, semi-structured interviews, which contained a combination of focused questions and free-flow probing inquiries. The interviews, conducted in English, focused on inquiries about (i) the interviewees' learning methods in acquiring ability to utilise qualitative research method to complete their PhD theses, (ii) the knowledge that the interviewees had gained, and (iii) their motivations for using such methods. Each interview took approximately two hours and all interviews were digitally recorded and transcribed afterwards.

Two core ethical principles in conducting research are obtaining informed consent from respondents and ensuring confidentiality and anonymity of the data (Merriam, 2009). In this study, interviewees were invited to participate and information about the purpose of the research was provided to them, and they were informed that their participation in the study was strictly voluntary. Moreover, we addressed the issues of confidentiality and anonymity through the use of pseudonyms in reporting the findings.

Data analysis

Data were analysed following the grounded theory approach (Strauss & Corbin, 1990), in which we used thematic analysis in analysing all interview transcripts. We began the data analysis by reading and deriving codes from the first transcript. Each code was generated using one or more *verbatim* as evidence. These codes were classified based on the study's research questions, and they were then grouped as themes or categories. This procedure was repeated for all the interview transcripts, in which each analysis generated a set of categories that addressed each of the research questions. After each transcript had been analysed on its own, the categories were then cross-compared across all transcripts for similarities and differences. Once this procedure was done, categories that answered each of the research questions were finalised. The categories either affirmed those in the literature or were newly emergent from our data. The findings were then corroborated with relevant theories to find the best explanation on learning about qualitative methodologies. This procedure was utilised to establish theoretical generalisability for the study, which is achieved when the explanation of the phenomena is applicable in many settings (Eisenhardt, 1989). In this study, the findings and the relevant theories were continually iterated until we reached a point in which we were able to provide a comprehensive view of the learning of qualitative methodology.

Findings

Learning approaches and methods and type of knowledge gained

All interviewees used various approaches to learn about qualitative methodologies: (a) learning from previous formal education or previous experience; (b) taking required coursework; (c) attending classes, workshops, seminars; (d) learning through self-study; (e) participating in research groups; (f) guidance from the supervisor; g) leveraging on knowledge of peers, colleagues and experts; and (h) learning through *viva* examination. These learning methods promoted acquisition of various forms of knowledge about doctoral research, as well as concepts and applications of qualitative methodologies.

Table 1: Interviewees' profiles

Name*	Education back-ground prior to PhD	Work experience	Year of PhD start; location	PhD subject	Types of qualitative study
Johan	MBA	Industry and research experience	2007; Malaysia	Innovation management	Qualitative case study
Diana	MBA	Consulting and engin-eering research exp.	2007; Malaysia	Innovation management	Qualitative case study
Rose	Master of Technology (Business Systems)	Academic work exp-erience (mainly teaching)	2002; UK	Social capital	Grounded theory
Zetti	MBA	Academic work exper-ience (mainly teaching)	2004; Australia	International entrepreneurship	Critical realist
Zalika	Master of Laws	Audit work	2007; Malaysia	Corporate governance	Grounded theory
Jamal	Master of Indust-rial Psychology	Factory supervisor and some teaching exp.	2004; UK	Knowledge transfer	Qualitative case study
Azalea	Master of Information Technology	Academic work exp-erience (mainly teaching)	2004; UK	Knowledge management	Qualitative case study
Zahara	Master of Inform-ation Management	No work experience	2005; UK	Leadership	Qualitative case study
Surya	Master of Islamic Banking	Sales and secretarial job	2008, UK	Islamic finance	Qualitative case study
Sade	MBA	Lawyer and IP liaison officer	2009; Malaysia	Commercial-isation	Qualitative case study
* All names are pseudonyms					

Only one interviewee, Zalika, had formal exposure to a qualitative methodology through writing her thesis during her master's program. Zetti was first introduced to the methodology as a member of a qualitative research group. However, this can be classified

as the awareness phase, as she eventually used this methodology when she was a full-time PhD candidate.

In the first year of their PhD programs, six interviewees took their required coursework, i.e. classes on qualitative research methodology. These classes provided hands-on techniques for data collection and analysis. These interviewees made the decision to use the methodology when they took these classes. Zahara and Surya knew about qualitative methodology while attending research-training programs prior to enrolling in the PhD programs. Three interviewees were directly introduced to this methodology by their supervisors; while one decided from self-study that the methodology was appropriate for her research. These four interviewees made the decision to use qualitative methodology during the formation of a supervisory committee and the writing of their PhD proposals.

Decision making to use qualitative methodology

The decision on the use of qualitative methodology may be divided into two categories: (i) supervisors *or* candidates making the decision, and (ii) supervisors *and* candidates making the decision. In the first instance, the supervisor's interest and expertise in qualitative methodology played a significant role in influencing the decision. The availability of expertise in qualitative methodology in the committee, especially the chair, was a significant influence on the methodology selection. Supervisors' made the decision on qualitative methodology for seven interviewees. Rose stated her experience: "My supervisor was the one who wanted me to do qualitative study using the grounded theory methodology". Johan recounted his experience:

> After I finished all my coursework and was writing my research proposal, I met my potential supervisor. She said, "If you want me to be your supervisor, you have to do a qualitative study". That is the main influence for the decision to use qualitative methodology.

Four of the seven interviewees for whom their supervisors made the decision received a lot of help from their supervisors who were their main source of knowledge regarding the use of this methodology.

Zalika made the decision on the methodology by herself, as she already decided to use qualitative methodology when enrolling into the PhD program. According to Zalika,

> I designed my PhD research questions qualitatively but at that time I was guided by one quantitative supervisor and one qualitative supervisor. So there was a conflict. Thus, I decided to change to another university to preserve the qualitative perspective. I like qualitative research because it suits my character and interests, and I had experience working in audit firms. I find that my passion lies in qualitative research and decided this is my path.

Zetti opted for the qualitative methodology based on her own understanding about the underdeveloped nature of the field selected for her study. Jamal sought to answer the question of "how"; and thus, decided on his own that the qualitative methodology best

suited his research interests. Among those who made the decision themselves, Zalika received full support from her supervisor, while Zetti and Jamal proceeded with their writing mainly through self-study, although towards the end of their studies, senior colleagues with PhDs became substitutes for their supervisors.

Skills training and doctoral seminars

In addition to the required coursework, all interviewees attended many workshops per their supervisors' instructions, or on their own, to gain specific knowledge regarding research. Zahara explained that:

> We have to identify the workshops based on our needs in completing our thesis, because only we know what we require to complete our study.

This indicated the need for learning skills in addition to required coursework and to take control of one's learning during the PhD program. This type of learning is explained by Vygotsky (1981, cited in Lattuca, 2002) that individuals learn when they are involved in social activities, and when they and the "context interact in critical ways" (p. 714).

Six interviewees regularly attended student seminars where interviewees were encouraged or required to present their research findings as part of their progress monitoring. In these seminars, the interviewees learned the know-how of academic presentations, and how to tackle questions related to academic research. They received direct feedback from the audience that led to further exploration or in-depth thinking on their research. This thinking process indicates reflective learning by the interviewees. The interviewees learned how to undertake qualitative research during informal exchanges with the audience in the seminars, and when they learned about other candidates' studies including advantages and disadvantages of the methodology adopted in their research.

Self-study and supervisory guidance

Self-study was the most popular learning method about qualitative methodology. To Johan, self-study was very useful in the initial stages of writing to acquire knowledge about the methodology and to write academic works. He stated that:

> At the time when the decision to pursue a qualitative study was made, I was already done with classes. But I purposely came and sit in three qualitative classes. Then, I started to collect qualitative articles. Only then I understood about the case study. I explored a lot through Google searches. At that time I wanted to get a picture of how people write a qualitative study.

For Zahara, through self-study she explored approaches to conducting qualitative study by referring to books, journal articles, and learning by continuously self-reflecting and writing her drafts:

> I think most part of my PhD process involves self-learning. It involves lots of self-reflection process for me to understand my research and to start analysing data. Then, I

> went through the same process of reading and then self-reflecting during the rest of my thesis writing process.

While Surya received a lot of guidance from her supervisor, she stated that the knowledge on writing of academic research was mostly acquired through her own self-study. Surya and Zetti read novels to improve their writing skills. Through reading novels, Surya managed to be more persuasive in her writing, while Zetti thought that reading supported her writing process. This finding indicates variations in the sources of knowledge utilised by different interviewees.

The above highlights the importance of self-reflection in the process of writing. All interviewees utilised self-study to understand relevant concepts, to write their literature review, to specifically learn different techniques of research methodology, and to analyse data. This type of self-learning was also useful to reinforce their understanding of their research topics, and to strengthen their knowledge of relevant concepts.

When having problems with certain tasks during their research, all interviewees sought help from their supervisors. Supervisors' advice is by far the most important source of learning for many interviewees, as recounted by Zahara:

> When I am stuck with certain things, I went to see my supervisor. My supervisor then asked me to read books, and follow examples done by others.

Zahara, who had two supervisors and benefitted from one supervisor's advice on thesis writing while the other advised on the content of her thesis. Since supervisors could only identify candidates' problems through reviewing drafts of their writing, candidates' ability to write drafts was a critical component of their PhD studies. Surya recounted her experience:

> I emailed my draft to my supervisor before our appointment. When we met, my supervisor would edit the draft with me. In this way, I learned the ways of writing.

Rose also received a lot of guidance from her supervisor. Five other interviewees also followed a similar approach to learning about writing through frequent supervisor feedback, especially on understanding the research methodologies. In these cases, the supervisors provided personal guidance to the candidates through regular meetings. The remaining three interviewees, however, received less direct help from their supervisors, and resorted to learning about writing on their own, through reading, and trial and error.

Seven of the interviewees applied qualitative case study methodology, while two applied grounded theory methodology, and the remaining one applied critical realist as a methodology, in their respective studies. In applying the methodology, doctoral candidates needed to do a lot of self-study and self-reflection on what they had learned, and depended on their supervisors or colleagues for guidance. One interviewee, Diana, self-learned through books, theses and articles, and sought help from her supervisor on qualitative methodology procedures. However, she found that there were very few

references on the application of her selected qualitative methodology, and that she still needed to rely on her own interpretation of its application.

Overall, the interviewees learned how to undertake qualitative research during formal and informal exchanges, predominantly with supervisors. Moreover, they could learn more about qualitative research if the supervisors were familiar with the specific methodology and could recommend further reading of sources.

Peer support

All interviewees agreed that peer support was a form of social support, interaction and collaborative learning (Gardner, 2010). Discussions with peers regarding their research and experience not only helped them to release stress, but also allowed incidental learning to occur, especially through asking questions. However, Zahara felt that the role of peers in her learning was somewhat limited:

> I think my supervisor played a key role. And I also learned from books. As for my peers, they might use a qualitative research as well but maybe they utilised observations or other techniques that I was not using. So, he or she had a different way of analysing their data. Therefore, we could only share.

Learning from senior postgraduates was useful, especially when the supervisory role was rather limited. Azalea recounted her experience:

> My supervisor mainly read my draft and made some comments. For a more detailed knowledge in qualitative research, I learned from my senior at the same university, who also happened to be a close friend. It was easier to share problems with a friend.

The interviewees also learned how to undertake qualitative research during formal and informal exchange with peers. Different candidates may apply the same method in different ways. Thus, it is helpful to share information and ideas among peers who have used or have had knowledge about qualitative methodologies.

Mentoring and expert help

Leveraging on knowledge of senior colleagues who already hold a PhD and are experts in a related field is a form of mentoring, which also serves as an important source of knowledge acquisition. Four interviewees acknowledged senior colleagues' help with their data analysis. This help was especially useful in the absence of effective supervisory support, whereby the senior colleagues assumed the role of 'surrogate' supervisor, as related by Azalea:

> My supervisor did not help much in the detail of my work. Therefore, I sought the help of a senior colleague at the university where I was employed. She became my extra supervisor. She helped me a lot in the data analysis and also pushed me to follow a schedule for completion.

Zalika explicitly utilised experts to enhance her knowledge about qualitative methodology during her study:

> During my study, I met with many experts on qualitative methodology. At that time, the university had many visiting professors. My interactions with them enhanced my interest and they opened doors for me.

Work experience

In the case of Zalika, her work experience as an auditor shaped her character as a person attentive to details, which influenced her passion in applying qualitative methodology. Sade, who worked as a lawyer before enrolling in the PhD program, found that his ability to inquire was very useful during the data collection stage. Johan, who had many years of experience in an executive position, was involved in writing many corporate communication works. This experience served as the foundation for his academic writing during his doctoral program. In addition, for Johan, who was working full time while reading his doctoral degree, self-discipline was the most important in ensuring that he finished his study on time, and that his study did not interfere with his work or vice-versa. For these interviewees, their learning of how to undertake qualitative research was influenced by their work experiences.

Reflective learning

One significant finding of this study is that doctoral candidates learn from the *viva* examinations process. As recounted by Azalea:

> I knew of the concept of theoretical generalisability within the context of qualitative research. However, only during my *viva* did I understand the concept clearly. The examiner was asking about the "generalisability of my findings". At that point in time, suddenly the concept became clear to me.

Sade and Zalika also had similar experiences regarding understanding the concept of theoretical generalisability. Zalika added that she further understood the concept as she wrote her point by point responses to the examiner's comments during the time of her thesis correction. In these cases, the *viva* examination not only tested the candidates' knowledge, but it also encouraged their self-reflection. The interviewees referred to the questions asked during the *viva* to reflect what they had done well and not well in the research process. The *viva* examination served as a platform for reflective learning, and the experience seemed to round up the interviewees' learning about the qualitative methodology that they had adopted.

Motivation to learn

Generally, the interviewees' motivation to learn was driven by their need to complete their PhD programs at the earliest. All interviewees received scholarships from their respective employers. All scholarship contracts stipulated that they completed their studies in four years. The prospect that they would not be financially supported for study was the main

motivator for completing their research at the earliest. Besides, failure to complete their research could result in the interviewees having to pay back all their tuition fees and salaries. These financial implications put great pressure on the interviewees. Also, their progress was also continuously monitored by their sponsor-employers; and thus, they had to be conscious of their progress.

Another motivator for their study completion was the consistent pressure of responsibility for family, as mentioned by Rose:

> I had to finish my PhD as soon as possible. My husband followed me to the UK, and he helped to take care of the children. My mother and mother-in-law sometimes came over to help out. My study involved many people from the family. Thus, I had to ensure that I graduated.

One interviewee added that her successful graduation was very important so as not to disappoint the family. All interviewees indicated that their own intrinsic goal of wanting to obtain the PhD motivated them. Zalika summarised this point clearly:

> I had always wanted a PhD degree. I was willing to quit my earlier job and accept a lower salary to achieve this aim. The university only gave us a temporary status, so if things went wrong, we would be the first to be fired. I had to survive with very little money and with a temporary status for many years so that I could get a PhD.

While previous work experience seems to have a bearing on the learning process, there seems to be no specific patterns or themes that differentiate the respondents' progress based on the types of program or by the characteristics of their PhD program (thesis as the full requirement or thesis as a partial requirement), the university they went to, or the location of their university (Table 1 summarises the characteristics of interviewees in terms of education and work background, the specific subject, and the types of qualitative methodology utilised). Some elements in the learning process of candidates such as learning methods are similar across the different doctoral programs, perhaps due to basic characteristics of learning qualitative methodology, such as the high needs for supervision and high requirements for writing skills (Cassell, Bishop, Symon, Johnson & Buehring (2009). For all respondents, taking coursework contributed to their enhanced awareness and competencies in using the qualitative methodology.

Discussion

The study aimed to understand the learning methods, the types of knowledge gained and the motivation for learning. The study found that in successfully applying the qualitative methodology, candidates should be knowledgeable about the nature of the doctoral research, as well as the methodology and its application. Such knowledge is developed through various approaches. Self-study through reading was the most dominant learning method, and was used throughout the interviewees' studies. However, self-study has to be supplemented by supervisory guidance and network support. In some instances, related past experiences served as leverage in using the qualitative methodology. Doctoral candidates need to continuously produce writing drafts to receive proper mentoring from

the supervisors. This effort could be regarded as a form of proactively seeking the supervisor's help as defined by Felder (2010). This combination of self-study, supervisor guidance, peer and social support and candidates' own self-reflection, supports a more comprehensive understanding of the doctoral research process (Sweitzer, 2009). Each method on its own may not contribute toward theses completion; rather all have to work in combination with the candidates' own self-reflection.

In the absence of supervisory guidance, surrogate supervision, i.e. mentoring, could help the interviewees push through to graduation. This type of knowledge acquisition through co-construction with the supervisor/s can be explained by the service co-creation concept that is established within the service management literature. The intensive student-supervisor interaction as a service results in the co-construction of knowledge (Gummesson, 2010). This conceptualisation of knowledge co-creation is similar to Breuer and Schreier's study (2007) in their attempts to define learning of qualitative methodology as a craft, rather than a mere technical procedure.

For each type of knowledge that candidates have to acquire, its development goes through Buckler's learning stages, although in each phase, doctoral candidates go through a self-reflection process to move from one phase to the next. Self-study through reading and self-thinking is the most important component in self-reflection as the interviewees gained better understanding of their subject and the research methodology.

The learning model of the interviewees shows that the types of knowledge that they acquired can be categorised into specific and integrated knowledge. The candidates need to understand the underlying knowledge, and through the understanding, gain the capability to integrate the knowledge to apply the methodology and completed their doctoral research. In this way, candidates need the ability to comprehend each specific type of knowledge, and then must have the capability to link them together to form a more comprehensive understanding about the application of the methodology (Lovitts, 2008).

In this regard, the learning theories, the doctoral education process perspective, and the network perspective, which underlie our conceptual foundation, have to be enhanced by theories of management and self-concordance. To achieve a comprehensive understanding of particular application of methodology and conduct of doctoral research as a whole, the candidates must acquire a strategic perspective to enable them to manage the process strategically. They must be able to see the ultimate aim of a doctoral degree, and to plan and organise accordingly to support their learning. They also need to identify the values and competencies needed to successfully graduate with a doctoral degree and equip themselves with the necessary skills.

However, the pursuit of the PhD goal must be intrinsically motivated, i.e. the goal must be a self-concordant goal which is consistent with one's interest and belief that its achievement could improve his/her overall well-being (Sheldon & Elliot, 1999). This perspective is useful in explaining the motivation that underlies the candidates' actions and learning behaviours during the learning process. Doctoral candidates face many obstacles

during their studies. Without self-concordance of goals, their survival in the program may be jeopardised.

Conclusion

In this study, we explored the methods through which the interviewees learnt qualitative research methodology and the types of information/knowledge gained, and the drivers of their learning. We conclude that acquiring the ability to conduct qualitative research is a complex undertaking which requires significant effort in self-study, supervisory guidance, and network support, as well as self-reflection. Self-reflection is needed at each stage of knowledge development, and serves as a consistent gatekeeper for continuous progress in the doctoral program. The process of learning the qualitative methodology that the interviewees adopted was intertwined with the process of their progress in the doctoral research. As the interviewees understood and reflected on their methodology, they also began to achieve completion of their doctoral research. The movement of the interviewees through these phases was driven by both their intrinsic values and the extrinsic factors they faced.

As the study did not focus on variations in how the learning approaches may relate to the different type of qualitative studies that were utilised, future studies could seek more understanding about learning different types of methodology. The fact that the *viva* examination served as a platform for learning provides insights to supervisors and examiners on the importance of questioning as a form of learning. Future research could explore the role of questioning in self-reflection, in supervisory advice to students, or in other forms of conversations during PhD research, as an approach to facilitate learning about research methodologies. Past experiences were also found to be a major source of leverage in learning about qualitative methodology. In this aspect, supervisors of PhD programs must be able to capitalise on the candidates' experiences when nurturing and encouraging their study performances.

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Dr Khairul Akmaliah Adham is an Associate Professor at the Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia. Her research interests include processes of innovation and the conditions that foster innovation in organisations. She has utilised various forms of qualitative designs, including case study and content analysis methodology.
Email: ka@usim.edu.my, khairulakmaliahadham@gmail.com

Dr Huong Ha is Head, Business Program at School of Business, Singapore University of Social Sciences. She has been affiliated with UON Singapore and University of Newcastle, Australia. Her previous positions include Dean, Director of Research and Development, Deputy Course Director, Chief Editor, and Executive Director.
Email: artp6075singapore@yahoo.com

Dr Shifa Mohd Nor is a senior lecturer in Faculty of Economy and Management, Universiti Kebangsaan Malaysia. Her research interest includes ethics, corporate social responsibilities and sustainable development.
Email: shifa@ukm.edu.my

Dr Zaleha Yazid is currently a Senior Lecturer at the Faculty of Economics and Management, Universiti Kebangsaan Malaysia. Her area of specialisation is in project team dynamics, organisational behaviour and qualitative research approaches. Her research interests include leadership, conflict management and teamwork in organisations.
Email: leyha@ukm.edu.my

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