

Intentions and Expectations of Female PhD Students in Engineering at one University in Malaysia

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Abstract

Embarking on doctoral studies is a challenging option since unlike the previous academic credentials in which courses are structured and durations of study are predictable, doctoral programmes are the opposite. Despite its complexities, PhD credential is important towards advancement of knowledge and development of universities. Therefore, universities around the world continuously are strengthening their postgraduate programmes in order to attract enrolment of students. Hence, the participation of female students at this level should be encouraged since statistics of enrolment in Malaysian universities shows that there are more female students at undergraduate level as compared to male students although the figure drops at postgraduate level. Thus, this study aimed to explore the intentions and expectations of female PhD students in engineering at one university in Malaysia. This exploration was vital since the findings would add towards the development of doctoral programmes in the university specifically in providing teaching and learning facilities which fulfil the intentions and expectations of female students in the engineering faculties.

Keywords: Intentions, Expectations, Doctoral Studies

1. Introduction

As a developing nation, Malaysia requires knowledgeable and skilful human resources to participate in various development plans set by the government and private sector. Therefore, education at primary, secondary and tertiary levels as the medium for imparting knowledge and skills is regarded as a significant factor in the effort to produce the desired human capital. Since the country's independence, the Malaysian educational system has undergone various transformations in order to keep abreast of the needs and changes that happen locally and also around the world. The government's educational mission through the Ministry of Education and Ministry of Higher Education will be futile if Malaysians do not fully engage in the programmes. Therefore, to encourage full participation, education is made compulsory and free for students at primary and secondary levels. In addition, tertiary education was made affordable as the fees were subsidised by the government. Furthermore, financial assistance was offered for eligible students through scholarships or loans offered by the government and private sector.

At present, Malaysian universities are striving to achieve and maintain the status of Research University. Performance is ranked based on several criteria including the quality of research and development in postgraduate studies. Thus, these two indicators have initiated the demand for enrolments of PhD students and changed the policy of recruitment of university lecturers. Previously, the minimum credential for the post of university lecturer was a Master's degree; however, at present a person needs to have a PhD in order to apply. Simultaneously, the urgency on this matter became a national agenda since it is stated in the Malaysian National Higher Education Plan 2007-2010 that through the R & D Pillar and MyBrain 15 Programmes, the government planned to increase the number of university lecturers with a PhD to 60 per cent by 2010 (Zaini, 2009:24).

The contributions of Malaysian women towards the country's development have been recognized in the past, are indispensable at present and will always be expected in the future. Malaysian women's active engagement in different sectors and levels of employment are possible due to their commendable academic achievements.

As a woman, I believe that I should applaud their achievements and as a researcher I can accomplish this by giving attention to women who in their own way are contributing towards the nation's aspirations. Subsequently, I chose to focus my study on female PhD students and explore their intentions and expectations in accomplishing their

academic mission. I wish to pursue their stories and, therefore, the aim of this study is to shed some light on their journey.

Studies exploring the reasons for undertaking graduate studies, such as Leonard, Becker and Coate (2005), Joo (1997), Suh and Merriam (2004), Wellington and Sikes (2006) had inspired me to explore the same issue in a different setting. Therefore, my research questions are,

- a) What are the intentions of women who enrol in PhD study in engineering at one university in Malaysia?
- b) What are the expectations of women who enrol in PhD study in engineering at one university in Malaysia?

I believe that my study is significant since it serves two purposes, academic and practical. Academically, my original contribution to the body of knowledge in adult learning, specifically to the research regarding PhD study will be in describing and explaining the issues being studied in relation to the Malaysian context. In addition, I hope that the discussions will add to the present knowledge concerning female PhD students and the nature of pursuing a postgraduate degree in engineering in Malaysia.

2. Methods of data collection and analysis

Subsequently, my belief in Constructivism/Interpretivism has led me to decide that my research was best conducted qualitatively. The appropriateness of qualitative approach for the paradigm is highlighted by Kaplan and Maxwell in Kelliher (2005:123), "By its nature, interpretivism promotes the value of qualitative data in pursuit of knowledge". Subsequently, conducting an exploratory study of a problem or an issue is a form of qualitative research as mentioned by Silverman (2005:39), "We conduct qualitative research because a problem or issue needs to be explored".

Consequently, my fieldwork involved three methods of data collection - individual interviews, focus groups and informal sessions. Multiple methods of data gathering would enable me to triangulate the responses given by my participants as mentioned by Lewis and Ritchie (2004:275) "Triangulation assumes that the use of different sources of information will help both to confirm and to improve the clarity, or precision, of a research finding". I chose to start my fieldwork with individual interviews, following them with focus group sessions and, in between, I conducted informal sessions.

Since my research is purely qualitative, I have adopted a Purposive Sampling method of sample selection. My research participants were twenty female PhD students who were studying in seven Engineering faculties at one university in Malaysia. The findings were analyzed using thematic analysis.

3. Findings and Discussions

3.1 Pursuing PhD due to SELF factors

Most participants from engineering are university staff while the rest are research students. The data shows that certain facets in the profession as university lecturers have turned out to be the reasons for my female participants opting to do a PhD. I am going to name them as the RARE factors:

- R: Requirement
- A: Advancement
- R: Recognition
- E: Expertise

R:Requirement

The university which became the setting of my study is a public university and it is under the governance of the Malaysian Ministry of Higher Education. All university employees are considered as government servants. There is a phrase in the Malay language which states 'Saya yang menurut perintah' or, in English, 'I am the one who is obliged'. The phrase is commonly used in written form at the bottom of official letters and government circulars. It is to remind government servants that they have to adhere to the rules and regulations set by the authority. Since all universities in Malaysia are aiming towards the status of a Research University, the Ministry has specified certain rules and regulations in order to achieve the aspiration. The new policy regarding the qualification of academic staff has also influenced the decision to pursue a PhD among my participants. Undoubtedly, this matter was considered by my participants who work as university academic staff.

"If I am not a lecturer maybe I will not do a PhD since if I had gone to the private sector, it recruits engineers with degrees and for management level it only needs Masters holders..." Fasha

A:Advancement

Career advancement was also in the mind of some of my participants when they talked about the intention of doing a PhD. They felt that the doctorate degree would open up prospects for climbing the job ladder.

"...since I am in the university I think that I need to do a PhD for the advancement of my career that's it..before this I thought if I did not do PhD I would do PTK 4 that is the last step that I can go... if possible I want to be an Associate Professor ... other people in my department are not eligible to do PhD anymore because of their age" Fatin

R:Recognition

The data reveal that the next factor for engaging in PhD is due to the recognition that my participants hope to gain in their career once they are doctorate holders.

"...when you don't have a PhD it's like you don't have a say in the department...people see less of you...you are nobody..you get low marks for your SKT (yearly work assessment)...cannot go further DS52..cannot be Associate Professor..these factors force me ..but not motivate" Fira

E:Expertise

The last factor for pursuing a PhD concerned the demand to be an expert in their field of interest. This requirement is to shoulder the responsibility as lecturers, supervisors and researchers.

"..being an academician..when I meet students I feel like I have a weakness..where can I overcome the weakness...I cannot get it by reading books..I feel that I need to undergo some kind of systematic training, so what else apart from a PhD" Hanim

"...with a PhD, I can form my own research team.." Devi (Engineering)

3.2 Pursuing PhD due to SELF factors

The data reveal that the drive to do PhD among my participants did not come solely from their professional backgrounds, which initiated the emergence of the RARE factors. In addition, I am also able to extract the SELF factors which are based on the students' personal backgrounds.

S: Self-Accomplishment

E: Environment
L: Love research
F: Fulfil Responsibilities

S: Self-Accomplishment

The data indicate that having a doctorate degree has been the dream of some of my participants. Consequently, enrolling in PhD study is a means to achieve that dream. This thought was highlighted by most of my participants.

"It's my dream since I was in secondary school ..I wanted to achieve the highest degree.." Mary
"Since I was in school, I had the intention to study until the highest level.." Naida

In addition to the above, it is interesting to discover that for one participant the attempt to obtain a PhD was to compensate for the failure of achieving their previous dream of becoming a medical doctor.

"..before I did my degree, I had the ambition to be a medical doctor, so that is why I still want to have a PhD..." Alia

On another occasion, one participant merely confessed that enrolling for a PhD had nothing to do with her profession as a lecturer.

"I had the ambition to do a PhD since I finished my degree, even, if I was not a lecturer, I would still pursue a PhD...since I like to study rather than work" Dija

Some of my participants from Engineering were very ambitious and viewed their PhD endeavour as a means to demonstrate their passion towards learning and gaining knowledge.

"..to me studying is something that you cannot stop...after going through primary school, secondary school, A Level, Masters..I am still not satisfied..there's something which I can do better..that's why when people say a PhD is difficult..I think I need to do it" Hanim

It is also the hope of some of my participants that their PhD endeavour can motivate their family members to be academically oriented.

"...my parents would like me to pursue until PhD as being the eldest, I can set a good example for my siblings..after I finished my Masters, my sister also did hers..."Dija
"..My parents encouraged me to do PhD since being the eldest I need to be a role model for my siblings.." Rina

Therefore, pursuing PhD is not solely a personal matter for these people as other people's welfare specifically immediate family members are taken into consideration also. In addition, the final excerpt for this sub theme portrays the wishful thinking of a mother with regards to her PhD pursuit and her children's academic achievement.

".. my son is taking PMR(a public examination) so I'm the only one who motivates him, 'like your mum at this age is still studying you should not watch television all the time you should also sit down and study', maybe in a way it contributes, I want to be a good role model to my children.." Fizi

Both situations reflect the values promoted in Islamic teaching whereby it is an obligation for children to obey their parents and for parents to prioritize their children's education.

E: Environment

Another factor that emerges from the data is how certain aspects in my participants' lives have influenced their decisions to pursue a PhD. One student compared her previous experience working as an engineer and being a full time student. This comment was based on her experience when she did her Masters which initiated her enrolment as a PhD student.

"When I was working, I had an unclear goal, I did not appreciate the jobs..however when I further my studies I can see an aim, which is to be able to graduate.." Naida

Besides government and private scholarships, research grants are also among the privileges available for my participants to take in order to finance their PhD studies.

"I have been granted a scholarship by a United States Foundation to do a PhD.." Mary
"..My former supervisor offered me to do a PhD under her research grant.." Naida

L: Love to do research

The next factor that initiated some of my participants to do PhD is closely associated with what the study is all about. Some of my participants narrated how their positive feelings towards research had influenced their decision to pursue a PhD.

"...I want to invent something...I want to get the Nobel Prize..I do not just want to do PhD..I want to be a scientist" Devi

Lastly, working as a university lecturer, one Engineering student cited her preference between two significant tasks in her job and in what way it influenced her decision to do a PhD. This excerpt clearly reflects how the inclination towards research has led these participants towards the path of a PhD.

".....My main priority is research ...I do not like to teach..to me research comes first then only teaching, I could not wait to start my PhD..I am not good at explaining..maybe I'm not a good teacher but I think I like research..it's enjoyable" Hyda

F: Fulfil responsibilities

To some of my participants, committing themselves to PhD studies signifies more than just an academic endeavour. The data indicates that these students hoped that the success in their PhD journey would enable them to fulfil certain responsibilities that were expected of them.

"...my concern is students..before this I did research presented papers but at one time I was bored..I wondered how could my students benefit from it ... when I got RM20,000 worth of research grant.. I felt that it did not benefit the students...the first reason is because of the knowledge..I want to contribute it to students.." Hanim

In addition to the above, one participant voiced her concern about her children's future and how it is related to her enrolment for a PhD.

"..as a single parent, I want to provide the best for my children, in order to do that you have to have lots of money, you have to excel in something..this is one of the motivating factors also...by hook or by crook even though I face lots of problems, I still do not have the intention to quit.." Alia

All of the findings mentioned above substantiate the list of factors that encourage people to do a PhD, as listed by Churchill and Sanders (2007:13), these are “career development, lack of job satisfaction, a personal agenda and drifting into the challenge and research as engagements in politics”. Although there are differences in the terms used, the meanings are still similar to the factors that emerged from my data.

The discovery of RARE and SELF themes from my data corresponds with the assumptions in Knowles’ concept of adult learning. The occurrences of all the themes reflect that as adult learners, my participants realised why they need to do a PhD. Although various reasons were given, it is an indication that these students embark on a PhD journey with a certain purpose. This notion supports the first assumption, which is “The need to know” (Knowles, 1990:57-63). In addition, the themes also signify the existence of “external and internal motivators” which are mentioned in the sixth assumption of the concept. Hence, my participants are encouraged to do PhD due to the RARE and SELF factors which also can be considered as “external and internal motivators”. Furthermore, the assumption that adult learning has to be “life-centred” is apparent in the discovery of the RARE themes since they are specifically related to the profession of my participants as university lecturers. For them, pursuing PhD is considered as fulfilling the obligation as university lecturers and to face issues or problems which occur in their fields of expertise.

In addition, the idea on how women are positioned in Islam which has encouraged these women to pursue PhD is evident in one of the themes, which is ‘Fulfil Responsibilities’. As seeking knowledge is an obligation to all Muslims, these women take the opportunity to fulfil the expectation by pursuing until PhD.

The findings from my study can also be compared with the three types of learners identified by Houle in Cross (1981) and also the six factors listed by Morstain and Smart in Cross (1981). Consequently, the RARE and SELF themes exemplify the “goal oriented, activity oriented and also learning oriented types of learners” (ibid:82). In addition, a comparison between my findings and the six factors listed by Morstain and Smart in Cross (1981) can be viewed in the table below:

Table 1: A comparison between my findings and the six factors

Factors which encourage adults to pursue education	Themes from my study
1. Social Relationships	Environment
2. External expectations	Requirement
3. Social Welfare	Fulfil Responsibilities
4. Professional Advancement	Advancement Recognition
5. Escape/Stimulation	-
6. Cognitive Interest	Self-accomplishment Expertise Love to do research

The above table shows that the fifth factor did not emerge in my study as none of my participants indicated that they are doing PhD as a form of escapism. Similarly, this finding also contradicts the thought that emerged in Pillay (2007). This notion is most probably due to the career background of most of my participants, as university lecturers. Furthermore, those without a working attachment, have the intention of making the doctorate degree a credential for them to secure jobs.

Consequently, the results from my study are similar to studies that seek to discover the reasons for doing a PhD, such as in Leonard, Becker and Coate (2005), Suh and Merriam (2004) and Wellington and Sikes (2006). However, it is interesting to discover that a distinct theme emerges from my data and not in those studies is the thought pertaining ‘Fulfil responsibilities’. Associating the reasons to do PhD with their roles as Muslims, mothers and

employees are among the points highlighted in the data. This finding shows that religious and personal values influenced their decisions to pursue academic studies.

3.3 The RARE factors and students' expectations

In doing a PhD because of the RARE factors, which are requirement, advancement, recognition and expertise; my participants expected that they would gain knowledge and opportunities. In addition, they also hoped that would be able to make contributions.

The expectation to gain knowledge and skills was highlighted by most participants. This finding corresponds with the data in studies by Wellington and Sikes (2006), Suh and Merriam (2004) and Leonard, Becker and Coate (2005). Although the reasons can be personal, it is also to conform to the requirement set by their financial sponsors.

"to be a specialist of course, no one has attempted this field..to gain knowledge..I told my supervisor I am old I am 46 don't expect me to be as good as 20 years old in terms of memorizing.." Amni

With the intentions to gain expertise, advancement and recognition, some participants expected that a PhD would open doors to various opportunities. For example, the desire to secure networking and establish research facilities during PhD study is apparent among some students.

"...being a researcher I will meet many people ..I can build networking from this PhD..from this PhD I learn many things ..I am really doing it instead of when I was a lecturer or researcher or project leader.. I just asked my assistant ..when I am doing this PhD I'm doing it for me.." Hyda

Then, some of my participants highlighted the expectation to be able to contribute what they have acquired during a PhD to their stakeholders. Furthermore, as recipients of scholarships from the sponsors, it is expected of them to do so by their sponsors. Consequently, they had the welfare of their workplaces and students in their hearts.

"..hopefully I can bring the university that I am attached to a better level..it's a new university..lack of staff..I am also a Sabahan..I expect with this experience and knowledge I can better upgrade myself in Sabah and apply the knowledge there.." Hyda

Meanwhile, as required by the university and also for advancement in career, the expectation to publish in journals was of utmost importance to the participants.

"..since I am here I am being exposed to the environment here so I hope that I can be like anyone else, for example, able to produce 3, 4 or 5 papers since that can contribute towards my career development.." Fatin

"..but I wish to contribute significantly in terms of paper publications..journal publications and hopefully patents too.." Fizi

3.4 The SELF factors and students' expectations

The next presentation of data concerns my participants' expectations towards their PhD studies and their relationship with the SELF factors, which comprise Self Accomplishment, Environment, Love research and Fulfil Responsibilities.

As most participants mentioned about childhood dreams and ambitions, the most recurrent responses given by my participants about their expectations were that they hoped that their PhD journeys would be fruitful ones.

".. I was very ambitious at first , wanted to do the best ..definitely I want to finish on time...hope to submit two journals at the end of study..to experience what others are experiencing..." Mary

In addition, for scholarship holders, it was not just a matter of graduating but also the ability to accomplish it within the duration given.

“definitely I want to complete this study within three years; my husband always remind me not to take so long to do this..” Fasha

Although some participants claimed that their environment had somehow initiated their PhD enrolment, a similar environment had also helped to shape their expectations towards the PhD study. Based on stories and rumours around the work place, they had foreseen that their PhD journeys would be demanding.

“I expect PhD to be different, challenging and novel..”Devi
“better skills, time management..I need discipline to do this research..if not there will be problems..”Hyda

4. Conclusion

The findings presented in this paper illustrate that there are various factors initiated the female students in engineering at one university in Malaysia to pursue their studies until PhD. The RARE and SELF factors were the themes which emerged from my data. The first set of themes related to my participants' professional background as university lecturers while the latter connected to personal reasons. As PhD study is also a form of adult learning, these themes appeared in the Concept of Adult learning as suggested by Knowles. In addition, the intentions to pursue until PhD are also connected to the ideas on how women are positioned in Islam. Ultimately, the data show that the intention to obtain the highest academic degree has shaped their set of expectations towards the PhD journey.

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