

EXPLORING CHALLENGES IN PHD STUDIES: A CASE OF SCIENCE STUDENT

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ABSTRACT: *PhD students have to take responsibility managing their own learning and getting a PhD. They are also responsible for determining what is required as well as for carrying it out, and must always keep in touch in regular meetings with the supervisor. The student is the main person responsible for his/her PhD research. Doing a PhD clearly indicates that this is a student's own research and work. The objective of this research is to provide better guidelines for effective roles of a PhD science student, especially the foreign student. The actual research to be reported used the case study method. Three Malaysian PhD students from three major disciplines of study i.e. arts, science and social science, were interviewed in depth several times within a year. All three case studies would make the present article too long. Therefore, only one case study which focusing on science student will be presented in this article in order to achieve a better understanding of the story. As a result, the research had developed the best effective guidelines in order for students to success in their study.*

KEY WORDS: *foreign student, PhD research student, and roles of supervision in the university.*

INTRODUCTION

One factor driving the decision to do a PhD is the consideration that this qualification is needed in order to become an academic. As the doctorate is the highest grade, completing a PhD is seen as a substantial investment in human capital (Mangematin, 2000). Often, starting a research degree marks a transition in the lives of students (Phillips & Pugh, 2000). For some, it is a transition from recent undergraduate work where learning was structured and directed to a situation where the learning is more self-directed. For others, starting a research degree may be a return to study after a lengthy break. Some students may already be employed in a university and be switching back from the role of teacher to that of a student. Whatever the situation, the student will need time and help to adjust to the new role (Smith, 1989; and Spear, 2000).

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All foreign students have a lot of challenges to overcome, such as cultural differences, language, families, money etc. which may lead to lower achievements by them (Graves & Varma, 1999). These challenges are much greater if the student is doing postgraduate education, which really consumes time, effort, patience and enthusiasm. Furthermore, those mature students coming from overseas together with their families and with limited sources of income may face many more challenges than those who are younger and single.

Most Malaysian students, who have been sent to the UK (United Kingdom) for postgraduate studies, are civil servants in the Malaysian Government, and they are contracted to serve the government again after they have completed their programme. It is their duty to ensure that they fulfil the government's aspirations to contribute their acquired knowledge for the benefits of the country. While the amount of allowance that they have received to live on overseas is very minimal, the Government of Malaysia spends a lot of money in order to develop the knowledge of its people. This is seen as a crucial factor in the development of a better educated work force, particularly in science, technology and related professions. Therefore, the students are expected to complete their programme as soon as possible and certainly within the contracted time frame.

Many factors can contribute to foreign students being unable to successfully complete their programme within the given time frame. All other aspects need to be taken into account in studying the foreign student's experience of supervision. These include the support of the department or school, as well as the fact that the students should properly know their own responsibilities (Moses, 1992; Holdaway, Deblois & Winchester, 1995; and Hockey, 1996). This research project studies the three Malaysian PhD students' experience in relation to their roles as a research student.

In general, the objective of this research is to identify the experiences in supervision of PhD student studying in the University of Manchester, United Kingdom (UK). This includes of what he/she had obtained, what were the problems he/she went through and what he/she expects from the parties who had involved in him/her research such as supervisor, school and sponsor. Such experience will be good as general guidelines in order to identify the main problems and helping the involved parties to improvise their services and conducting the necessary research when the issue aroused. The implication of this research will be the students especially the foreign students would be able to apply the experiences and guidelines discovered from the findings.

LITERATURE REVIEW

A literature search has provided evidence that the student/supervisor relationship is vital to the PhD process. The literature includes statements about the single most important problem, in the eyes of many respondents, being the quality of supervision (Buckley & Hooley, 1988). Various books have approached the acquisition of PhDs, including the management of the supervisor/student relationship (Phillips & Pugh, 2000) and many departments carry out their own

surveys in an attempt to assess their performance in the supervision of their students (Haksever & Manisali, 2000).

While E.M. Phillips & D.S. Pugh (2000) point out that the acquisition of skills by postgraduate students should be effected as professional learning conducted under their own management. In other words, research students have to take responsibility for managing their own learning and getting a PhD. They are also responsible for determining what is required as well as for carrying it out, and must always keep in touch in regular meetings with the supervisor (Powles, 1989 and 1993; and Moses, 1992). And I. Moses (1985) also argues that supervisors expect students to be diligent, hardworking, energetic, keen, tenacious and conscientious and to have a sense of urgency. They also expect students to be enthusiastic and motivated towards research work, to be pleasant at work and to contribute to a good working environment. Also, students should give continual feedback, so that the supervisor can give informed instruction.

The student is the main person responsible for his/her PhD research. Doing a PhD clearly indicates that this is a student's own research and work. E.M. Phillips & D.S. Pugh (2000) emphasise that it is the student's responsibility to determine what is required as well as carrying it out, and that students have to come through with the clear aim of becoming a competent professional researcher. In other words, it is agreed that the student is responsible for an original contribution to the subject and for developing a mature, critical knowledge of the subject area and its context. It is also a good idea for them to talk to other postgraduates about their experience of the role as well as their work. And A. Russell (1996) found that one of the highly rated constraints on research students' are personal problems. In fact, sharing apprehensions helps to resolve problems through the knowledge that the problem is not an individual one (Arksey, Marchant & Simmill, 1994). Once students are able to share feelings and talk about them and their effect on their work, they will all start to feel better (Russell, 1996).

Students should identify the topic and preliminary reading (Brown & Krager, 1985). This can be linked with other parts of the PhD task, like the development of a relevant body of knowledge, placing the research in the context of the literature and originality (Salmon, 1992; Russell, 1996; and Haksever & Manisali, 2000). Meanwhile I. Moses (1992) and E.M. Phillips & D.S. Pugh (2000) elaborate this statement mentioning that the process of defining the research topic varies across disciplines. The supervisor in a science discipline has to take the lead in obtaining the physical resources and the research personnel required. The student's research topic will be clearly defined to fit in with the innovative thrust of the supervisor's research programme. In contrast, in the humanities and social sciences, students often come with their own topics within the field in which the supervisor is expert. Additionally, after surveying aspects of graduate education in Canadian universities, E. Holdaway, C. Deblois & I. Winchester (1995) report that in education, social sciences and humanities, graduate students choose their thesis topics themselves more frequently than those in other disciplines do.

The thesis is usually the most substantial piece of writing yet undertaken by students, and it provides an opportunity for them to develop their skills in writing and in marshalling arguments (Haksever & Manisali, 2000). On the other hand, they should submit written work in some form as early as possible in their studies so that writing problems can be recognised and corrected (Spear, 2000). While J.G. Donald, A. Saroyan & D.B. Denison (1995) propose that the responsibilities of the student should include understanding the scope of doctoral work, such as the number of years to be devoted to full time study, knowledge of research methods necessary to carry out studies, the regulations on thesis submission and the expectations of the supervisor regarding every aspect of the research.

A good student should have a broader view of academic training in the discipline in which he/she is undertaking the research, seeing it as professional development (Phillips & Pugh, 2000). In this sense, professional development include attending conferences, writing papers for publication, attending seminars and workshops, making presentations, networking with other researchers, working as a research assistant and teaching (Brown & Krager, 1985; Holdaway, Deblois & Winchester, 1995; and Phillips & Pugh, 2000). Students are expected to gain expertise in the research process so that their talents can be observed in as many different settings as possible (Brown & Krager, 1985).

Most overseas students are sponsored by appropriate bodies during their study. They have been given a specific period, namely three years, to complete their study and return to their own country. Therefore, time is one of the enemies of the overseas student. This is relevant to the study conducted by A. Russell (1996), who found that students are concerned about time and time management. Lack of funding seriously affects some students' research, or requires them to partly self-fund it and this result in serious concerns and deep frustration (Holdaway, Deblois & Winchester, 1995). This view is supported by the Economic and Social Research Council (ESRC) which reported that less than 20 percent of students receiving a grant complete their study within four years while 27 percent complete within five years and that completion rates trailed off markedly after five years (Elton & Pope, 1987). So, students should expect to work within deadlines (Salmon, 1992; Yeatman, 1995; and Phillips & Pugh, 2000) and to have a planned timetable (Rudd, 1985; Bowen & Rudenstine, 1992; and Frischer & Larsson, 2000).

METHODOLOGY

This article will be focusing on one case study of Malaysian PhD student studying in the University of Manchester, United Kingdom (UK). The participant represented the science discipline. The researcher also decided to choose participant who was already in at least her second year of study, such student have much more information than first year students, due to the greater experience she had gained. Initially, the researcher conducted in-depth interviews with twelve participants and decided to pick three of them to participate in the case studies to represent Science, Social Science and Arts discipline. The students were then interviewed again to obtain

more information about recent developments in their current year of study. However, due to the case study best to be presented in narrative order, the article will be way too long. Therefore, for this article only one case study will be presented which focusing on science student. The researcher will not reveal the real name of the participant, as it is part of the ethics of doing research where the background of participant should be kept confidential. Therefore, *Ainin* (female) will represent science students for this case study.

The case study was conducted over a one year period with the subjects. The interviews, which were semi-structured, were taped and transcribed and then the transcripts were checked with the subjects before the data was used. The purpose of the case study is to gain as much information as possible about the participants' experiences in supervision and university practices. The case study generated large amounts of written data from the students concerning their views and experiences of supervision.

The case study was used as part of the data collection method for the actual research project. Other methods that been used by the researcher was survey on 110 respondents and in-depth interviews on 12 informants. However, this article will only focusing on the results related to the roles and experiences of PhD student. The results were obtained through one case study which emphasising on science discipline. The researcher decided to report the case study as a narrative. Many quotations are presented in reporting the case study in order to give a better understanding of the story.

RESULTS AND DISCUSSION:

A. PARTICIPANT'S BACKGROUNDS ON AININ

Ainin is a 32 year old woman and is staying in a student accommodation hall in the University of Manchester. She is married but has no children, and her husband is working in Malaysia. She did her Bachelor's degree in Malaysia. Just after completing her first degree, she received an offer to join a university in Malaysia as a tutor. Before coming to the United Kingdom, she worked for a short time in one of the universities in Malaysia where she gained some experience in doing research. She came to Manchester to study for a Masters degree in engineering and chose metallurgy as her area of research. After completing her Masters in one and a half years, she returned to Malaysia for about six months before continuing her PhD under the same supervisor in the same school at Manchester University. She decided to do a PhD for two reasons. *Firstly*, her sponsor insisted on her doing a PhD straight away; and *secondly*, her supervisor encouraged her to continue her Masters research, which would make a strong contribution to the field of metallurgy. Another reason for choosing her current university for her PhD is that it is known as one of the best universities for engineering in the United Kingdom.

Ainin mentioned that her Masters was done by coursework and that therefore she knows a number of lecturers and their backgrounds. This helped her to choose the best person to supervise her PhD. In her view, this is one of the advantages of

doing a Masters and PhD in the same school of the same university. The other advantage she discovered is that she knows where to seek assistance when she has problem with her work. In fact, she did not need to adapt to a new environment during her first year as a PhD student. There was nothing new for her. As a student, she explained that she had to know what a person was like before she decided to choose anybody to be her supervisor. For instance, students must know whether the targeted supervisor is the appropriate one, bearing in mind the way they work.

Ainin claimed that her supervisor is an internationally well-known professor and a specialist in her research area. He has also published a lot of books and articles. Currently, there are five PhD students under his supervision. He is said to be a very busy person and has always wanted Ainin to be independent in her research and she seems to have got used to it. However, she has unexpectedly faced a problem in her second year, due to having had to change her research material and therefore, to do her research all over again. This has made her feel very stressed. In fact, time has become one of her enemies at this current stage. During the interview session, she seemed to be a very talkative person, communicating easily about her experience during her studies. So, for this case study Ainin will represent the sciences, since her research involves experimental and laboratory work.

B. AININ ON THE STUDENT'S RESPONSIBILITIES

Firstly, Ainin emphasised the student's responsibilities on the basis of the experience she gained while doing experimental work. As a student who did her Bachelor's degree in Malaysia, she was able to make a comparison between her current university and her former one in Malaysia. Initially, she found that the technology in her current school's laboratory was much more sophisticated, while in Malaysia she usually found difficulties in doing good research because of the lack of new technology. Therefore, as a student, she said that one should try to get as much experience as one can, especially when doing practical work in the laboratory. She did not face big problems when dealing with dangerous machines, as she is quite familiar with the equipment from Master's research. In order to get as much knowledge as possible in doing practical work in the laboratory, Ainin suggested that the student should ask the appropriate person questions whenever necessary, even though they may be silly ones. This is also important in order to ensure that the student is dealing with a dangerous machine in the right way. Moreover, the experiences Ainin has gained in the laboratory can be used as an asset in teaching her future students. As she put it:

I think we should try to get as much experience as we can because here we can have a lot of technology that cannot be obtained at home. We shouldn't be afraid to ask anything that we feel important. We are going to train other student when we get back home [...].

Secondly, she spoke about how she managed her work. A good student should work systematically by having a timetable or research plan. Ainin has planned her

work very carefully, especially during her first year because she needed to book equipment in the laboratory, and also she had to deal with the technician in the school. The equipment has to be booked as early as she can to ensure that it is available to her when she needs it. Students who are working in a laboratory have to plan their time carefully in order to manage their own schedule as well as to ensure that the technician is available. It is also important for the students to talk to the technician if they need his help, but they have to check the availability of the technician beforehand. It is for these reasons that they must have a research plan in order to arrange their work properly. As Ainin put it:

My project is a little but difficult. Sometimes I have to do lab work at night. I have to take out the sample at night. Normally I have to book the technician and equipment [...] before I decide to do any experiments in my lab. But sometimes I have to wait until the technician is free, so when I have already booked him, I make sure I go there.

In telling the researcher about her daily activities, she insisted that she would make a note to prioritise things. Therefore, she prefers to have a daily timetable rather than a weekly one because it is less likely to be changed. From her first year until the present, she claimed that her weeks look very full of activities. She spent her first six months of her first year conducting trial-and-error experimental work. After that, she presented her results to a company that was interested in sponsoring her research. The next two months she spent writing the proposal, including some results that she got from her experiments. Ainin also mentioned that her work was held up by illness for about six months. As a result, she was advised by her doctor not to do any hard work. Then she decided to go back to Malaysia to spend time with her family and come back to Manchester when she felt healthy and energetic. In the first year, the literature review seems to have been unimportant to her. Hence, her timetable was likely to focus on her work in the laboratory. As she said:

I have future plans with my project. In my case if I want to do something, I like to make a note of what the priority is, and what I should do. For example, on Monday, what I want to do. Ok, if I want to do heat treatment for example, I want to use the furnace, so I have to see the technicians to get permission to use the furnace. I make my plan day by day because it may change.

According to her plan, when she reached her second year, she expected to have good results from her experimental work. She planned to concentrate on her literature review at her current stage. Unfortunately there are circumstances that prevented her working according to her plan. Therefore, she still has to spend most of her time in the laboratory testing the new material. As she mentioned:

Now my work is critical, so almost every day I go to the lab. I have just received a new material, so we need a result. It depends on what kind of experiment. For example, if I'm going to do heat treatment, like tomorrow morning, I have to go early at about seven o'clock because I have to take out a sample each day, each time. For example, one hour, one hundred hours. I have to calculate everything. So I have to do it properly. If not, I will have problems.

Some supervisors have suggested that their students familiarise themselves with the literature before they decide to do experimental work. Otherwise, the student will be doing experimental work at the beginning of their first year. Ainin would prefer to do the experimental work in her first year and will be doing the literature search in her second year, according to her plan. She also mentioned that her supervisor has advised her to do the experimental work first. Unfortunately, in her current year of study, she does not have many references as she has to spend most of her time in the laboratory, even though she just has another two months to go to be in her third year, if one calculates from the second interview that was conducted. Indeed, she felt very worried about her work, since she did not have much work written up because she had not read much or written enough. She seems to be very interested in doing her laboratory work. This situation can be seen very commonly among scientists. The changing of her research material has made her change her research plan. As she mentioned to the researcher:

Actually I have just started to do my reading because, prior to this, I did a lot of experiments. I did a bit of the literature review in the first year. I have just found some references and I haven't read them yet. Just got them in the last three weeks. I'm quite busy with my lab work and sometimes at night, I am too tired. So I have to manage the time very well. Although I am nearly in my third year, I have just got new material so I have to start again from the beginning, A to Z. Can you imagine? I'm nervous. Up till now I haven't got any results.

She seems very worried about whether she has enough time to finish her study in the remaining period. Initially, her sponsor will allow her to extend her study for another six months and, if she feels that she cannot finish it, she has to apply for another six month extension and that will be the final one. Subsequent to that, she will be called back and have to finish it in Malaysia. In fact, she needs at least another one-year extension to complete her PhD. Her supervisor is aware of her worries, because he has asked her when she can finish her PhD. From researcher's point of view, it is obvious that the way she managed her study is the reason why she is getting worried. Furthermore, this is her second year and she still has not completed any written work. She said:

What I'm not happy about now at this moment is when I get results that do not make sense, and it affects how I feel, as well. I have thirteen materials, but I will not do all thirteen [...] for my project. The rest are for new students who are coming soon. We don't know how to choose material suitable for my project. We haven't got good result with this machine. And now it is February, I still can't finish it. Ahaaa [...] last year, he (the supervisor) asked me about my scholarship: "When will your scholarship end?". I think he is concerned about that. I told him in another year and a half. Of course I cannot finish it, but I'll try my best.

She gave another example to express her worries:

I'm not really satisfied with my progress because I have just got a new material. Of course, my supervisor knows that I'm a little bit depressed because my scholarship is for three

years. This is not my fault. My sponsor or my government just want me to complete my PhD in three years. Of course I'm nervous. Otherwise, if they want to sponsor me after that, it is OK. I know I can do this project, but I am just nervous about the time.

However, from the researcher's perspective, she has tried to calm herself by saying that if she had studied the literature as early as her first year, it might have happened that the references were not applicable later on. Besides, she said that a student could get "bored" when reading too much at the beginning of research. That is the reason she preferred to do the experimental work first, before going further into reading and writing about the theory. She said that most of her friends also lack of knowledge of the literature at the beginning of their study. She insisted that, even though she did not put much effort into her literature search, she has already "done it", as she is carrying on her Master's research. As she mentioned:

For instance, a friend of mine who is now in his third year told me that the things that he understood during his first year are different from what he understands in his third year. Everybody that I have asked says that they have no knowledge about theory in their first year. The supervisor will not give everything. I have to do the thinking and reading and we will only know when we start the writing. I know when I attend one of the seminars in my university, the student should do firstly read the journal references and then do the experimental work. But sometimes, a student gets bored when he reads books or journals. You know why? I did a Masters before and I've done the dissertation and I am carrying on my Masters research to my PhD. I already have the basics of the theory.

Moreover, doing the experimental work made her feel very stressed and tired. By the time she gets back to her room, she does not have much time to write-up her thesis as well as the literature review. As she said:

The important thing is to make sure I have the references that I need. So, as a good student or researcher, in the morning or afternoon, you do your lab work. At night, you read journals or books. That is a good student. I try to do that, but just a little bit. I will do more of this now because I'm nearly in my third year. I plan to start writing up my literature review. I had to modify my transfer report in my first year. So I had to read more to add new contents.

However, she mentioned that, by doing a lot of experimental work, she can improve her skill in dealing with her research. Also, this will give her the capacity to teach and guide new students in how to do the experiments. For her, this is an advantage of working for two years in the laboratory, due to the change in material, without the results having been achieved. Besides, she mentioned that, while doing her research in the laboratory, she has learnt many things, especially about her subject area. She gave an example:

Doing experiments is a very tiring job because sometimes you need to spend the whole day until night in the lab. Now I try to allocate myself some time for reading my literature. I managed to improve my other skill. Staying long hours in the lab makes me more confident and knowledgeable in the lab to the extent that I am able to guide new students to do their experiments. Yeah, I'm learning because I started from the beginning. You

have got materials. First of all, what should you do? Firstly, I got experience in how to start a new metal. For example, finding out what the composition of the material is. What is the temperature? It is something like this because different materials have different compositions, different temperatures.

Thirdly, Ainin has spoken about her responsibility to be an independent student in doing PhD research. Since she did her Masters, her supervisor has always reminded her that the research that she is carrying out is her own. Hence, she has a right to make decisions that she thinks are the best for the research. She agreed that the PhD student cannot rely too much on her supervisor because most students who are doing PhDs are mature ones. They can manage their work independently, without being told step by step what to do. Ainin is comfortable if she is given the freedom to do her research. It is when she gets stuck that she needs her supervisor to tell her whether or not she is going in the right direction. She also said that she has to think on her own about what she is supposed to do and what not. As she put it:

Don't rely too much on the supervisor or other people. We have to try to do it ourselves. We are going to train other people when we get back home, so we have to start to learn to stand on our own feet. At the very beginning of study, students have to rely on a supervisor because they know very little about their research. Now, I am a second year, being a PhD student is like being a researcher. We cannot depend entirely on our supervisor. So we have to do things on our own. Sometimes, we have to share ideas with supervisor [...]. I have to survive by myself, find out by myself and think by myself, because my supervisor told me that I am the boss now. You will know a lot if you read a lot. In doing a PhD, you will never get your supervisor to tell you bit by bit like when you were undergraduate. They expect you to do it yourself, unless you ask. But you won't be getting everything you want.

As human beings, generally people always want to get the best things. It is apparent to her that this has happened sometimes when she has compared her supervisor with another supervisor. She likes to work independently, but she is very pleased if her supervisor can provide her with references. This was particularly the case at the very beginning of her research. She also mentioned that finding reference material in the UK is not as difficult as in Malaysia, as long as she is hardworking. Therefore, she did not feel that frustrated when her supervisor decided not to give her many references. This situation also made her strong, so that she put more effort into searching the related literature. As she stated:

My supervisor used to give me one book for reference, but not a journal. For example, my supervisor loaned me a book, but since I found that the book was very useful and helpful, I decided to buy it for myself. All students have their own different projects and it sometimes creates tension and pressure for me when I see that other students can easily get what they want from their supervisor. As we know, doing research has its risks and factors. In the UK, I have found that it is not as difficult to get references as when we study in Malaysia. So we must be hardworking and independent, even though our supervisor has given only a little help in supervision.

Finally, Ainin said that a PhD student has to do the research that she likes most in order to work happily towards the end of the study. As for her, her supervisor has chosen her current topic of research. Luckily, since her first few months doing the research, she seems to have been very interested in the subject area. However, when she is dealing with difficulties, she feels very frustrated and has thought about changing the topic and even her supervisor. As she put it:

As a matter of fact, given the chance, I want to change my project because it is quite difficult since I have to use TEM (Transmission Electron Microscopy), which is so tiny and detailed. It takes a lot of time to prepare it and it is tiring. I need to use the machine to analyse it and it is very difficult. Only if the person is really good at it, can he do it, and very few people in Malaysia can do it.

She also agreed that there is an advantage if the student is doing research in an area that she likes most to explore. This is because the students might have prior knowledge and more information in that particular field. On some occasions, students may find difficulties in carry out research. However, with a lot of enthusiasm and interest in the research, the student can normally find the solution in the end. Ainin also mentioned that she was given her research topic by her supervisor. She spoke about it:

For me, the most importance thing in doing research is the supervisor. The second thing is of course the project. You should like it. I like metal, I like aluminium alloy. But I don't like using machines. And he (the supervisor) has another project that does not use the machine. I don't say that the project is easy, no. But I'm happy at least that the project does not use that machine. Because my supervisor offered this project to me, I don't have any choice, you know [...].

When she can solve her own problems in relation to her research, then she feels more confident in carrying it out. Nevertheless, she is thinking of treating this situation as a challenge as she can gain a lot of experience when dealing with new things. Her aim now is to share her knowledge with her future students after completing her PhD. For instance, she has seen that this experience could be very important when she is about to teach and supervise students.

CONCLUSION

The actual research which was done by the researcher had involved the foreign PhD students studying in the United Kingdom. Survey on 110 respondents and in-depth interviews on 12 informants were used as part of the actual data collection method. However, as for the case studies method, the researcher aimed to focusing on Malaysian PhD students only. For this article, only the results from one case study were discussed.

Ainin was seen as having to face challenges. Ainin is married but her husband is in Malaysia and the main factor that made her return to that country a few times was to see him and her family. Homesickness affected her study a little. For instance,

when Ainin was facing her research material problems, which caused her experiment to fail, she was quite worried about the time constraints because her sponsor was covering her tuition fees just for three years, and it was beyond her ability to complete in that time. However, she still feels very glad to have had a very helpful supervisor. At least she knows her supervisor very well, since she used to work with him before she started her PhD.

PhD student is experienced in his/her study and work and he/she realise that he/she must be independent throughout his/her study. Ainin spent most of her time in the laboratory during the first two years of her study. Ainin also refer to her friends when she has any problems. She is of the opinion that it is good to discuss things with friends in the same field before seeing their supervisor. She only seeks her supervisor's help when the problems cannot be solved in her circle. Ainin mentioned that she have to take responsibilities in planning her own research, including searching the literature, collecting data and writing up the thesis. She also claimed that she gained a lot of skills while doing her research. These include writing and communication skill. Also their English has improved and she has become more knowledgeable in their research area. The most important one is the decision-making skill. She needs to decide every single thing in relation to her PhD.

In this case study, Ainin has mentioned many interesting things about her study as well as the process of supervision. In her view of the student's responsibilities, she emphasised her responsibilities for gaining experience while studying for her PhD. This experience will be very helpful in supervising her students after she has completed her study. She does not have a long term plan, because almost every day she thinks about what she should do next and makes decisions about what to do. Even though she is in her second year, she still does not have any experimental results. So, she cannot proceed with her plan to do a literature search. What she has written so far is just a proposal about her latest findings, which she will present to the school as a transfer report and also send to her sponsor. Therefore, she claimed that, time is her enemy and makes her worried. Another thing that she said is that a student should like her research area in order to enjoy her life as a PhD student. However, the research topic was recommended by her supervisor.

She also mentioned that she has relied on her supervisor when she cannot understand or when she wants to check on her plans or methods. Then she expects him to give her guidance because it is a new thing for her and, as a professor, he should have a lot of experience in that particular subject. Unfortunately, her supervisor always wants her to use trial and error or asks her to find her own solution because he believes that the research is her responsibility. He never recommends someone else who can help her. Rather, when she has something interesting or unusual, she discusses it with her colleagues in the laboratory. Sometimes, she will discuss it with the technician if it is something to do with the machine. After that, she might present the results to her supervisor or discuss them with him in a proper meeting. All of these people are important to her. Her friends are very helpful in checking her understanding and helping her when she is working in the laboratory. There seems to be collaborative work between PhD students in

the laboratory when they are discussing their work among themselves. She claimed that she has learnt many things while completing her PhD. However, she thought that she did it on her own to make herself knowledgeable in her subject area and her supervisor is not that good at encouraging learning.

It is hoped that this research could provide general views of the experiences faced by the PhD science student while doing PhD in overseas. It is true that each individual had different experiences, challenges and problems during their studies and it will be very interesting to study those things. It is also true that we cannot make generalisation and conclusion towards the findings of this case study since this article had only focusing on one Malaysian PhD student in the United Kingdom. As mentioned earlier, the researcher had used various methods and more than one case study for the actual research. However, this case study could at least provide useful knowledge to the readers who need such information for their reference.

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