Doctoral Education in Context

Perspectives from Africa

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CHAPTER 12

Science doctoral students' perceptions of supervision at a Sudanese university

Ahmed Elsayed

Sudan is a country of nearly 1.9 million square kilometres, located in north-eastern Africa. In 2022 it had about 44 million inhabitants. Higher education in Sudan started in 1902 under British colonial rule. In 1951 the medical school was merged with the colleges and the combined entity was called Khartoum University College, since 1956 the University of Khartoum. By 2022 there were 29 public and 28 private higher education institutions in Sudan.

Alzaiem Alazhari University (est. 1993) comprises four campuses located in Khartoum North. It is a comprehensive university with 13 faculties, more than 18 000 students and more than 1 000 teaching and research staff members. In 2022 it had about 2 000 postgraduate students enrolled in 61 master's and 37 PhD programmes.

1. Introduction

It is well-documented that the quality of supervision has a significant impact on the learning experiences of doctoral candidates and their chances of success (Taylor et al., 2020). So, one would expect that there would be a large amount of literature about doctoral candidates' views on their supervision, which is the case in many countries in the Global North (for example Barnes & Randall, 2012; Pyhältö et al., 2015). However, literature on this topic in the African context is limited, including in the Sudanese context where this study is based. The chapter reports the results of a study on the perceptions of doctoral students

of the supervision they received in the PhD in Science programme offered by Alzaiem Alazhari University (AAU) in Sudan.

My experience as a consultant clinician for three decades and an academic for the last two decades alerted me to the need to not only improve my own supervision practice, but also to contribute to the improvement of the PhD process in Sudan. The central issues are those raised by Cloete et al. (2015) on the contribution of the PhD to the knowledge economy in general and to a country's economy, and the PhD's contribution to the improvement of the quality of the university system.

Alzaiem Alazhari University (AAU), a public university in Khartoum, the capital of Sudan, was established in 1994 and currently has 17 faculties. It has an active postgraduate programme which, at the time of study in 2022, had about 2 000 students enrolled in 61 master's and 37 PhD programmes (AAU, 2022). These programmes are all based in the Faculty of Graduate Studies (FGS) of AAU where they are categorised administratively into sciences and humanities programmes. When the study was conducted, the science division had 117 doctoral students, and the humanities division had 450. The study reported here explored the perceptions and experiences of supervision of the 117 doctoral students in the sciences enrolled at AAU.

2. Literature overview

The Salzburg 1 Principles, which aimed at reforming doctoral education in Europe (European University Association, 2005), emphasise the critical role of supervision in the PhD process. Doctoral supervision is increasingly being recognised as a part of academia that merits research (Frick & Mouton, 2021). Sverdlik et al. (2018) highlight the vital role of supervision in the doctoral experience. Bastalich (2017) explains that supervision consists of the triad of the supervisor, a student, and the relationship between them. Bastalich (2017:1145) maintains that one aspect that can help to improve the quality of PhDs, is to solve what she calls the 'problem of supervision'. The resolution of this 'problem' lies in finding the best fit for the above triad as shown repeatedly in the literature by different authors (Barnes & Randall, 2012; Gatfield & Alpert, 2002; Helfer & Drew, 2019; Moxham et al., 2013, Pyhältö et al., 2015; Taylor & Beasley, 2005). For example, one suggestion given by Helfer and Drew (2019) to ensure this fit, is to appoint additional supervisors if a particular expertise is required in terms of the different models of supervision that could be followed instead of the traditional one-to-one supervision model (Lee, 2007, 2010; Kaguhangire-Barifaijo & Nkata, 2021; Olmos-López & Sunderland,

2017). Adrian et al. (2007) show that this fit encompasses a broad range of aspects, including expectations of the role of each party in the supervision process Having a memorandum of understanding (MoU) for the PhD process agreed on by the supervisor and the student which clearly sets out the roles and responsibilities of each party, builds on the literature that suggests the roles and responsibilities of each partner in the PhD process need to be carefully considered (Boud & Lee, 2007; Ives & Rowley, 2005; McCormack, 2004). Supervision involves students, and they are important as they are participants and also primarily responsible for the end product of the doctoral study.

Based on this overview of the literature, various authors emphasise the importance of PhD students' perspectives on their supervisors. Some studies found that PhD students are, in general, satisfied with the quality of their supervision (Mouton & Frick, 2019; Riaz et al., 2020), but the degree of satisfaction widely differs when different aspects of the supervision process are considered. Second, in countries such as Australia, where there are codes of practice for higher education research, students and supervisors are aware of their respective roles and responsibilities in the PhD process (Heifer & Drew, 2019). In countries where there are no codes of practice, this is not the case (Riaz et al., 2020). Third, there seem to be cultural differences in the expectations of students and supervisors, for example, students in countries such as the UK and in Australia primarily expect supervisor's expertise in their field of study and they are critical of the lack of involvement of the supervisors in the research process (Heifer & Drew, 2019; Sidhu et al., 2014). On the other hand, students in a country such as Malaysia expect a more personal involvement from the supervisor who would motivate them and boost their confidence, and they were more dependent on their supervisors in general (Sidhu et al., 2014).

Against this background, this study was conducted to assess the perspectives of doctoral students in the sciences at the AAU.

3. Background and methodology

The aim of the study was to investigate sciences doctoral students' perceptions of supervision processes and their experiences of supervision at Alzaiem Alazhari University. Specific aims included:

1. To describe a number of the pertinent characteristics of the sciences doctoral students enrolled at AAU.
2. To assess the perceptions of these students on the division of the responsibilities of PhD processes between themselves and the supervisors.

3. To identify how these PhD students chose their supervisors.
4. To determine these students' perceptions of their supervision.
5. To consider the implications for doctoral supervision in Sudan and beyond from the data generated.

Approval for the study was obtained from the Ethics Review Committee of AAU. All sciences doctoral students in the AAU's postgraduate division were telephonically contacted. The students who agreed to participate were sent a unique study number and a link to an online questionnaire via WhatsApp or email (depending on their preference).

The questionnaire adapted that of Heifer and Drew (2019) and translated it into Arabic. The questionnaire was pilot tested by first distributing it to five AAU senior supervisors for comments and second, by asking five university staff who had recently completed their PhDs to complete it and to share their comments with the authors.

The questionnaire itself is divided into five parts as follows:

Part A contained four questions about the PhD candidates themselves, eight questions about their doctoral programme (commencement, full/part-time, financing, etc.), a question about how often they meet their supervisors, and two questions about their knowledge of research and computers, and a question about their knowledge of statistics.

Part B contained 13 questions asking the participants who they thought was responsible for different parts of the PhD process. This was the widely used instrument developed by Kiley (1998, 1999). It entailed asking the students if they perceived the responsibility for the designated role as varying between being strongly the supervisor's responsibility to joint responsibility between the supervisor and student, to strongly the student's responsibility. The responses were compared to the responses from Australian students (as discussed in Heifer & Drew, 2019).

Part C asked participants their reasons for choosing a particular supervisor(s). This was also done in the instrument used by Heifer and Drew (2019) which was adapted from Garret (2006), who adapted it from the original developed by Golde and Dore (2001). I modified these questions by asking students to select the reason for choosing their supervisor(s) instead of ranking three reasons in descending order as per the original questionnaire.

Part D asked the participants their perceptions of their supervision on a Likert scale covering 22 different aspects, 14 of these were from the composite used by Heifer and Drew (2019) and the other 8 were added by the author and 5 senior AAU staff.

Part E asked participants to rate their supervisors, whether they ever thought of changing supervisors, and lastly, whether they would recommend their supervisors to others doing a project in the supervisor's area of expertise.

This chapter reports on a small-scale study that was conducted in the Postgraduate Deanery of one university in Sudan, therefore the findings cannot be generalized. Although care was taken to anonymise the responses, the position of both the researcher and the supervisor in the studied division needs to be taken into account in terms of the respondents' willingness to participate and be forthright in their responses. This consideration was taken into account in interpreting the results.

4. Results and discussion

From the records of AAU FGS, there were 117 PhD candidates in the sciences in 2022 (see distribution by colleges in Table 1). The study was conducted during the Covid-19 lockdown period, which was followed by a major Muslim festival and holiday (Eid al- Adha), both of which encouraged the movement of the population back to their rural villages where cell phone reception is usually not good. Therefore, when students were contacted by telephone, some numbers were found to be closed (presumed temporarily off- grid), seven numbers proved to be wrong, and two candidates had no contact details on file. A total of 62 students responded (54%). Table 1 provides a summary of the study population and their faculty affiliations.

Table 1: Summary of study population and their affiliations

Faculty	Total enrolled	Responded	Not responded	Closed or not answering	Wrong number	No number
Medical Technical*	14	10	4	0	-	-
Agriculture	14	6	4	3	1	-
Radiology	11	8	2	1	-	-
Laboratory	13	6	2	3	1	1
Urbandevelopment**	16	8	3	4	1	-
Public Health	14	6	5	1	1	1

Faculty	Total enrolled	Responded	Not responded	Closed or not answering	Wrong number	No number
Computer	17	10	4	2	1	-
Engineering	18	8	1	7	2	-
	117	62	25	21	7	2

** Medical technical includes nursing, midwifery, physiotherapy, and anaesthesia.*

***Urban development includes demography, women's studies, urban planning, and environmental studies*

Science students formed approximately 25% of the PhD students at the AAU. All the respondents were Sudanese and 38 (61.3%) of them were female. In terms of age, more than 69% of them were more than 36 years of age (with 43.5% of the total respondents being older than 40 years). The majority (62.9%) were staff members of universities, with 12 (19.4%) working in the public sector and 10 (16.1%) working in the private sector. The majority (74.2%) were doing their PhDs part-time, with 59.7% doing more than 11 hours of other work per week. Only 19 respondents (30.6%) were financed by the Federal Ministry of Higher Education, whilst 66.1% were personally financing their PhDs. This, however, may be due to some of them being expatriates working abroad and doing their PhDs partly at a distance (a common occurrence as local staff emigrate abroad where they are better remunerated).

In the PhD process itself, 53.2% had only one supervisor and the rest had 2 supervisors. A total of 79% were doing their PhD for more than a year, so it was not surprising that 88.7% of the respondents were in the data collection phase of their studies or beyond (analysing, writing or finished and waiting for the final examination). In response to the question of whether they had any study-related problems, 32.3% of the respondents reported problems in preparing their research proposals, and 51.6% of the respondents faced problems during data collection (which may indicate that the proposal was not prepared well enough to predict problems that could arise during data collection). This latter result is interesting given that 85.5% of the respondents rated themselves as good or very good at research before starting their PhD studies.

Only 42% of the respondents met their supervisors less than once every 2 months (this result needs to be interpreted against the stage of the research process, which was not done in the study). Upon asking participants about who they thought was responsible for the different roles in the PhD process (see Table 2), and comparing this to guidelines for higher research for Australian universities and the Australian students in the study of Heifer and Drew (2019), it became clear that there is a need to explicitly establish the roles and responsibilities of each party as the students evidently did not understand what their

or their supervisors' roles and responsibilities were in comparison to their Australian counterparts.

Table 2: Sudanese students' perceptions of roles and responsibilities in the PhD process compared to Australian university guidelines (values in %)

Role	Who is responsible?			AAU	Aust. univs	Aust. stdnts
	Supervisor	Both	Student			
Selection of a topic	1.6	46.8	51.6	Stud/Bot	Both	Both
Deciding theoretical framework	27.4	62.9	9.7	Both	Both	Sup/both
Research timetable	24.2	51.6	24.2	Both	Stud	Std/both
Introduction to university facilities	45.2	30.6	24.2	Sup/both	Super	Sup
Introduction to university policies	61.3	24.2	14.5	Sup	Both	Sup
Arrange meetings	35.5	59.7	4.8	Both/sup	Both	Sup/both
Initiate communication	11.3	53.2	35.5	Both/std	Super	Sup/both
Check progress	33.9	61.3	4.8	Both/sup	Both	Sup/both
Timely finish	25.8	59.7	14.5	Both	Both	Sup/both
Supervisor sees all drafts*	46.8	45.2	8.1	Sup/both	Both	Sup
Supervisor assists in writing**	6.4	48.4	45.1	Both/std	Stud	Undetermined
Supervisor has final say***	71	24.2	4.8	Sup	Both	Sup
Emotional support****	48.4	37.1	14.5	Sup/both	Sup	Sup/both

Note: The first three columns show the results of this study, the fourth column is the summary of this study, and columns five and six are from Heifer and Drew's (2019) results.

Sup= supervisor; Stud = student

**Supervisor should see all written drafts or Student should only show supervisor if they want guidance*

***Supervisor should assist in writing the thesis or it should be the responsibility of the student*

****The supervisor has the final say in the standard of the thesis or the student*

*****Supervisor should provide emotional support or student should have their own support*

In the absence of a memorandum of understanding between supervisors and candidates, Eley and Jennings (2005) argue that it is incumbent on the supervisor to meet with the candidate at the beginning of the doctorate and explain to them the different roles and responsibilities.

When asked about the reasons they chose their supervisors, 27.4% of the respondents indicated that they did not choose their supervisors themselves. The respondents who did have a choice, indicated a combination of reasons similar to both the Malaysian and UK students in the study of Sidhu et al. (2014), as 45% of the respondents in this study chose their supervisors by their reputation of being good supervisors, and 40.3% of the respondents chose

their supervisors by virtue of their knowledge in the techniques and methods to be used in the research. Factors such as funding, doing interesting research projects and helping secure future jobs were of insignificant importance in the results found.

The next study objective was to ask the students about their assessment of their supervisor in different aspects of the PhD process. The results are summarised in Table 3 from the usual 5 Likert scale items were reduced to 3 categories (strongly agree and agree as positive, neutral, and strongly disagree and disagree as negative).

Table 3: Students assessment of supervisor in different roles (%)

Role	Positive	Neutral	Negative
Available when needed	84.1	11.1	4.8
Friendly	85.7	11.1	3.2
Respects students	92.1	7.9	0
Respects research ethics	93.6	6.3	0
Promotes critical thinking	71.4	27	1.6
Promotes good manners	87.3	11.1	1.6
Understands my difficulties	74.6	22.2	3.2
Provides additional relevant information	85.7	9.5	4.8
Guides topic selection	84.2	12.7	3.2
Helpful feedback	88.9	7.9	3.2
Timely feedback	76.2	19	4.8
Contributed in organisation & writing	58.7	14.3	37
Contributed in analysis* (36.5)	34.9	19	9.5
Contributed in collection of data on topic* (15.9)	31.8	33.3	19.1
Contributed in literature study* (14.3)	46	20.6	19.1
Contributed in data collection* (20.6)	27	30.2	22.3
I am happy with meetings	76.2	22.2	1.6
Encourages conference attendance	60.3	28.6	11.1
Encourages publications	65.1	27	7.9
Thinks about my goals	60.4	34.9	4.8
Motivator	66.7	31.7	1.6
Gives clear directions	87.3	11.1	1.6

**Denotes that some participants had not reached this stage in the PhD process (the actual percentage of those who had not reached the stage is shown as a hyper script figure after the stage)*

Taking the average satisfaction rate of the 18 out of the 22 parameters in Table 3, where there were no sizable number who had not finished that parameter, overall, sciences PhD students in AAU FGS were 78% positive about their supervisors, which is similar to what Riaz et al. (2020) found in a study done in Pakistan.

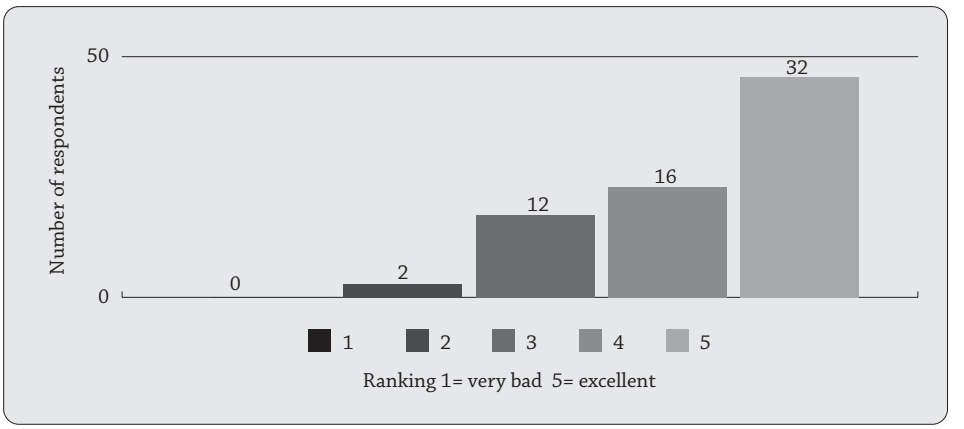
This positive level of satisfaction holds up, except in the following which are all the aspects where a negative plus a neutral response was given by more than 15% of respondents. These aspects include 'the supervisor is/does not':

1. Available when needed
2. Promote thinking
3. Understand difficulties
4. Guide topic selection
5. Provide timely feedback
6. Contribute in organisation and writing
7. Help in collecting background data about the topic or in the literature review
8. Encourage conference attendance.
9. Encourages the candidate think about their goals
10. Motivate the candidate
11. Confirm that the candidate is happy with their joint meetings

The last study objective was the students' rating of their supervisor (see Figure 1 below). The respondents were asked to subjectively rate their supervisors overall on a scale from 1 to 5, with 1 being very bad and 5 being excellent. More than half of the respondents (51.6%) rated their supervisors highly, while only 4.7% rated their supervisors a 2 out of 5, although 18.8% rated them at an equivocal 3 out of 5.

Despite the above favourable rating, 15.6% of respondents had thought of changing their supervisors at some stage, and 31.2% of the respondents

Figure 1: Rating of supervisors by their students



would either not recommend (10.9%) or may not recommend (20.3%) their supervisor(s) to other students pursuing research in the same field. This latter discrepancy could be explained by the fact that maybe students culturally tend not to criticize their seniors as noted before (see Elliot & Kobayashi, 2019).

5. Conclusion

This study looked at candidates doing their PhDs in the science section of the Postgraduate Deanery of Alzaiem Alazhari University. These students formed 25% of the total PhDs in the university and only 53% (62 out of 117) of them responded due to the havoc caused by the Covid-19 pandemic at the time. However, this study, being the first of its kind in the university (and most probably in the country), established a methodology and first pointers for further studies to clarify the questions it sought to answer.

The PhD candidates surveyed were mostly (61.3%) female and 69% were over 36 years of age and 63% were academic university staff. 74% were doing their PhDs part-time and 66% were self-financing. Of the PhD process itself, they shared how they encountered problems during the data collection and proposal preparation phases.

As for the respondents' opinions about their supervisors, they were generally positive but there were certain points, as mentioned in the results above, which if supported by larger studies would require remedial action. These points mostly revolve around two aspects:

1. Organisational aspects which include:
   - Availability of supervisor.
   - Supervisor guiding topic selection
   - Supervisor helping in collecting background material about the topic
   - Supervisor providing timely feedback
   - Supervisor contributing to organisation and writing
   - Supervisor encouraging candidates to attend conferences
2. Personal relations between supervisor and candidate in aspects such as:
   - Promoting thinking
   - Understanding candidates difficulties
   - Making the candidate think about their goals
   - Motivating the candidate
   - Making the candidate happy with their joint meetings

Many of the abovementioned points would need further study in bigger samples from more universities around the country to see if they are consistent and, if so, remedial action of some kind would need to be taken as mentioned in the recommendations below.

6. Recommendations

Some preliminary recommendations from this study:

- A compulsory memorandum of understanding (MoU) between supervisors and students must be introduced, which is to be implemented by the FGS administration. The MoU should contain all the points mentioned under 'organisational aspects' in the discussion above. This would ensure a clear delineation of the roles and responsibilities of the supervisors and candidates.
- Perceived deficiencies in organisation, literature study, data collection, analysis, and writing can be partly rectified by better training for supervisors as implemented in Australian universities (Kiley, 2011) by using techniques such as writing camps and group seminars.
- Encouraging supervisors to have regular meetings with their candidates and to ensure that they take care of the points mentioned under 'personal' in the conclusions above so that they cater for such things as motivating the candidates more and encouraging them to think about their medium- and long-term goals.
- The deficient areas in supervision in promoting thinking and understanding in students can be remedied by introducing courses for supervisors on supervisor–student relationships, as suggested by Kiley (2011). However, from my personal experience, mentoring students requires a lot of local cultural context, and before such courses are introduced, a lot of local research first has to be done to assess whether it could work.

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