

SUPERVISION AND EVALUATION OF RESEARCH PROJECTS OF GRADUATE STUDENTS - REALITIES AND REQUIREMENTS

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ABSTRACT

By its very nature, research activity leading to a higher degree is fraught with uncertainty, which is faced both by the supervisor and the candidate. However, the candidate's neck is on the line, so the supervisor is expected to play his vital role to help the student reduce the uncertainty as the time progresses. Supervision of postgraduate research can be viewed as management of uncertainty; management of transformations and realizing that time is the enemy. A recent questionnaire given to post graduates students revealed that students desire supervisors to be knowledgeable about research area. However, a supervisor's job deals with a lot of consideration. A supervisor who evaluates his own project, dissertation or thesis of his own students will apply the same yardstick when he evaluates others. The yardstick will vary from country to country and also within a big country having a number of universities. This paper shares the views of the senior faculty members who have got long experience of supervising postgraduate students. In evaluating a thesis as external examiner bias will present itself. The bias can be positive or negative, and the latter needs to be controlled as it may hurt the student who is being assessed. Negative bias is based on the fame of the supervisor, the university where the research work is done, and the country where it is located. Students should be encouraged to write journal papers as publications are the proof of the quality of a work. Citations to one's work are the crowning glory of a student's achievement in the discovery of something new in his research. Evaluation of thesis is a highly responsible task that needs to be executed in a highly professional manner. In this paper standards have been set out and benchmarks have been indicated.

Keywords: *management of uncertainty, bias, post graduate, publication, supervision*

1) INTRODUCTION

Numerous research have pointed out that there are high proportions of postgraduate student who fail to complete their studies within the time given. Many factors can contribute to that and one of the most important factors contributing to this is the kind of supervision they receive. Of course, all other aspects need to be taken into account in studying the postgraduate's experience of supervision. Effective supervision of research students is acknowledged as a crucial factor in the latter successful completion of the Ph.D (Frischer, et, al, 2000, Hunter, et al, 2006). How well they are supervised is likely to be linked to the way they choose to occupy their roles. Therefore supervision is concerned as the mechanics of ensuring that the students make good progress towards completion (Hockey, 1996, Ismail, et, al, 2011). Therefore, both the supervisor and individual must be diligent about explicitly working together to establish mutual expectations, responsibilities and benefits for working together and with other parties (Phillips, et, al, 2000). According to (Burton, et, al, 1995, Abiddin, et, al 2007) the primary function of supervisions of all types is leadership, plus the encouragement and recognition of leadership in other people, either on the professional staff or among community participants. On the other hand, (Phillips, et, al, 2000) and (Zubir, 1994) advised supervisors to act as role models.

A supervisor himself has to evaluate the project, dissertation, and thesis of his own students and quite naturally will apply the same yard stick when he evaluates others. The yardstick-will vary from country to country and also within a big country like for example the US and UK. The supervision at Imperial College have very high stringent standards. On the other hand many UK universities have standards far below that of the Imperial College. This is also true of the US where standards for Stanford, MIT, Yale and Harvard are much higher than that of others. It is good for us to look at high standards and use them as a bench mark and gradually attain them. This is a painful task, hard to fulfill, and harsh to execute, but it has to be done.

First of all one need to have a definition of what is expected of a Bachelor's, Master's and of a Ph.D.

1.1) Bachelor's Degree

This should form not more than 10% of the of the final year's assessment. Independent enquiry and assessment of judgment is expected with a reasonable standard of presentation of results. First class honours and upper second class students execute excellent work which is several notches higher than their peers.

1.2) Masters by Course Work

This degree will have two semesters of course work with about three months of research work that forms a dissertation (not a thesis). Some line of enquiry is expected with a brief descriptive account but the validation and generalization expected of a thesis by research work will be absent.

1.3) Master's Degree by research work

This work takes two years and it must achieve some degree of originality that will serve as a reference. The conclusions that are reached must be capable of validation with the expectation of generalization.

1.4) Doctoral thesis leading to a Ph.D

This thesis will take three years after the Master's (taught degree or by research degree). It represents the highest level of student research activity and will be the last time they get assessed for research competence and originality. Many take up research as a profession in academia or join R & D departments in industry. Others do the PhD during their career in a university to enhance their chances of promotion.

The University of Bradford requires that a Ph.D thesis must “form a distinct contribution to the knowledge of the subject and show evidence of the discovery of new facts or the exercise of independent judgment (Howard, 1983, Sonneveld, H., 2009). The University of Kent requires “that the thesis be an original contribution or understanding in the field under investigation and should demonstrate the candidate's ability test ideas, whether his own or those of others, and to understand the

relationship of the theme of investigation to a wider field of knowledge. It should be of such scholarly merit as would on the ground justify its publication wither as submitted or an abridged form.

The London School of Economics and Political Science requires that “a PhD thesis form a distinct contribution to the knowledge of the subject and afford evidence of originality, shown either by the discovery of new facts or by the exercise of independent critical power” (Sharp, 1996).

1.5) Doctoral thesis leading to the D.Sc

The D.Sc is a requirement in some universities in the UK and in Europe for a full professorship and desirable in others for recognition. It is usually permitted only after 10-15 years after the Ph.D and requires that the candidate have a large number of journal papers and citations in a narrow area that becomes the generalized title of the thesis. To sum up the criteria for the undergraduate, the Master's, and the PhD are nicely summarized in Table 1 (Sharp, 1996).

Table 1: Criteria to be satisfied by reports on student research at the Bachelor's, Master's and PhD levels.

Level	Description	Criteria
First Degree	Project Report	A well-structured convincing account of a study, the resolution of a problem, or the outcome of an experiment.
Master's Degree by Course work and dissertation	Dissertation	1) An ordered, critical and reasoned exposition of knowledge gained through the student's efforts 2) Evidence of awareness of the literature
Master's Degree by research	Thesis	1) Evidence of an original investigation or the testing of ideas. 2) Competence in independent work or experimentation. 3) An understanding of appropriate techniques. 4) Ability to make critical use of published work and source materials. 5) Appreciation of the relationship of special theme to the wider field of knowledge. 6) Worthy, in part, of publication.
Doctoral Degree	Thesis	1 to 6 as for Master's degree by research

Level	Description	Criteria
		1) Originality as shown by the topic researched or the methodology employed. 2) Distinct contribution to knowledge.

2) MATERIALS AND METHODS

A large number of postgraduate students from various fields of study and year were interviewed. The interviews were conducted according to the principles of in-depth interview. They were conducted based on a semi-structured interview. The objective is to obtain information in relation to the research questions. One of the data sources for qualitative research is direct speech of the people (informants) about their experiences, opinions, feelings and knowledge. Therefore, the interviews were managed to obtain the real views of the interviewees. Since the questionnaire method unable to provide satisfactorily explanations, the interview was used as an alternative to sustain some weaknesses. Probing questions were asked whenever necessary to clarify and explain details related to important issues. The interview process was similar for all respondents. All interviews were held at mutually agreed appointment time. On average, each interview session lasted about an hour, depending on the response from the respondents and also 'saturation point' regarding the information.

3) THE RESPONSIBILITIES OF RESEARCH STUDENTS AND THEIR RELATIONSHIP WITH THEIR SUPERVISOR

Research students have to take responsibility for managing their own learning and getting a Ph.D. 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 supervisors (Moses, 1992, Lessing, et, al, 2002) argued that supervisors expect students to be diligent, conscientious, 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, student should give continual feedback, so that the supervisor can give informed instruction.

The student is the main person responsible for his/her Ph.D research. Doing a Ph.D clearly indicates that this is a student's own research work. Phillips, et, al, 2000, emphasized 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. Students should identify the topic and preliminary reading (Brown, et, al, 1985, Abiddin, et, al, 2009). This can be linked with other parts of the Ph.D task, like the development of a relevant body of knowledge, placing the research in the context of the literature and originally (Haksever, et, al, 2000).

4) ROLE OF A SUPERVISOR

Supervisor is expected to play his vital role to help the student reduce the uncertainty as the time progresses. It is not the task of the supervisor to reduce the uncertainty by providing or narrowing down the choices, but rather to guide and train the student on how to reduce uncertainty and instill confidence. This is especially important for Ph.D because they will then be qualified to be supervisors. Supervision of postgraduate research can be viewed as management of uncertainty; management of transformations and realizing that time is the enemy. These perspectives can serve as guides for effective supervision.

4.1) Management of Uncertainty

By its very nature, research activity leading to a higher degree is fraught with uncertainty, which is faced both by the supervisor and the candidate. However, the candidate's neck that is on the line, so the task of the supervisor is to help the student reduce the uncertainty as time progresses.

Uncertainty can possibly lie in the following:

- Area, General & Specific Topic, Scope
- Methodology, Methods, Tools
- Time (TIME IS THE ENEMY)
- Funding
- Conclusions.

In general the idea is to reduce uncertainty, identify alternatives, assess them, make preliminary choices, review and compare with what others have done.

It is important to make the student understand what exactly is required for the degree: Contributions, justifications, rigor validation, writing style, etc.

- Read books on what is a Post Graduate studies.
- Read 4-5 thesis, make student summarize what is required
- Time is the Enemy
- Fix time for meetings, keep to it.
- Develop a work/project plan. More detailed for the short term. Reducing Uncertainty or Confidence Building on ideas/activities/results

Making the student present or write review papers on some of the following:

- ✓ on problem area and researchable issues
- ✓ Specific problem area
- ✓ methodology/tools
- ✓ preliminary rigs, set-up, models
- ✓ results for specific work.

The papers do not have to be in one same journal or area. These will help the student clarify his thoughts, force him to be more rigorous, but most of all reduce doubts and uncertainty and build confidence.

4.2) Management of Transformations

The following are some of the transformations that take place from the beginning to the end of the research project. The roles and activities of the supervisor have to take this into consideration and cause the transformations to take place.

- i) Overall research and study program: Wide Uncertainty → Increased direction
- ii) Uncertain future → Work plan
- iii) Subject Area: Wide area → Problem Identification

- iv) General Problem → Specific , objectives, deliverables
- v) Student → Researcher
- vi) Relationship Master/Pupil → Colleague/Friend
- vii) Supervisor role: 'Tyrant' → Guide
- viii) Supervisor role: Examiner → Coach

The last four will affect the way the student is guided. For V, he should not be just told what to do, but rather be encouraged to seek out, analyze critically and present to the supervisor. Supervisor critiques and offers number of avenues for student to select from. The aim is to transform the student from a student to one who thinks as a researcher.

The relationship (VI) transforms from one where the supervisor knows much more to one where these student and supervisor are peers, and the student is more knowledgeable in some specific area.

In spite of the above points, it is very important for the supervisor to rigorously play his role as an assessor of the student's ability to successfully complete the research. He should avoid being too friendly at the earlier stages so that he will not be influenced in making his assessment.

It is very important for the supervisor to assess the abilities of the student in the first or by the second semester, and steer the student out of the program if necessary. Delaying and failing a student until later is very unfair and unproductive, both for the supervisor and more so, for the student.

5) THE RESPONSIBILITIES OF SUPERVISOR

The above discussion suggests that the main responsibility of a supervisor is to guide and correcting on the student's research. These results match the literature, in which many authors had highlighted the fact that the most important role of the supervisor is to guide students (Brown, 1985, Cryer, 2000; Kam, 1997).

The results from the survey also indicate that, at each stage of research, students are likely needed different forms of guidance. According to (Donald, et, al, 1995), many tasks of the supervisors to research students are related broadly to guidance and advice. Generally, this guidance and

advice relates to direction, completeness, clarity, methodology, topic selection and data collection and also involves giving feedback on the progress of written. It was found that the students need guidance especially on how to obtain the literature and how to prepare the methodology.

This study has also revealed that an effective supervisor should supervise students according to their ability and individual requirements. This result is supported by the literature, in which (Welch, 1980) identifies three styles of supervision. The first is a highly directive approach, which is very structured with the student being given a lot of advice in the early stages. When the student gains confidence and ability, this level of control is diminished. The second approach is highly directive at the beginning and at the end of the project, with a highly non-directive period in between. The third approach is described as highly directive with close monitoring of the student throughout the whole project. The reason why there are three approaches is that students are not homogenous in terms of academic ability, personality attributes, motivation or attitude.

It is also suggested that another main responsibility of supervisors is to provide critical feedback on students' written work. The idea that it is the supervisor's responsibility to give feedback in the form of constructive criticism is an essential element in the student's intellectual development (Spear, 2000).

6) THE RESPONSIBILITIES OF STUDENT

As the student is the 'owner' of the research, he/she has the ultimate responsibility for the decision making. Supervisors believe that students should manage their work independently, without being told step by step to make progress. They have a responsibility to manage their own work. Research student policies, it is similarly reported that students need to take initiative raising problems or difficulties. These results are supported by the literature findings. In the literature on research student supervision (Phillips, et, al, 2000) suggest that research students have to take responsibility for managing own learning. are responsible for determining what is required, as well as what is need to be out and keeping in touch with supervisors through regular meetings also argued that they should be diligent, conscientious and hardworking and should have a sense of urgency.

In this study, it is also been found that students placed great importance on regular submission of written work. They indicated that they are responsible for submitting written work in order to make progress. The results show that most respondents stated that they normally submit written work either on the day they meet or they send it to their supervisor a few days in advance. This is supported in the literature, where (Spear, 2000) mentioned that the regular submission of work is essential so that writing problems can be recognized and addressed as soon as possible. It is also stated in the research student policies that supervisor must request appropriate written work and returning the work with constructive criticism in a reasonable time.

The findings suggest that a good student should grasp the opportunity to develop professionally. Students should develop professionally and that this professional development should include attending conferences, perhaps writing papers for publication, attending seminars and workshops, making presentations, networking with other researchers and working as research assistant. Most of the students in the interviews indicated that they had experience of presenting papers in seminars or conferences.

7) EVALUATION OF A THESIS

Thesis evaluation can be classified into two categories:

- a) in the role of a supervisor in guiding his student – already discussed
- b) in the role as an external examiner in assessing another person's student
 - i) In evaluating a thesis in the latter capacity (external examiner), bias will present itself. The bias can be positive or negative, and the latter needs to be controlled as it may hurt the student who is being assessed. Negative bias is based on the reputation of the supervisor, the university where the research work is done, and the country where it is located. Negative bias can also be racial or gender based. Positive bias ignores all that is present in negative bias but being human beings this factor will be there though fortunately it is rarely practiced.

In both roles that of a supervisor and an external examiner the following need to be looked into:

- ii) The supervisor/examiner should look alarmingly at plagiarism, a scourge that is widely practiced. This is where the fame of the supervisor or that of the university is helpful.
- iii) The supervisor/examiner should look for a relevance tree for a Master's thesis by research and for a Ph.D thesis. This justifies the title and a discovery within the title would be expected.
- iv) Publications are proof of the quality of a work. A journal publication has more merit than a conference paper. Publication in journals that have a high impact factor means quality and screening out of plagiarism. Citation to one's work is the crowning glory of a student's achievement in the discovery of something new in his research.
- v) The evaluation of thesis be it as a supervisor or as an external examiner is a highly responsible task that needs to be executed in a highly professional manner. Finally the important factors to evaluate in a thesis are:
 - Plagiarism
 - relevance tree and thesis title
 - research methodology
 - references in the literature
 - publications by the candidate
 - high impact journal publications
 - citations to his work
 - evidence of discovery
 - conclusions that show validity and generalization of this discovery

8) WHAT DO STUDENTS AND SUPERVISORS CONSIDER IMPORTANT?

A simple, indicative survey showed that: Students want supervisors to be knowledgeable about research area and on research methodology, etc. and has skill to motivate and build confidence in students (not feeding). Supervisor must have interest in the research area, but must also focus on the graduation requirements of the student. Supervisor must allocate sufficient time and effort, give timely feedback and be confident on when enough has been done.

Supervisors, on the other hand, do not consider as very important giving priority to graduation requirements and also telling students where to find ideas. What supervisors include as very important (Editing thorough and reminding students that thesis is theirs) is not ranked highly by the students.

9) QUALITATIVE COMMENTS BY SUPERVISORS AND STUDENTS

The comments from the students are given in Table 2, together with some suggestions. These are unedited, nor compiled/sorted.

Supervisors say:

- Good student
- Student from hell (sent to torture supervisor)

Table 2: Comments from Students

BEST	WORST	SUGGESTION
<ul style="list-style-type: none"> • My supervisors are very concerned, have managed to keep me on toes. • Speedy and critical feedbacks • My supervisors give me support, guidance, caring about student's problems and have a lot of ideas about research. • Supervisor has skill to support, motivate and build self confidence in student. • Work with student. Discuss scope of project and schedule regular meetings with student. 	<ul style="list-style-type: none"> • The scope of my research was very wide and kept expanding • Do not know scope of my PhD project until 2 ½ years. • Supervisors expecting us to have same level of thinking • Lack of time management • Lack of funding 	<ul style="list-style-type: none"> • Encourage supervision by committee of supervision/ joint supervision- not to duplicate but complement • Procedures/regulations needed to avoid conflicts/disagreements • Supervisors must be equipped with knowledge regarding Bachelors, Masters and PhD research scope • Supervisors must have clear framework of research, methodology, scope objectives and facilities. • Supervisors should not have conflicts of interest between academic and personal achievements such as exhibition, patent, etc • Should have regular

BEST	WORST	SUGGESTION
<ul style="list-style-type: none">• Give the freedom to decide on the things that need to be done• Supervisor explains what really is required for M.Sc. and being more like friends		meetings

10) CONCLUSIONS AND RECOMMENDATIONS

The main responsibility of a supervisor is to guide and advice a student's research. This guidance and advice relates to the direction, completeness, clarity, methodology, topic selection and data collection and also involves giving feedback on the progress of written work.

At different stages of the research, students are likely to need different forms of guidance. A Ph.D involves cooperation between the student and supervisor in order to achieve objectives. Without good supervision from a good supervisor, problematic situations will arise which can affect progress. An effective supervisor should supervise students based on their ability and individual requirements, since postgraduate students are not homogenous, but highly diverse in their academic ability, personality attributes, motivation and attitude. A good supervisor should give personal support to students if they have problems because, if these are not attended to, they may affect the student's progress. If the supervisor is not in a position to help students to solve them, he should be able to refer them to an individual who can do so. He/she should also be seen by students as close to them and always there when needed. Also it has been found that an effective supervisor must have good knowledge and experience in their respective field of study.

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