

# UNDERGRADUATE RESEARCH PREPARATION IS CRUCIAL FOR POSTGRADUATE STUDIES

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## ABSTRACT

Worldwide, including in South Africa, involvement in research is making increasing quality demands on higher education institutions in terms of sustaining high-level research capability and involvement on an efficient and effective basis. These are complex issues, particularly when concerns such as the quality of postgraduate training, lengthy postgraduate completion rates and the high percentage of suspension of postgraduate studies are present. These are just some of the issues leading to this improvement-oriented study investigating new-generation postgraduate students at a case-study university of technology. The research methodology applied in this study was primarily a qualitative research method, supported by a quantitative research element.

**Keywords:** undergraduate research preparation; new-generation postgraduate students; quality postgraduate research

## 1. INTRODUCTION

The years of the past decade and even before have been viewed as “extraordinary” – especially with regard to the “change in the structure, function and financing of the higher education system” (Biggs, 2003:1; Leonard, 2001:9-10). This expansion, restructuring and refinancing of higher education has not only resulted in larger classes, but has also led universities to become “diversified in terms of student ability, motivation and cultural background” (Biggs, 2003:1; Gravett & Geysler, 2004:22-23). Facilitators/supervisors are therefore not only having difficulty coping (let alone maintaining standards), but are also experiencing unprecedented levels of stress (Biggs, 2003:1; Grant, 2005:337; Gravett & Geysler, 2004:1; Lessing & Lessing, 2004:74).

Within this rapid transformation context, South African higher education institutions are confronted with several consequences, such as the merging of institutions, an increasing proportion of the postgraduate student body coming from previously disadvantaged backgrounds, and the transformation of the academic staff body (CHE, 2004; Hay, 2000:56; RSA DoE, 1997; RSA MoE, 2001). In addition, these new-generation students have limited experience of independent research work and the use of library and other research facilities (Lessing & Lessing, 2004:73; Mapesela & Wilkinson, 2005:1239).

Taking the above into consideration, maintaining quality postgraduate research has become a complex challenge and demand of higher education. According to the literature, such quality could be maintained by, for example, the adaptation of postgraduate supervision practices and/or the creation of an environment conducive to postgraduate student learning and research (Hay, 2000:56-60; Morgan & Ryan, 2003:77; Quality Assurance Agency for Higher Education, 2004:7).

In order to address some of these challenges, this article commences with an explanation of the rationale for and complexity of postgraduate studies within a transforming higher education context before going on to allude to the nature of the new-generation postgraduate student. The final section identifies possible stumbling-blocks within the postgraduate study process.

## **2. PROBLEM STATEMENT**

Maintaining the quality of postgraduate research in higher education remains a burning issue (Eaton, 1999:26; Lessing & Schulze, 2002:139; Nielsen, 1997:288). The focus of this article therefore links with the opinion of Whitaker and Moses (1994:76) that "being quality minded in education means caring about the goals, needs and interests of the students and other external groups". For purposes of this article, the focus falls on improving the quality of the postgraduate research undertaken by postgraduate students within the School of Entrepreneurship and Business Development (SEBD) in the Faculty of Management Sciences of the Central University of Technology, Free State (CUT). In order to address this issue, the researcher has identified the following three major problems that can lead to poor-quality research outputs or even to the non-completion of the postgraduate's studies: Firstly, is the postgraduate student aware of and prepared for the expectations of postgraduate studies? Secondly, is the postgraduate student aware of the importance of a professional relationship with the supervisor? Thirdly, does the postgraduate student know what level of quality is expected of him/her? (Hay, 2000; James & Baldwin, 1999; McCormack, 2004; Mouton, 2001; Phillips & Pugh, 2005).

The focus of this article falls on the first and third problematic aspects mentioned above.

## **3. AIMS AND OBJECTIVES**

The research aim of the case study was to undertake an investigation into the postgraduate research practices of new-generation postgraduate students at the SEBD in order to identify possible quality-improvement guidelines for postgraduate research at the CUT.

In order to achieve this aim, the following objectives were formulated:

- To undertake a comprehensive literature review on quality postgraduate research embedded in the higher education context;
- To investigate and critically analyse the existing new-generation postgraduate research environment within the SEBD; and
- To identify methods and procedures to assist these postgraduate students in working towards quality research.

For purposes of this article, the focus falls only on the relevant results of the case study related to the title.

#### **4. RESEARCH DESIGN AND METHODOLOGY**

A formative-evaluative case study design (Mouton, 2001:149-150) was used to conduct an in-depth investigation into postgraduate studies (i.e. with regard to the research environment and the quality thereof as seen through the eyes of new-generation postgraduate students within the SEBD). This in-depth investigation employed a literature review in respect of the nature of new-generation postgraduate students, the possible stumbling-blocks and solutions encountered by postgraduate students, as well as the importance of good-quality postgraduate research and the achievement thereof. The empirical investigation consisted of focus group discussions and individual interviews (mainly qualitative data collection) assisted by a quantitative data collection element (i.e. a brief profile questionnaire to fill in the gaps in respect of the respondents' personal details).

This study consisted of a purposive sample of registered MTech (N=6) and DTech (N=4) students within the SEBD for the year 2006. These respondents were included in the empirical investigation by virtue of the representativeness of the postgraduate culture within the SEBD and the respondents' first-hand experience of the phenomena under investigation (Conrad, Haworth & Lattuca, 2001; Crossley & Watson, 2003; McMillan & Schumacher, 2001). In addition, these postgraduates were given the option to participate in either a focus group discussion or an individual interview, where the response rate for both was 71%.

Furthermore, the respondents granted permission for the focus group discussions/individual interviews to be recorded on audiotape. These discussions were transcribed to data in Microsoft Word and then analysed by means of the Audacity computer programme. The student profile questionnaires were processed and analysed using the Microsoft Excel computer programme.

## **5. RATIONALE FOR AND COMPLEXITY OF POSTGRADUATE RESEARCH WITHIN A TRANSFORMING HIGHER EDUCATION CONTEXT**

Worldwide, including in South Africa, there are powerful transformation forces driving an increasing demand for quality higher education services (cf. 1). Within this context, postgraduate supervision is regarded not only as one of the core academic activities, but also one of the most complex forms of teaching (Enders, 2004:439; Grant, 2001:13; James & Baldwin, 1999:3; Ngcongco, 2001:53). The reasons for this are encompassed in practices that are underpinned by the following principles (James & Baldwin, 1999:3; Kelly & Ling, 2001:74,77; Mouton, 2001:17; Neumann, 2003:36):

- Postgraduate supervision includes the fundamentals of good teaching (e.g. concern for students, interest in their progress, provision of thoughtful and timely feedback).
- Postgraduate supervision is an intensive form of teaching (e.g. an awareness of and professional commitment with regard to the time and energy it would demand).
- The supervisory relationship consists of a personal dimension (e.g. with regard to crises of confidence and personal problems).
- Postgraduate research students are individual (e.g. diversity with regard to preferences, expectations of the relationship, approaches to the study, cultural and academic background).
- Good supervisors set high but realistic standards (e.g. extending students beyond what they thought was possible).
- Good supervisors are conscious of their mentoring role (e.g. aiming to be a model of first-rate scholarship).

It is therefore evident that not only is postgraduate supervision a multifaceted delivery mode, but it also involves three parties, namely the master's or doctoral postgraduate student, the professional postgraduate supervisor with the necessary expertise, and the academic department/school and university (where successful completion rates are an indicator of research success) (Delamont, Atkinson & Parry, 2004:2). This article focuses on the first party mentioned above, namely the postgraduate student in the SEBD of the CUT who is aiming towards quality postgraduate research.

The rationale for undertaking postgraduate research varies from one student to another, with some being motivated extrinsically by the institution and others having intrinsic, personal reasons for pursuing postgraduate studies (cf. 6).

For example, literature highlights the following (Berg, 2004:210; McCormack, 2004:330-331; McMillan & Schumacher, 2001:5,6; Phillips & Pugh, 2005:22,25-26):

- Upon commencing with postgraduate studies the intention is to make a significant contribution to the chosen field (thus becoming a fully professional researcher who can distinguish between “knowing that” and “knowing how” by communicating findings clearly). Phillips and Pugh (2005:22) formulate specific points to indicate what exactly it means to become a full professional: Firstly, at the most basic level, it means that one has something to say that one's peers would want to hear. In order to do this one must have a command of what is happening in one's subject so that one can evaluate the worth of what others are doing. Secondly, one must have the astuteness to discover where one can make a useful contribution while being aware of the ethics of one's profession and working within them. Thirdly, it is important to have mastery of appropriate techniques that are currently in use, and also to be aware of their limitations. Finally, one must be able to communicate one's results effectively in the professional arena. All this must be carried out in an international context, since professional peer groups are universal in nature.

Most of the above are related to the learning of skills, not knowledge – thus, there are craft skills involved in becoming a full professional, which, like any skills, have to be learned by performing the task in practical situations under supervision. However, the diverse aims of students do not remain the same throughout the period of registration for postgraduate studies, and it is important that research students eventually realise that it is determination and application, rather than brilliance, that is needed.

- The student must be encouraged to be a lifelong learner.
- The student must be encouraged to develop as a human being and to become a better practitioner (an emotional decision to spend one's time in a more fulfilling or pleasurable way).

From a higher education institutional perspective, postgraduate students are important because they help liberalise and broaden the outlook of other peer postgraduates (Khafagi, 1990:67; University of Canterbury, 2006). Furthermore, postgraduate students could also assist supervisors with research projects and course instruction – especially where capacity personnel shortages in both education and industry exist. It therefore remains crucial for higher education institutions to support these students (e.g. by offering financial support, opportunities for international research trips and internships, and regular contact with an international network system), which will provide them with a supportive, challenging and academically exciting environment (Quality

Assurance Agency for Higher Education, 2004:7-9).

## **6. THE NEW-GENERATION POSTGRADUATE STUDENT**

Postgraduates of the future will differ from those of today, firstly because there are various (institutionally motivated or personal) reasons why students decide to work towards a master's degree or doctorate. For example, Phillips and Pugh (2005:25) state that one of the most common objectives at the beginning of postgraduate studies is to make a significant contribution to the chosen field. Although the diverse aims and objectives of students do not remain the same throughout the period of registration for postgraduate studies, it is important that research students eventually realise that it is determination and application, rather than brilliance, that is needed. Secondly, literature confirms the impact of transformation on the higher education student population (cf. 1), with Dennis (2003:218) stating that higher education institutions today "represent the most ethnically diverse student population in higher education's history". Thirdly, within South African higher education (cf. 1) the lack of research background (and related skills), coupled with linguistic and academic writing problems when using a second/third language in postgraduate studies, is highly problematic for these students (cf. 7.1).

Therefore, by being aware of each postgraduate student's background and related problem areas/hurdles, supervisors and institutions can not only provide more appropriate assistance for each student, but also contribute towards the successful completion of the student's studies within the given period of time.

## **7. POSSIBLE STUMBLING-BLOCKS IN THE POSTGRADUATE ENVIRONMENT**

Literature confirms the importance of being aware of possible stumbling-blocks in the postgraduate study process in order to address some of the factors that contribute towards the extended completion rate, as well as the high dropout rate (Lessing & Schulze cited by Rochford, 2003:219). However, for purposes of this article, only three stumbling-blocks in the preparation of postgraduates are discussed.

### **7.1 Disadvantaged groups**

Within the South African higher education context, various policy documents and legislation (CHE, 2004; RSA DoE, 1997; RSA MoE, 2001) stipulate the need for increased postgraduate student numbers and outputs, especially from previously disadvantaged groups. These students, usually from the rural areas, may experience problems with regard to finances and accommodation (Mapesela & Wilkinson, 2005:1239) and it is therefore important that the institution assists postgraduates in this regard. For example, a concrete strategy formulated by the CUT, FS to meet the demands of the National Plan for Higher

Education (RSA MoE, 2001) is to sustain and promote research through public and private funding (CHE, 2004:6; Hay, 2000:60). In addition, these postgraduates would require personal assistance, especially when family support is not available (Mouton, 2001:17), as well as support in respect of practical issues such as unfamiliarity with higher education facilities, infrastructure and access. (CHE, 2004:8-9; Hay, 2000:59). This highlights the fact that undergraduate research preparation is crucial for postgraduate studies.

## **7.2 Linguistic and academic writing problems**

International and national literature confirms the existence of problems in respect of linguistic and academic writing skills amongst postgraduates (Holtzhausen, 2005:90; Hugo, 2001; Johl, 2002; Rochford, 2003). For example, in countries where English is not the dialect, lack of proficiency in the English language is regarded as one of the core reasons why postgraduates struggle with academic writing skills (Naidoo & Tshivhase, 2003), since second-language learners are less fluent (use fewer words), less accurate (make mistakes) and less effective (achieve lower holistic scores) in their academic writing activities. The ability to use appropriate academic language in a given social context and to write for the academic context and its discourse community is consequently difficult (Holtzhausen, 2005:91-92; Van Rensburg, 2004). In addition, the implications of lifelong learning and postgraduates entering and returning to higher education at different stages in their lives also contribute to the increase in diverse needs experienced by the postgraduate society. These problems coexist with a host of other factors, as identified by Holtzhausen (2005:89), such as the students' prior schooling, exposure to certain necessary resources (e.g. electricity and libraries), literacy provision in the home and community, attitudes towards schooling, and proficiency in English.

## **7.3 Time management and deadlines**

Whether time is allocated for the completion of postgraduate studies or set time periods are given for the completion of individual tasks, deadlines are not only crucial for progress, but also act as positive stress activators (i.e. they stimulate students to complete the set tasks in time). However, supervisors often find it difficult to see to it that their students work within a structured timetable. Some of the reasons for this have been highlighted in the literature (Graham & Grant, 1997:30-32; Moses, 1985:13; Neumann, 2003:4; Phillips & Pugh, 2005:88):

- Confusion, lack of confidence, and uncertainty regarding the next step to take;
- A slow start and perfectionism;
- Inadequate collection of data due to inadequate planning in the handling of the material and a lack of time management;

- Inability to schedule regular meetings (especially in the first three months) to prevent the postgraduate student drifting away.

Thus, deadlines are as important for monitoring the development of thinking as they are for ascertaining that an agreed amount of reading or practical work has been completed. Whatever the short-term goals, regular opportunities to discuss progress and exchange ideas are vital to the development of the project and the students' continuing enthusiasm.

By knowing what is expected of him/her and being aware of the possible stumbling-blocks in postgraduate studies, the student can start working towards quality postgraduate research.

## **8. QUALITY POSTGRADUATE RESEARCH**

Greater focus on the importance of research within the higher education context has resulted in a greater demand for research to be undertaken and published (Felton, 2007; RSA DoE, 1997; RSA MoE, 2001). One mechanism to generate and assist in research output has been to increase postgraduate research student numbers (cf. 1, 2 & 6).

Simultaneously, a growing concern for quality in higher education has become an important aspect of postgraduate studies (Meulenberg-Buskens, 1997:111; Steyn, 2001:30), since the benefits of increasing the quantity of postgraduate studies have not always been matched by a commensurate improvement in the precision of facilities and the development of quality-assurance mechanisms (Hay, 2000:55). Thus it is essential for higher education institutions seeking to develop and improve their research function to address the following:

- Firstly, recognising the significant contribution and investment by students undertaking postgraduate research studies.
- Secondly, providing facilities and resources to assist postgraduate students in proceeding in a productive manner (cf. 1 & 7.1), especially at undergraduate level, in preparing for postgraduate studies. For example, English proficiency and academic writing, which will improve the outcomes of postgraduate studies, while the supervisor will have to spend less time linguistically revising postgraduate students' work, and academic writing will be of better quality (Sayed, Kruss & Badat, 1998:279).
- Thirdly, recognising the diverse skills involved in postgraduate supervision, which requires ongoing support and training (cf. 5) in order to maintain quality (Enders, 2004; Felton, 2007; Grant, 2001; James & Baldwin, 1999; Ngcongco, 2001).



Taking the above into consideration, in addition to the HEQC's audit criteria to ensure that research as a core function of higher education is conducted within an integrated quality framework (Lategan & Lues, 2005:55-56), the CUT, FS formulated the following strategic research initiatives (Lategan, Vermeulen & Truscott, 2003:9):

- Marketing research activities;
- Linking research projects to business and industry;
- Assisting researchers in aligning their research to the needs of business and industry; and
- Ensuring quality improvement in all research activities.

In light of the above, it is evident that the responsibility for quality in research outputs lies on different levels, and the postgraduate student should therefore be invited to provide feedback to the institution on issues such as the guidance received from supervisors, the infrastructure provided by the institution, any financial assistance received, as well as the effectiveness of administrative processes. In this way the institution can be made aware of gaps in its practices and will then be able to rectify the situation (Lategan & Lues, 2005:58).

All the problems highlighted above can be overcome if students are prepared for postgraduate studies while at undergraduate level.

## **9. FINDINGS AND RECOMMENDATIONS**

This case study sought to provide a perspective on the current postgraduate environment being experienced by new-generation postgraduate students in the SEBD of the CUT. It was revealed in the literature that new-generation postgraduate students do experience certain stumbling-blocks in their quest to complete their studies (cf. 7.1-7.3) and produce quality postgraduate research (cf. 8).

Addressing these challenges requires higher education institutions to respond to the problems being experienced by postgraduate students. As well as to work towards finding solutions to ensure that the research environment is positive and of such a nature that it will uplift postgraduate students and also support them in their pursuit of quality postgraduate research. This study also allowed for the identification of improvement guidelines with regard to the new-generation postgraduate research environment within the SEBD of the CUT.

For purposes of this article, the focus falls only on the most relevant findings from the literature review and the empirical investigation (i.e. the postgraduate student profile questionnaire and focus group discussions and/or individual interviews).

## 9.1 Findings from the literature review

Literature on new-generation postgraduate students confirms that there are diverse reasons why a student decides to pursue postgraduate studies (cf. 6). However, the student's reason for entering the postgraduate environment is not nearly as important as the fact that the postgraduate student should be made aware of what to expect and what will be expected of him/her – for example, by means of the presentation of induction procedures for newcomers, focusing particularly on the role of the postgraduate student (Hay, 2000:56-60; Khafagi, 1990:67; Morgan & Ryan, 2003:77; Phillips & Pugh, 2005:16). Furthermore, this decision in terms of postgraduate studies is affected by diverse role-players within a transforming higher education context (cf. 4). Literature confirms that research is one of the three core activities of most higher education institutions (cf. 8), and quality research is therefore not only crucial, but beneficial to all three parties (i.e. the postgraduate student, the supervisor, and the institution).

## 9.2 Findings and recommendations from the empirical investigation

Although numerous problems and suggestions were identified in this case study, the following four relevant aspects are highlighted from the interview data:

### 9.2.1 *High workload and stressors*

The respondents complained about their high workload and identified this aspect as one of the main stressors in their postgraduate environment. More than half the respondents had considered discontinuing their studies, while the majority (70%) were experiencing feelings of stress.

Furthermore, the respondents were not working according to set timeframes, which could result in a backlog of chapters and non-completion of their studies.

Recommendation: The Academic Planning Committee should look into the high workload of SEBD postgraduate students employed at the CUT. A survey conducted amongst other employed postgraduate students in all faculties at the CUT, FS may reveal whether this is an institutional problem or one experienced only in the Faculty of Management Sciences. Forming support groups could relieve the isolation problem being experienced in the postgraduate environment and could also alleviate the stress experienced by postgraduate students, as well as their negative thoughts of discontinuing their studies.

*The recommendation is that undergraduate students should be informed about the high workload and stress factors related to postgraduate studies and how to address these (e.g. stressing the importance of working according to a set timeframe). This could assist them in making the right decision in terms of becoming either a full-time or a part-time postgraduate student.*

### 9.2.2 *Language proficiency, academic writing skills, and statistical analysis*

The aspects portrayed in the above sub-heading were identified as problematic by all respondents. Since the majority of respondents were completing their studies in a language (English) other than their home language, this was resulting in difficulties with regard to language proficiency, - language usage research terminology and academic writing. The respondents' lack of statistical background was also impacting negatively on their progress towards the completion of their studies.

Recommendation: Postgraduate students should be prepared, already at undergraduate level, for the research environment before entering it. It is thus proposed that, in order to overcome the above-mentioned problems, future postgraduate students at BTech level should follow an introductory course on research aspects. Another option would be to recurriculate the undergraduate courses in such a way that diploma students would start developing skills with regard to academic writing and research preparation for the postgraduate level.

*For purposes of this article, the recommendation is that the suggestions above be implemented at undergraduate level in order to prepare undergraduates for the postgraduate research environment.*

### 9.2.3 *Research-related workshops*

The majority of respondents (employees at the CUT, FS) - were experiencing difficulty attending the scheduled research workshops, since most of these workshops were being scheduled during class contact sessions.

The respondents felt that that the Research Office was doing beneficial work by holding (organising) workshops to enrich postgraduate students, but they also felt that their inability to attend many of these workshops was impacting negatively on their knowledge and on the overall research culture. Attending all the necessary research-related workshops would enable these postgraduate students to overcome their problems with regard to language proficiency, academic writing and statistical analysis.

Recommendation: Irrespective of the Research Office's workshops on academic writing skills and other related research topics, it is suggested that other relevant needs also be investigated. In addition, the current timeframe of research workshops should be addressed by perhaps offering more flexible time schedules, which could offer more opportunities for a wider population.

*For purposes of this article, the importance of attending or completing workshops on academic writing skills, improved usage of university assisted statistical assistance and other related research topics is emphasised.*

*Attendance of such workshops would ensure that the student acquires prior knowledge of research, thus preventing the wasting of time on aspects such as academic writing and statistical analysis while compiling the dissertation/thesis.*

#### 9.2.4 Supervision

From the findings it appears that liaison with the supervisor at least once monthly is required, while the appointment of a co-supervisor is a personal decision. The fact that only a few of the respondents and their supervisors were following a set timeframe is cause for concern. It is important that the postgraduate student follows a set timeframe to be able to work towards an end result (see also 9.2.1).

Recommendation: The Faculty of Management Sciences should continue to keep record of the progress made by postgraduate students, but should also emphasise the importance of liaison between supervisor and postgraduate student. The possibility of establishing group sessions involving a few students and their supervisors should be investigated (especially with regard to the high workload issue of CUT, FS postgraduate students/employees). The importance of time management should be reiterated to both supervisors and their postgraduate students, since a set timeframe serves not only as a progress-monitoring tool for the completion of the study, but also as a quality-assurance tool when progress is followed in more detail.

*For purposes of this article, the recommendation is that undergraduates be informed beforehand of the importance of the student-supervisor relationship, the expectations they will be required to meet, and the importance of time management within postgraduate studies.*

## 10. CONCLUSION

The rationale for and complexity of postgraduate studies within the higher education context remains a burning issue. Worldwide, including in South Africa, there is great concern about the poor completion rates of postgraduate students and the quality of research.

The authors of this article therefore decided to conduct an empirical investigation into the experiences of new-generation postgraduate students and the quality of postgraduate research within the SEDB of the CUT. One of the distinct empirical results indicated that one way of overcoming many of the current stumbling-blocks is via undergraduate preparation for postgraduate studies – hence the focus of this article. This proposal could also assist in the development of quality prospective postgraduates where there is a demand for increased postgraduate outputs.

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