

# AN IMPROVEMENT-ORIENTED INVESTIGATION INTO SUPERVISION PRACTICES AT THE CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE: A CASE STUDY

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## ABSTRACT

Postgraduate supervision and research training are core academic activities for most higher education institutions. Worldwide, including in South Africa, there is concern about the quality of postgraduate training in higher education institutions, the length of time it takes postgraduate students to complete their postgraduate studies, and the high percentage of students who terminate their studies. Against the backdrop of these concerns, the quality of research supervision is essential for the successful completion of studies. However, ensuring the quality of the input dimension within South African postgraduate supervision is complicated – the reasons being that the process is entangled with issues of power, desire, and differences in relation to supervision practices, along with rapid higher education transformation demanding more quality and accountability, etc. Therefore it is recommended that the supervision process be monitored for improvement purposes and to address context-specific needs. This article reports on an improvement-oriented investigation into the current supervision practices at the case study university.

**Keywords:** Quality postgraduate supervision, postgraduate supervision practices, postgraduate development and improvement

## 1. INTRODUCTION

Postgraduate supervision and research training are gaining currency as core academic activities for most higher education institutions (James & Baldwin 1999:3; Van der Westhuizen & De Wet 2003:185; Zhao 2003:187). Worldwide, including in South Africa, there is concern about the quality of postgraduate training at higher education institutions, the length of time it takes postgraduate students to complete their postgraduate studies, and the high percentage of students who terminate their studies (Ngcongco 2000:211; Rochford 2003:217; Van der Westhuizen & De Wet 2003:185). Against the backdrop of these concerns, the quality of research supervision is essential for the successful completion of studies. However, ensuring the quality of the input dimension within South African postgraduate supervision is complicated – the reasons for this being:

- Firstly, postgraduate supervision is “unavoidably a messy business, because the process is entangled with issues of power, desire and difference in relation to supervision practices” (Grant 2001:13). According to Grant (2001:1-15) the relevance to power in supervision is twofold: The first power is the structural power, where postgraduate supervisors have an institutional position and function, while the second power is the relational power, which includes the relationship and the possibilities for transgression. Therefore, postgraduate supervision is an intense pedagogical relationship between the postgraduate supervisor and the postgraduate student.
- Secondly, the existence of rapid higher education transformation has pressurised higher education institutions when demanding more quality and accountability, etc. These demands are prompted by legislation and policy documents, for example the White Paper 3: A Programme for Higher Education Transformation (RSA DoE 1997), the National Plan for Higher Education (RSA DoE 2001) and the Criteria for Institutional Audits (CHE/HEQC 2004), drawn up “to support and enhance higher education research by increasing the postgraduate enrolments and outputs with priority access for black and woman students in master's, doctoral and post-doctoral programmes” (Mapesela & Wilkinson 2005:1238-1239). Accomplishing these expectations requires not only quality teaching/learning (because it is essential for the successful completion of postgraduate programmes), but also quality supervision practices. In addition, within this demanding context, there is more pressure on institutions to have in place explicit policies and procedures, as well as proper admission and selection criteria, and on postgraduate supervisors to replace traditional approaches with more pragmatic and efficient approaches based on explicit accountability, contractual requirements for postgraduate students and supervisors, as well as an emphasis on research skills, training, and the employability of the graduate (CHE/HEQC 2004:3). All of the above aspects have an impact on the workload of postgraduate supervisors.
- Thirdly, according to the Size and Shape Report (CHE 2003:35), “it is the goal of higher education to contribute to the creation, dissemination and evaluation of new knowledge and to contribute towards finding new applications of knowledge. This is normally achieved through high-level intellectual enquiry and research. The generation of new knowledge and its evaluation is an activity subject to national and international norms and standards through the generally accepted mechanism of peer review.

Involvement in research therefore makes heavy demands on higher education institutions with respect to the qualifications and quality of staff, research infrastructure, the quality and availability of postgraduate students, and the quantity and quality of research outputs. These requirements increase the demands on South African higher education institutions to sustain high-level research capability and involvement on an efficient and effective basis”.

Taking the above into consideration, institutions should not only ensure that staff members involved in postgraduate supervisory duties are provided with appropriate training, development and support, but should also develop a code of practice. This in itself would not only encourage good practice, but could serve as a quality-assurance tool (i.e. regular revision of the code of practice leads to constant improvement in the quality of the baseline). Therefore it is recommended that the postgraduate supervision process and practices be monitored for improvement purposes and to address context-specific needs at the case study university. This article reports on such an improvement-oriented investigation into the current supervision practices at the case study university.

The first section of the article provides a literature review framework in which the importance and complexity of postgraduate supervision is conceptualised from a South African higher education perspective. The discussion then shifts to the research methodology and procedures utilised in this improvement-oriented investigation into the supervision practices of the Central University of Technology, Free State. The last section of the article deals with the action imperatives for postgraduate supervisors of the case study university.

## **2. IMPORTANCE AND COMPLEXITY OF POSTGRADUATE SUPERVISION PRACTICES**

A central transformation issue in the South African higher education context is the increase in postgraduate enrolments and outputs (CHE 2004; Mapesela & Wilkinson 2005; RSA DoE 1997; RSA DoE 2001). Thus, effective and quality postgraduate supervision and the promotion of master's and doctoral students are paramount.

In addition, this core academic activity consists of a dual process, namely “knowledge conversion that advances knowledge acquired through research activities” and “fostering and enhancing learning, research and communication at the highest level” (Zhao 2003:191). Thus, postgraduate supervision is not only the cornerstone of an academic career at a higher education institution, but is doubtless one of the most complex forms of teaching practice in higher education.

This is because it includes a range of activities such as assistance in defining the topic and research design in an acceptable and approved research proposal, guiding the literature review and empirical study, providing detailed feedback and progress/examination reports, etc. (CHE/HEQC 2004:4-5). Despite this multifaceted delivery mode, supervision remains one of the most challenging and satisfying mentoring tasks of an academic (especially when observing a novice postgraduate student becoming an independent researcher).

However, success within this process is not locked up in one person, but rather involves three parties, i.e. the postgraduate student who graduates with a master's or doctoral degree, the postgraduate supervisor who shares in the professional pride and experience of the postgraduate research study, and the academic department/school and university that uses the completion of postgraduate studies as an indicator of research success (Delamont, Atkinson & Parry 2004:2).

Taking the above into account, it is evident that the postgraduate supervision process is extremely important and complex and should be approached in a highly responsible manner by postgraduate supervisors.

Postgraduate supervision is also regarded as an uncertain practice, due to the number of postgraduate student enrolments and the vast diversity thereof, as well as inflating fees and credentials and intensifying accountability (Grant, 2005:337).

Furthermore, Soliman (1999:6-8) adds that the challenge in postgraduate supervision lies in how to provide the appropriate degree of direction and support at the various stages of the postgraduate research process while also responding sensitively and appropriately to a postgraduate's needs in a way that will enhance the research and writing process (i.e. resulting in a productive working relationship between both parties).

Therefore, postgraduate supervisors need support and guidelines from the institution in order to succeed in the complex and challenging teaching and practice of postgraduate supervision. One such area requiring guidelines is the fact that all universities are international, both in their focus and in their populations that attract postgraduate scholars to their programmes. Therefore visitors and advisers are appointed to view the 'university standard' of their programmes, i.e. of a recognisable universal level of quality (Ryan & Zuber-Skerrit 1999:4).

Other challenging areas within the postgraduate supervision process (both internationally and nationally) that should be addressed within institutional guidelines are:

- How to ensure that research remains part of a university's academic focus and culture – i.e. preventing a university from stagnation (Blume 1982:5-6; Loughborough University 2004/5:7-8; University of Sheffield 2005/6:10-11).
- How to ensure that appointed postgraduate supervisors have the commitment, knowledge and time available to encourage postgraduate students to develop into independent researchers (University of Western Australia 2006:2,9).
- How to open up communication channels by making use of a panel of experts to guide the postgraduate student towards a lifelong learning process (Cullen, Pearson, Saha & Spear 1994:12; University of Saskatchewan 1995:2).
- How to bring about clarity on the nature of postgraduate research, the standard expected, the planning of the research programme, and the techniques and relevant research methods, and also how to ensure that the postgraduate student has reasonable access with specific feedback and advice on postgraduate research work (University of Dundee 2001:5).
- According to Le Grange and Newmark (2002:50) postgraduate education has become an area of concern in South Africa. “The concern includes the quality of postgraduate programmes offered by higher education institutions and the efficiency with which postgraduate degrees are completed”. The two authors also argue that South African universities need to establish a cooperative partnership and knowledge production processes. Postgraduate supervisors face a challenge in the development of research and the guidance of postgraduate students who are ready and willing to do postgraduate research (Ngcongco 2000:211).

Despite these challenges, postgraduate research and education differs across the world and within disciplines. Thus the contribution to postgraduate knowledge and the presentation thereof will also differ. Regardless of these differences, all postgraduate research involves critical thinking, the collecting and analysing of information, and the presenting of new knowledge on the research question, which highlights the roles and responsibilities of postgraduate supervisors.

It is evident from the literature review that the roles and the responsibilities of the supervisor in the postgraduate process are diverse (Hockey 1994:3; Kelly & Ling 2001:74; Lessing & Lessing 2004:75; Mouton 2001:19-20).

Kelly and Ling (2001:74) stipulate these roles during the postgraduate process as being that of manager, mentor, tutor, facilitator, guide, coach or advisor to the postgraduate student, while the responsibilities with regard to the dissertation/thesis are twofold: firstly to assist students during the learning process, and secondly to evaluate their performance (University of Saskatchewan, 1995:4). To emphasise this important and central role as well as the responsibilities of supervisors in the supervision process, Ngcongco (2001:53) explains that the promotion of master's and doctoral postgraduate students is an important activity through which university academics perform their teaching in the research process.

During this process supervisors will guide the postgraduate student to achieve certain aims in the research process that has been planned for successful completion of a postgraduate programme. This also implies that research supervision is an advanced level of teaching in the academic system. Therefore it is important that the approach and supervision model of postgraduate supervision from a supervisor's point of view depend on the postgraduate student, the discipline of the research study, and the research problem of the study (Graham & Grant 1997:11; Le Grange & Newmark 2003:52; Zhao 2001:3). Furthermore, when students are looking for a supervisor, quality and effective postgraduate supervision are crucial. Thus they look for particular qualities in a postgraduate supervisor, such as someone with experience and someone from whom they can learn and who will provide future career opportunities (Bak 2005:43; James & Baldwin 1999:3).

In addition, higher academic institutions are engaged in rapid transformation processes, which raises concerns as to how well the national system is able to produce what the industry needs (Leonard 2001:9-10). Due to these rapid changes and developments in most parts of the world, the majority of higher education institutions are confronted and challenged to commit to these changes and developments, which include globalisation, social and environmental issues, and the diversification of funding sources for universities (Zhao 2003:187).

Le Grange and Newmark (2002:51) explain the importance of the transformation process in higher education in South Africa, as published in the Education White Paper 3: A programme for the Transformation of Higher Education:

“South Africa's transition from apartheid and minority rule to democracy requires that all existing practices, institutions and values are viewed and rethought in terms of their fitness for a new era ... In South Africa today, the challenge is to redress past inequalities and to transform the higher education system to serve a new social order, to meet pressing national needs, and to respond to new realities and opportunities.

It must lay the foundations for the development of a learning society which can stimulate, direct and mobilise the creative and intellectual energies of all people towards meeting the challenge of reconstruction and development” (Le Grange & Newmark, 2002:51).

Despite these transformative and legislative demands for quality postgraduate supervision and research outputs, each supervisor still bases his/her approach mainly on his/her own experiences as a postgraduate research student (Pearson & Brew 2002:146). Thus, although quality supervision is paramount, the implementation thereof remains elusive, with no higher education institution having been able to state exactly the required prerequisites or needs in this regard. However, academic institutions could place certain parameters (e.g. strong investments in interactive teaching and learning, the design of programme requirements that challenge postgraduate students to develop a more mature and unified understanding of their profession and its practice as they engage in planned postgraduate studies) to enhance postgraduate supervision programmes (Haworth & Conrad 1997:28).

But this is still not enough. James and Baldwin (1999:3) add that supervisors need to develop requisite knowledge and skills that are the foundations for effective supervisory practices and principles (e.g. good teaching, concern for students, interest in their progress, the provision of constructive and timely feedback, and the importance of the mentoring role). Taking the above into consideration, an important task of the supervisor is to liaise with colleagues and institutional management to ensure good supervision principles and practices, as well as the existence of sufficient resources. The purpose of this is capacity building with regard to the postgraduate component of a university.

Because of this vital role played by supervisors in postgraduate supervision practices, the empowerment of supervisors is important and can only happen if development opportunities and training workshops are available at a higher education institution. The empowerment of the supervisor includes clear guidelines, an effective and efficient university and departmental infrastructure, and sufficient funds for research projects (Van der Westhuizen & De Wet 2003:188-189).

### **3. AIM AND OBJECTIVES OF THE CASE STUDY**

The aim of this research case study was to undertake an improvement-oriented investigation into the current postgraduate supervision practices at the university and to identify possible improvement practices. In order to achieve this aim, the following objectives were formulated:

- 1) To investigate, analyse and understand the existing postgraduate supervision practices at the case study university;



- 2) To identify the critical elements of quality and best postgraduate supervisory practices;
- 3) To suggest guidelines for effective and efficient postgraduate supervision practices at the case study university.

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

In this research study, a formative evaluative case study approach was used to conduct an in-depth investigation into the quality of postgraduate supervision practices through the eyes of supervisors at the university. In order to achieve the above-mentioned aims and objectives of this study with regard to postgraduate supervision practices at the case study university, the researcher favoured a qualitative paradigm (focus group discussion) with a complementary quantitative element (profile questionnaire). This approach appeared to be the most appropriate design to identify possible improvement practices in current postgraduate supervision practices at the case study university (Berg 2004:251; Brynard & Hanekom 2005:29; Delport 2005:159-160; Greeff 2005:300).

##### **4.1 Data collection and sampling**

The research office at the Bloemfontein campus provided the researcher with a list of co-supervisors and/or supervisors. The list included only current co-supervisors and/or supervisors who were supervising enrolled postgraduate students whose research proposals had been accepted (N = 52). A representative sample of the larger population of co-supervisors and/or supervisors was invited by means of an information (covering) letter via an e-mail message, and these participants could choose from four possible days to attend the focus group discussions.

The sampling of respondents for the research process consisted of co-supervisors and/or supervisors working at the Bloemfontein campus of the case study university (N = 39). Of the 39 individuals invited, only 22 were available for these focus group discussions. Due to unforeseen circumstances, two participants were unable to attend the discussions. Table 1 indicates the distribution of postgraduate co-supervisors or/and supervisors at the case study university across the different faculties. The case study university is also fortunate to have postgraduate co-supervisors and/or supervisors in the non-academic (administrative) section of the university who are willing to guide postgraduate students.



**Table 1: Faculty and position distribution (N=20)**

Management Sciences	Engineering, Information and Communication Technology	Health and Environmental Sciences	Other
12 (60%)	3 (15%)	3 (15%)	2 (10%)
<b>Academic</b>		<b>Non-academic</b>	
18 (90%)		<b>Academic Support</b>	<b>Administrative Support</b>
		2 (10%)	0

## 4.2 Focus group discussions

Focus group discussions were employed as the main instrument for data collection during September 2006. In addition, these participants were asked to complete a profile questionnaire to “fill in the gaps” of the target population, especially in view of the limited time available during the focus group discussions. The focus group discussion schedule focused on the following aspects:

- Firstly, the appropriate matching of supervisors with a student, the capacity of supervisors, and the communication channels between both parties;
- Secondly, concentrating on the postgraduate supervision process and the current role and responsibilities of supervisors; and
- Thirdly, enquiries about possible development and training options for supervisors at the case study university.

## 4.3 Profile questionnaire

A profile questionnaire (consisting of only closed questions) was used during the focus group discussions to gather information from current supervisors about their preferences, experiences and possible needs with regard to their supervision practices at the university.

## 4.4 Ethical issues of the research study

Reliability and validity are core aspects in any research study, and Babbie and Mouton (2006:274) explain that the aim of the qualitative paradigm concerns one or two individuals' understanding of a certain topic – in this case, postgraduate supervision practices at the case study university (Delport 2005:160,162-163).

The research study into the supervision practices at the university was valid, because it gathered data from all participants working with current students enrolled for postgraduate studies at the case study university. To ensure reliability, the researcher made a concerted effort to keep to relevant questions regarding supervision practices at the case study university.

#### **4.5 Data analysis**

Permission was sought from the participants to record the discussions on tape and on a computer program (Audacity). The data of these focus group discussions was transcribed for analysis and the profile questionnaire was analysed with the aid of the Microsoft Excel computer program.

### **5. FINDINGS OF THE RESEARCH STUDY**

In the findings the researcher critically analyses and interprets the importance and complexity of postgraduate supervision practices, as ascertained from the literature review, by means of the collected quantitative and qualitative data of both the profile questionnaire and the focus group discussions. In this way the objective of the study is realised, namely to investigate and critically analyse existing postgraduate supervision practices at the case study university.

#### **5.1 Problem areas**

With this information at hand it was possible to discuss potential problem areas in the supervision practices at the case study university.

#### **5.2 Capacity of supervisors at the university**

Participants indicated that there was sound supervision capacity at master's level, but a need for doctoral-level supervision at the university. The reasons given for this were lack of time (vast academic workload) and lack of availability and ability of supervisors.

#### **5.3 Gender of supervisors**

According to the results of the questionnaire, the majority (75%) of supervisors were male. There is therefore a shortage of female supervisors at the university and this necessitates the development and support of female supervisors.

#### **5.4 Age of supervisors**

The age distribution of supervisors was between 40 and 60 years, which is a clear indication that most of the researchers in university academia and research organisations are middle-aged. As a result, young supervisors (i.e. in the age category 25 to 39 years) need encouragement, as well as further development opportunities and support in supervision practices.

## **5.5 Role of supervisors**

All participants agreed on the diverse roles of current supervisors in the postgraduate programmes. The implementation of these diverse roles is complicated due to changes and transformation within the South African higher education context. Supervisors therefore need to provide a combination of teaching and learning skills in postgraduate programmes. Another important task of the supervisor is to shape the student's mind and to contribute towards a new generation of academics.

## **5.6 Supervision choices**

The majority (85%) of respondents identified individual supervision as their preferred choice. According to the information gathered from participants, 55% would be willing to increase their postgraduate supervision component at the university. Due to the fact that the supervisors' job descriptions were not determined during the study, the fact that supervisors stated their preference for individual supervision would do nothing to ease the high workload of each person at the university.

## **5.7 Communication channels between both parties**

Participants felt strongly that feedback on draft chapters must be provided during personal meetings. Hence, one-to-one partnerships are crucial when it comes not only to creating open communication channels between parties in the supervision process, but also to building sound relationships. Another way to enhance the communication process is to arrange a team or group meeting with students. Moreover, participants indicated that contact time between supervisors and students will differ from discipline to discipline, but all felt strongly that a meeting must take place once every two weeks to ensure that the student can complete his/her postgraduate studies on time.

## **5.8 Contract / agreement with postgraduate student**

Participants also indicated that currently there is no written contract (only a verbal commitment) between the supervisor and the student. However, participants agreed that the possibility of a written contract/agreement between parties in future could address each participant's responsibilities in the postgraduate process and serve as a quality-control measure in the postgraduate process. Furthermore, participants revealed the following important aspects to be addressed in a contract/agreement between the parties:

- Admission requirements
- Legal implications for both the student and the academic institution
- Information on facilities available to students
- Information on financial implications (e.g. bursaries and research funding)
- Could serve as a schedule and timeframe for the overall postgraduate process.

### **5.9 Suitable matching of a supervisor and a student**

All participants confirmed the importance of the appropriate matching of the supervisor and the student (especially with regard to the two parties' personalities). One of the reasons for this is to provide the student with an expert supervisor in his/her field of study. Participants revealed the following important criteria for students seeking to complete a master's or doctoral study at the institution, which can provide good institutional guidelines to supervisors and also contribute to the improvement of supervision practices:

- The prospective student needs to meet with the research committee in every school to discuss his/her studies.
- The student must have received a minimum mark of 65% in his/her B. Tech year.
- The student must submit a letter of motivation for his/her studies.
- Work experience (maturity) is important for a student seeking to pursue further studies.
- In some disciplines, the supervisor may request a language proficiency test (e.g. the prospective student must write an abstract from an article).

### **5.10 Importance of a structured postgraduate supervision process**

To assist supervisors to manage the overall supervision process, there must be a structured process in place. Most of the participants confirmed that they had no formal structures in place, but agreed that it could provide a good framework to assist in the timely completion of postgraduate programmes within the required time period. In addition, participants suggested that another effective control measure would be to keep a file/logbook on the overall process and to make notes according to what is decided upon during a meeting and the goals set for the next meeting. In this way both parties can keep up with the holistic picture of the research process.

### **5.11 Evaluation of supervisors**

Participants felt positive about the evaluation of a supervisor after a student's successful completion of his/her postgraduate studies. An important step in the evaluation process is for postgraduate students to receive a standard evaluation questionnaire, which will allow both the institution and the supervisor to gather certain information. Supervisors see the opportunity for evaluation as a quality-control measure for a university.

### **5.12 Development or training possibilities for supervisors**

Participants felt that it was important for a novice supervisor to have a mentor (i.e. to be a co-supervisor in the research process). Furthermore, these supervisors explained that workshops or development should take place according to the needs arising at the university. The respondents expressed their preference for in-house expertise when it came to development opportunities, as such individuals would be familiar with the current postgraduate context at the university.

Lastly, participants agreed that the university would have to look into a possible bridging research programme for students seeking to undertake a postgraduate programme. A bridging programme might help to address the problem of some students being too young (inexperienced and immature) and some students being older (mature, but not in the academic environment) and having a need for a refresher course in research practices.

### **5.13 Current positive supervision practice areas**

With this information at hand it was possible to discuss positive areas in the supervision practices at the case study university.

- The case study university is also fortunate to have postgraduate co-supervisors and/or supervisors in the non-academic (administrative) section of the university who are willing to guide postgraduate students (10%).
- The qualifications profile of the case study university postgraduate co-supervisors and/or supervisors indicates that the majority (90%) of these supervisors have a doctoral degree and demonstrates that the quality in the research foundation is present.
- Fifty-five percent of the co-supervisors and/or supervisors are willing to increase their postgraduate supervision component at the case study university.
- Co-supervisors and/or supervisors indicated that once a decision has been made to accept the postgraduate student, it is important to provide the student with the necessary information on the entire postgraduate supervision process, which will contribute to the

- improvement of postgraduate supervision practices.
- The case study university's research unit has provided research posters with the necessary information and guidelines to all faculties. This information was also placed on the strategic bulletin board for future postgraduate students.
  - Co-supervisors and/or supervisors agreed that a written contract would not only address each participant's responsibilities in the postgraduate process, but would also serve as a quality control method in the postgraduate process.
  - Co-supervisors and/or supervisors suggested that one control method would be to keep a file on the entire process and make notes according to what is decided during a meeting and what the goals are for the next meeting. In this way both parties can keep up with the holistic picture of the research process.
  - Co-supervisors and/or supervisors explained that the end product and the quality of the scientific work is their responsibility.
  - Co-supervisors and/or supervisors indicated that they preferred in-house expertise in the training programme/workshops due to the fact that the in-house expert is familiar with the current postgraduate situation at the university. Supervisors attending the workshops currently on offer at the university were thankful for the opportunity to learn and refresh themselves.

## **6. CONCLUSION**

This research study investigated the quality of current postgraduate supervision practices at the Central University of Technology, Free State (CUT). Valuable insights have been gained in this regard, but the most profound finding is the need for a formal or structured code of practice to be implemented at the university. From the literature, however, it is evident that postgraduate supervision is normally a complicated and delicate matter, and that in general it should be monitored for improvement purposes and to address context-specific needs. Furthermore the literature also revealed that involvement in research, engagement in transformation, increased expectations for research outputs in terms of legislation, and the increase in the number of enrolments make heavy demands on higher education institutions with respect to the qualifications and quality of staff, the research infrastructure of the institution, the quality and availability of students, and the quantity and quality of research outputs. For this reason, postgraduate supervision is an intense pedagogical learning and teaching task where the main role is played by the supervisor who has to impart his/her expert research knowledge in a responsible manner to the student. This is an immense task, and therefore the supervisor needs to become the leader in the development of research training to keep up with changes in the higher education environment and in postgraduate supervision practices.

In addition, the declaration of the DoE that universities have to increase their postgraduate enrolments and outputs in the near future – including specific requirements for postgraduate research in respect of policies, procedures and regulations from the Higher Education Quality Committee (HEQC) – could force internal and external changes at the academic institutions concerned. The CUT could take preventative measures to accommodate these changes at the university so as to ensure that postgraduate supervision practices are effective and efficient for the future.

At present, postgraduate supervisors at the CUT are under immense pressure due to aforementioned changes such as the transformation of technikons (now universities of technology), the diverse nature of and increase in the postgraduate student population, and the need for quality and successful outputs. Thus this study proposes the following recommendations/guidelines to the management of CUT based on the evidence emanating from this study:

- Increasing the number of female postgraduate co-supervisors and/or supervisors at the CUT is a matter of importance.
- The capacity of CUT postgraduate supervisors must be improved. According to participants, the enrolment of postgraduate students at the university is increasing.
- Developing a structured process that could be used as a guideline and which is available to postgraduate supervisors and postgraduate students could facilitate the whole postgraduate supervision process for both parties.
- The CUT has to provide an agreement or contract between the postgraduate supervisor and the postgraduate student. This agreement can help both parties to sort out possible problems that might occur during the postgraduate supervision process.
- The CUT could look into the possibility of developing a refresher course for future unprepared postgraduate students as well as the awareness and application of Code of Practice for postgraduate supervisors (after being developed).
- The final important aspect emanating from the study is the necessary evaluation of postgraduate supervisors following the submission of a postgraduate student's research studies and his/her graduation. The reason for the evaluation is to provide the necessary information to the research unit at the CUT to allow them to present quarterly workshops or training development for postgraduate supervisors. Postgraduate supervisors have a need for development options in postgraduate supervision practices, because if they want to keep up with changes in the higher education world, they need to have a lifelong learning attitude.



In brief, it has become evident that the transformation of the higher education sector has impacted on the performance of current postgraduate supervisors. The higher education sector (with special reference to the CUT) requires quality education, as well as constant improvement, development and training of these postgraduate researchers/supervisors.

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