

Cyclic efforts to improve completion rates of masters' degree students in nursing

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Supervisors at Higher Education Institutions are challenged to shorten throughput of Master's degree students in nursing as researchers are needed to improve the art and science of the nursing profession. Globally the completion time for a postgraduate degree in the health sciences varies between 4.7 and 5.5 years. The purpose of the study was to describe strategies that were implemented to shorten completion time and attrition rate of postgraduate students. A cyclic technical, scientific collaborative mode within an action research methodology was used to identify factors impeding completion time in this study. Contrary to other studies, supervision was not an inhibiting factor in this study. Physical, technical, academic and financial aspects were identified by postgraduate students through questionnaires and informal discussion groups with supervisors as well as progress reports. Strategies were implemented to address these. Following implementation of all strategies, 42% of the postgraduate students in the School of Nursing completed their Master's degree within two years. This implies a 34% improvement. Although the completion rate improved it was still unsatisfactory and new challenges were identified during the second cycle, for example, the number of inexperienced supervisors increased and they needed mentoring. Speed mentoring is a possible solution to the problem.

Introduction

Graduate students seek postgraduate qualifications (both Master's and Doctoral level) to improve their employment prospects and to progress in career paths. Universities world-wide want to expand their postgraduate student numbers due to the financial contribution that postgraduate students make to university 'coffers' (McCulloch & Thomas 2012). The lengthy completion time and low completion rates of postgraduate studies are of global concern (McCulloch 2007). Currently, the global mean completion time of postgraduate studies in health sciences, from which nursing is a part, is between 4.7 and 5.5 years (Hall 2005). However, most South African universities require a minimum period of two years for completing a Master's degree in nursing. Change in government policy, or shifts in student demand can have a significant impact on higher education. Major changes in the South African higher education sphere have occurred since 1997 when the White Paper on Higher Education was accepted in parliament. The restructuring of higher education in South Africa contributed to the changed student body profile. The number of older students in undergraduate programmes has increased from a median age of 19 to a median age of 29. Completion generally declines as age increases (Pierrakeas, *et al.* 2004; Martin, Machlachan & Karmel 1999) and students enrolled in the postgraduate programme in the School of Nursing at the University of the Free State are older, which resulted in a longer completion time.

Problem statement

Although students may take longer than the expected two years to complete their postgraduate studies there is a demand in today's society for postgraduate students (McCulloch 2007) to develop the art and science of certain professions. Governments are particularly keen to see an expansion in the numbers of Doctoral and Master's degree graduates (Drennan 2008; Byrne & Keefe 2002), but completion rates are generally low, which is a matter of concern on both sides of the Atlantic (McCulloch 2007). The South African government's goal is to increase the number of people in the country with postgraduate degrees and simultaneously maintain or improve the quality of postgraduate training. To meet the equity and social demands of South Africa, increasing numbers of high-level Black and female graduates, who are equipped to occupy academic positions, as well as positions in the public and private sector, should be produced by our higher education institutions (Bitzer 2000).

Highly qualified nursing scholars are needed to contribute to the development of professional practice (Drennan 2008; Goepfinger *et al.* 2009). To foster research output, the academic and

intellectual quality of the research environment is of paramount importance for students. Interaction between students and high quality academic staff who are active researchers, is a crucial component of completing research-based degrees and postgraduate supervision (Walker, Kelly & Hume 2002). The School of Nursing at the UFS had a four year dropout rate of 16% in its Master's programme, with 20 students discontinuing their studies between 1999 and 2003. These numbers are similar to those found in the UK and the US, where dropout rates were also high (McCulloch 2007). To raise the throughput of postgraduate students, specifically Master students in nursing at the UFS School of Nursing, it is vital to take precautionary measures aimed at preventing dropout.

As postgraduate students invest significant amounts of time, money and emotional resources into their studies, it is important that their investment pays off through the completion of their courses in an appropriate timeframe. Other support structures such as access to information technology and library facilities are also important.

Research purpose

This article reports on strategies that were implemented to shorten completion time and reduce the attrition rate of all Master degree nursing students at the University of the Free State in South Africa.

Research method and design

Design

A cyclic action research design was used and information was gathered in a 'technical, scientific and collaborative mode' (Berg 2004). Through this mode we identified possible causes for the poor throughput of Master's degree students in nursing. After data analysis and reflection, suggestions were made to the School of Nursing on how to facilitate the implementation of results and recommendations. Serial research cycles of problem identification, planning, implementation and reflection or evaluation were operationalised (Figure 1).

Data collection method

Students completed questionnaires that were based on a thorough literature review that focused on support systems.

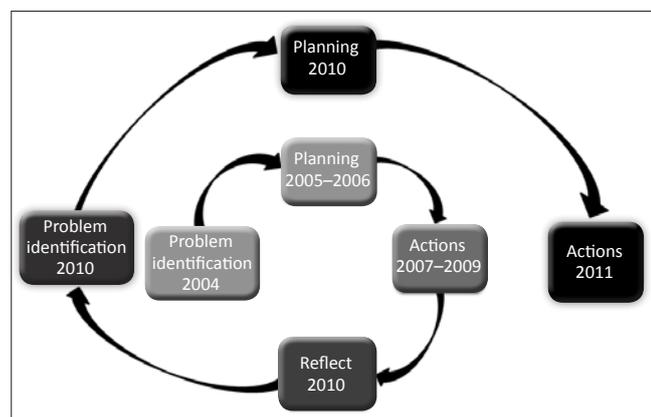


FIGURE 1: Serial cycles of action research.

It was critiqued by a bio-statistician and several experienced supervisors from within and outside the institution. After it was piloted amendments were made according to the proposed recommendations. Therefore data from the pilot study were not included in the final report (Grove, Burns & Gray 2013).

The supervisors generated data through informal group discussions and progress reports on their students. Audits were also conducted on student files. Data gathering are described under each cycle.

Research paradigm

Prolonged university studies place financial strain on students and parents, especially on single parents who normally are the breadwinners. In addition, little or no progress may influence the self-image of students negatively and have an effect on his or her interaction with household members. We, as researchers and nurses, embrace the whole person within a family and a community and also realise the importance of successful mastery of the challenges of life. Therefore, the profession cannot overlook the need of postgraduate students in nursing for support and care.

We are interpretive researchers as the subjective experience of the postgraduate nursing student is a reality for that student. If the reality is destructive or does not meet societal expectations, it should be addressed through discourse and change. It may be necessary to change the political environment and by implication, the policies and regulations of higher education institutions in order to accommodate the realities that are experienced by these postgraduate students (Botma *et al.* 2010; Terre Blanche, Durrheim & Painter 2006). We focused on the changes that could be implemented in the postgraduate programme of the School of Nursing in order to shorten the throughput rate.

Data analysis

Numeric data were coded and statistically analysed with the assistance of a bio-statistician. Frequency and percentages were calculated with computer software. The researchers co-coded qualitative data into themes. Method triangulation was done because data were generated through audits, discussion groups, and questionnaires.

Context of the study

The School of Nursing offers a full research Master's degree as well as a course work Master's degree with a mini dissertation in 13 clinical speciality areas: midwifery, critical care nursing, community health nursing, paediatric nursing care, psychiatric nursing care, child and adolescent psychiatric nursing care, amongst others.

Since 2004 all students enrolled for a Master's degree in the School of Nursing has to complete a module in advanced research methodology (here after called the module) during which a research proposal was written. The duration of

this module was six months of the two year minimum requirement, which is equivalent to two-hour contact sessions once a week for 14 weeks. Students had to do their research during the remaining 18 months, in accordance with the research proposal they had written.

Supervisors at Higher Education Institutions are challenged to improve throughput of Master's degree students in nursing as researchers are needed to improve the art and science of the nursing profession. Globally the completion time for a postgraduate degree in the health sciences varies between 4.7 and 5.5 years.

Trustworthiness

Melrose (2001) explains rigour of action research by referring to specific synonyms for the concept. The first of these synonyms is 'regular'. In order to fulfil this aspect of rigour, the project completed one full cycle that lasted three years. The second cycle is in the implementation phase. Critical reflection throughout the process allows for change and results in well-grounded understanding (theory building) (Botma *et al.* 2010).

The rigour of the study was also increased by the 'constancy' factor, another synonym referred to by Melrose (2001). This involves the reputation and the constancy of those involved. The core group of supervisors, the postgraduate programme director and the format of student records remained constant.

'Scrupulous' is another synonym for rigorous (Melrose 2001). The component of rigour is linked to telling the truth and acting ethically. Ethical principles were taken into consideration, including openness to the suggestions of others, collective decision-making, informed consent in order to make observations and examine documents, and the maintenance of confidentiality. The research was collaborative, implying that the researchers shared their concerns and all participants could influence the work (Speziale & Carpenter 2007).

Action research, according to Melrose (2001), provides a measure of flexibility that other research methods cannot provide, due to its focus on real practices and its cyclic nature. Rigorous action research also uses appropriate methods of data collection. In this study, a range of appropriate data sources were used which strengthened the principle of triangulation and trustworthiness (Melrose 2001; Pollit & Beck 2004).

Action research often resembles mixed method designs because multiple data collection and analysis methods are used (Maree *et al.* 2007). The data gathering techniques are determined by the problem and the goal both the researcher and the participants want to reach (Botma *et al.* 2010; Speziale & Carpenter 2007). For this reason the research methods are described per cycle.

Ethical considerations

The Ethics Committee of the Faculty of Health Sciences at the University of the Free State approved the research proposal. Permission was obtained from the head of the School of Nursing to conduct the research. All participants consented to participate in the data gathering process. A letter accompanied the questionnaire and requested the recipients to complete it anonymously; thereby consenting to participate in the study. The letter also informed participants that no harm is foreseen and that the results of the study will be disseminated through various media.

Discussion of results

Results are discussed during each cycle because the interventions of the next cycle depended on the interpretation of the data generated in the preceding cycle.

Cycle 1: Baseline information, actions planned and implemented

The study records for all 107 postgraduate nursing students registered with the School of Nursing from 2002 up to 2004 were used to identify and clarify why the throughput of postgraduate students of the UFS were too long. Frequencies and percentages were calculated.

Less than 10% of the 107 students completed their studies within three years. After initial registration of the 27 students that registered for the first time in 2004, only one (3.7%) completed within two-years and one within three years. Clearly, the completion time of students by far exceeded the two years required by the UFS. Nursing students are predominantly women who study part-time and therefore, tend to also have other commitments. This means that they normally take longer to complete their courses (Sayed, Kruss & Badat 1998). This reflects worldwide statistics indicating that part-time students and women have lower completion rates than males, and those studying full-time (McCulloch 2007). The average completion time of students in the UFS School of Nursing (4.5 years) are similar to those at the University of Melbourne, Australia (4.7 years); McMaster University, Canada (4 years); and Duke University, USA (5.5 years) (Hall 2005). It appears that South African universities have unrealistic expectation for women who study to complete their Master's degree within two years. This means that the regulatory system has to change, or that the School of Nursing must implement other strategies to assist students in order to shorten their completion time. Regulatory changes at the UFS take three years to be approved and implemented. The changes recommended by this study were submitted for approval in 2004 and implemented in 2007.

Questionnaires were mailed to all 107 students. Data generated through the questionnaires were coded and analysed by a bio-statistician. Frequencies and percentages were calculated. Only 25 (23%) females responded after repeated reminders. Five of them were full-time students. The mean age of the respondents was 39 years. In contrast

to Bartelse, Beerkens and Maassen (2000), students were satisfied with all the supportive aspects of supervision because the supervisors were available and gave timely feedback. Sixty five per cent (17) of students were satisfied with all the supportive aspects of supervision, mainly because the supervisors were readily available and gave timely feedback. This is in contrast to the findings of Bartelse *et al.* (2000), who found that most students were not satisfied with the supervision they received. Forty-eight percent (48%) of the students were also satisfied with their progress.

The survey indicated that although most students were aware of the numerous student support systems that are available to them, they do not readily make use of these. This staggering under-utilisation by more than 50% of the respondents is reflected under student survey column (Table 1).

Through informal reflective discussions fourteen supervisors in collaboration with the post graduate programme director identified the factors that inhibit the progress of their students. These discussions were held over lunch time once a month, hence the name 'suppi club'. The supervisors were all residential of who five were experienced supervisors (more than ten students completed). Both researchers kept brief notes for programme improvement purposes. This is reflected as supervisor comments (Table 1). Through triangulation of data gathered from the supervisors and students, broad common themes were identified (Table 1).

The problems identified, as well as the actions planned and implemented, will be discussed under the broad themes of physical, technical, academic and financial support.

Physical support

Eighty per cent (80%) of the students did not make use of the designated study areas in two libraries on campus. Supervisors were of the opinion that students from afar need a space near to them where they can work. As a result a room with a computer and internet access was made available in the same building hosting the offices of their supervisors.

Technical support

The theoretical assumption was that postgraduate nursing students are adult learners whose interest in further study demonstrates the characteristics of lifelong learning. Supervisors complained that students have deficient

academic writing skills and referred them to the Unit for Development of Rhetoric Academic writing of the UFS. In spite of these referrals, 80% did not make use of this support system.

In order to ensure that the students actively engaged with the material that was developed to assist them to develop their skills and deepen their insight, the compulsory workbook for the module in advanced research methodology was adapted to address the under-utilisation of support systems. Changes included paraphrasing exercises, literature searches by means of the Boolean search method, in-text referencing skills and constructing a bibliography and other scientific writing exercises. Kitson (2006) states that 'the ability to communicate ideas effectively, coherently and concisely through the written word using proper grammar, punctuation and spelling is one of the skills needed for the development of scholarship'.

Although students received hard and electronic copies of essential module information, the supervisors complained that students were unaware of certain guidelines and procedures. This was confirmed by the fact that 64% of the respondents did not know that the guidelines and procedures exist. Consequently a compulsory two-day orientation workshop was held during which students received a CD containing information on all available support systems, contact numbers, an overview of decision-making processes within the programme, rules and regulations, and guidelines and criteria on how to develop a research proposal. To further motivate the students to make use of these support systems the Student Support Division addressed the students during orientation and invited them for free consultations.

Fifty-six percent (56%) of students indicated that they were incapable of retrieving electronic material, which confirmed the concerns of the supervisors regarding retrieval of suitable study material. To circumvent this, students can now enrol in a basic module in computer skills. The Computer Services Division registered all students and 24-hour online support is now available to them, even when they are off-campus. This is because the computer support is regarded as a crucial component of the support repertoire (Tagg & Arreola 1996).

Academic support

Sixty eight per cent (68%) of the students agreed with the supervisors that students miscalculated the time needed to

TABLE 1: Aggregate data from students and supervisors.

Categories	Themes identified by students (N = 25)	Students		Supervisor comments
		N	%	
Physical	Study areas	16	64	Students far from the University need a place to work
Technical	Unit for Development of Rhetorical Academic Writing	20	80	Writing skills are poor; they plagiarise; incorrect referencing or no referencing; no logical flow of ideas; much cutting and pasting
	Unaware of guidelines and procedures	16	64	Students do not read information that is freely available and accessible
	Electronic information retrieval	14	56	Students incapable of retrieving the relevant literature
Academic	Miscalculation of time needed to complete assignments	17	68	Do not keep to deadlines
	Research topic undecided	18	72	Expect supervisor to identify research topic
	Not attending workshops and seminars	18	72	They do not make use of available opportunities to expose themselves to research-based events such as the annual research faculty forum
Financial	Not applying for bursaries	17	68	Lack of finances impacts negatively on student progress

N, given as number of students.

complete assignments and to keep to deadlines. To allow students more time to complete assignments the research module was converted to a 28-week module, consisting of weekly two-hour face to face contact sessions. The university regulations were changed accordingly. From 2007 students were given the opportunity to complete the module in one year instead of six months. A selection criterion was added to the regulations in that a student must pass the research methodology module with a minimum of 65% in order to continue with Master's degree studies. Supervisors were allocated to students directly after the orientation to ensure academic support from the start. This assisted the students to finalise a research topic earlier in the process.

The fact that students struggled to identify a research topic in the limited time scheduled for the advanced research module, further hindered progress. Only seven (28%) students had a vague idea of a research topic when they enrolled. This invariably impacted negatively on their studies because the series of assignments of the module build up to a research proposal when the module is completed.

Although a number of opportunities for professional development are presented during the year, only seven (28%) students attended these events. This was confirmed by the observations of the supervisors that students do not fully use the available opportunities. This happens in spite of a bi-annual newsletter that informs students of scheduled academic events. The majority of students that attended these events were from far. They see it as an opportunity to engage with other students and to consult their supervisors face-to-face instead of electronically.

Financial support

A lack of finances negatively affects student success and research productivity (Siu 2010). This was also identified as a factor by all study groups. Negotiations between the School of Nursing, the Faculty of Health Sciences and the University Management resulted in an amount of money allocated annually for bursaries within the nursing postgraduate programme. This amount is determined by the research output of the School of Nursing.

Reflection on cycle 1 and problem identification for cycle 2

Follow-up audits on the study records kept by the supervisors of the completion and attrition rates done in 2009, indicated an improvement in the throughput of master students. Unfortunately, it was still not satisfactory. Forty-two percent (42%) of the students completed their Master's degree within two years, which is a 34% improvement. After discussion and reflection, a new challenge emerged. The masters' student numbers almost doubled whilst the staff component changed in such a way that more supervisors were inexperienced. A consultant was asked to assess the problem and to make recommendations on how to improve the throughput rate. The consultant reviewed the study material and study guidelines and held separate interviews with students and supervisors. The finding was that the content and the

instructiveness of the module are excellent. Unfortunately, great discrepancies in computers skills, scientific writing, and general language skills and background knowledge of research methodology were evident (Hofstee 2010). For example, inexperienced supervisors lack knowledge of methodology and supervisory skills. A heavy workload for them hinders their ability to acquire the skills needed. In addition, the more experienced supervisors mentioned that they cannot act as co-supervisors due to heavy teaching and managerial responsibilities. Their own supervisory load (approximately 12 students per supervisor) precludes their ability to act as co-supervisors. This situation is not unique to the UFS School of Nursing as many other higher education institutions face the same challenges (Turale *et al.* 2009).

Planned actions for following cycle

A strategy to address the shortcomings was discussed (or devised) in 2011 at a three-day workshop on research methodology for all newly registered post-graduate nursing students and all inexperienced supervisors in the School of Nursing, but was never implemented. This will be an additional short course preceding the official start of the module. With this we aim to get all students on more or less the same level with regard to their knowledge of research methodology and the use of technology. The inexperienced supervisors will get an overview of different research methodologies to increase their confidence with regard to supervision of students (Zerzan *et al.* 2009; Sambunjak, Straus & Marusic 2006).

Hofstee (2010) recommended that inexperienced supervisors should be mentored. However, co-supervision is not the only solution to this problem and recommends that network mentoring be arranged for inexperienced supervisors (Higgins & Kram 2001). Mentees benefit from multiple mentors by gaining exposure to a variety of styles, opinions and experiences (Zerzan *et al.* 2009; Higgins & Kram 2001). An informal discussion forum on supervision within the school may benefit all supervisors because, as confirmed by Eby and Lockwood (2005), mentees draw more career-related benefit and receive more psycho-social mentoring within informal relationships. This informal setting will help the mentee to become comfortable with the mentoring process (Jackson *et al.* 2003) because individuals are more likely to seek help when they feel psychologically safe, that is when their ego or sense of self is not at risk (Higgins & Kram 2001). Organisational support is essential for successful mentorship (Walker *et al.* 2002) and this implies that the programme director must negotiate the logistics within the School of Nursing, and at the relevant Faculty and University structures.

It is known that a good relationship between the mentee and the mentor is crucial for successful mentoring (Jackson *et al.* 2003). Previously the postgraduate programme director allocated supervisors to students unless the student specifically requested a certain supervisor. A strategy of speed mentoring will be implemented in the future, because it is beneficial to improve the match between student and

supervisor (Hale 2000). Speed mentoring, like the concept of speed dating, will expose students to a number of supervisors within a short period of time. We hope that this approach will enable the student to identify the supervisor with whom they would like to work (Cook, Bahn & Menaker 2010). Numerous other authors have also supported the necessity of a good, trusting relationship between the student and the supervisor (Jackson *et al.* 2003; Tobin 2004; Higgins & Kram 2001).

Limitations of the study

Although the study is contextualised the research topic addressed a global issue in higher education. It was not the purpose of the study to generate findings that are generalisable. However, the dense description of the processes implemented in the cycles will enable supervisors to extrapolate the findings of this contextualised study to their situations. Similar research at a national level should be conducted to influence policy makers at higher education institutions.

Recommendations

It is clear from this study that the proposal writing phase should not be part of the two year time frame allocated for Master degree students. Additional tasks for the supervisors are to assist students to access available support systems and to guide students to become independent. Novice supervisors need a co-supervisor for support and guidance. Furthermore, strategies should be implemented to ensure that the student and supervisor are well matched with regard to personalities and research capabilities.

Conclusion

There is a need for more and better qualified nursing practitioners that can improve practice and create new knowledge globally. A Master's degree will ensure better qualified nurses and will enable them to develop the science of nursing. However, it is a global phenomenon that postgraduate students in the health sciences take longer than the two years allocated by the University to complete a Master's degree. Contextual factors such as gender, socio-economic and employment status are hindering student progress, whilst the under-utilisation of physical, technical and academic support also contribute to prolonged completion time.

The serial cyclic approach of action research suited the programme evaluation that we described in this article. It demonstrated the necessity of continuous monitoring and evaluation of a Masters programme by all the stakeholders. An important factor is the threat of inexperienced supervisors to completion rates that became evident during the second cycle of investigation.

'...the Master's degree is not just a pathway to a PhD, but a terminal degree that greatly contributes to the development of professional practice.' (Drennan 2008:756)

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Competing interests

There is no conflict of interest for any of the researchers.

Authors' contributions

L.R. and Y.B. (University of South Africa) participated equally in the conceptualisation, implementation and reporting of the research project.

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