



Poor academic performance: A perspective of final year diagnostic radiography students

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ABSTRACT

Introduction: A study was conducted on final year diagnostic radiography students at a University of Technology in Durban. The aim of the study was to investigate the final year diagnostic radiography students' opinions and views on academic performance in order to inform teaching and learning methods.

The objectives were:

- To explore the students' opinions regarding poor performance.
- To identify strategies to improve academic performance.

Method: A qualitative, interpretive approach was used to explain and understand the students' lived experiences of their academic performances. A short open ended questionnaire was administered to a cohort of final diagnostic radiography students following feedback on a written assessment. Questionnaire responses were then manually captured and analyzed.

Results: Five (5) themes were identified that could possibly be associated with poor academic performance. These themes were, poor preparation, lack of independent study, difficulty in understanding learning content and misinterpretation of assessment questions, inefficient studying techniques as well as perceived improvement strategies.

Conclusion: Students identified their inadequate preparation and the lack of dedicated independent studying as the main reasons for poor performance. Students preferred to be taught in an assessment oriented manner. However their identified improvement strategies were aligned with the learner centred approach.

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Introduction

Despite widespread acceptance of the notion that improving student performance may have a high economic and social payoff; policy analysts in all countries have surprisingly limited hard data on which to base educational strategies for raising achievement.¹ The lack of data has led educators to utilize principles of teaching methods that they are familiar with, which are not necessarily effective. Conversely learners utilize studying methods that are not necessarily effective despite their familiarity with such methods. Some teaching methods encourage a consumer–producer relationship between learners and educators and as a consequence

learners become conditioned to receive and educators to give. As a result learners may lack necessary skills such as communication, being part of a team, searching for and consolidating information.² This teacher-centred paradigm presents challenges to the industrial sector as learners are not well prepared to function independently within a multi disciplinary environment.³

The learner-centred paradigm was introduced to replace the teacher-centred paradigm in order to address the needs of the learner and consequently those of society.

The learner-centred paradigm encourages learners to become independent, actively involved in and responsible for their learning.⁴ Educators are expected to employ learner-centered teaching methods and a variety of assessment forms.¹ The role of the educator changes from that of a 'teacher' into that of a facilitator. Therefore the change from teacher-centred to learner-centred education requires that students be involved in

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decision-making processes. The current research study is designed to elicit information from learners concerning poor academic performance and improvement strategies. The questions to be asked are: how do learners perceive their academic performance, and what strategies they (learners) suggest would help them improve their current performances? Obtaining answers to these questions will ensure maximised students' involvement within the educational system. Such involvement is hoped to increase students' responsibility and subsequently academic performance.

Poor academic performance is a well documented topic and a cause for concern however, there is no one single cause for poor student performance. Conversely some aspects or causes of poor performance may well be un-operationalisable, for investigation and yet play a vital role in a learner's academic performance.⁵ A healthy lifestyle has been identified as one of the factors that play a role in student academic performance, because it relates to a college student's life, such as attending classes, working diligently, socializing, and maintaining healthy interpersonal relationships.⁶ Therefore the learners' internal state of health and external environment may play a vital role in their academic performance.⁷ A plethora of research has been conducted to understand the reasons for poor academic performance.^{5–7} These studies have unearthed numerous factors that may contribute to students' poor academic performance. However, according to the author's knowledge there are no research studies in South Africa that seek to explore radiography students' opinion about academic performance. The current study is therefore designed to elicit radiography student's perspective and opinions on poor academic performance.

In order to understand the students' perspective in context it is important to provide a brief outline of radiography education in South Africa. Undergraduate radiography education in South Africa is a three-year (minimum) professional qualification. Furthermore it requires the co-operation of the educational and health sectors in order to be successful and sustainable, and to provide basic health care needs of the country and meet the demands of higher education.⁸ Consequently radiography education is structured such that it carries a theoretical aspect as well as a work integrated learning (WIL) aspect. WIL is an educational approach that aligns academic and workplace practices for the mutual benefit of students and workplaces.⁹ Radiography students spend a minimum of two weeks in lectures and a minimum of two weeks at WIL. The duration of such a rotation depends on the agreement between the health and the respective educational institutions.

Knowledge imparted during theoretical lectures is applied and made relevant during WIL. The theoretical aspect of radiography learning is assessed on a continuous basis, thus many different forms of assessments are applied to assess the competence of students. The variations of assessment types reflect the different teaching styles utilised to deliver the content material. Written assessments form one part of these different types of assessments. It is in the written assessments that the subject lecturer observed a pattern of poor performance in the radiation science subject. For the purposes of this article poor performance's operational definition is a class average pass that is less than 84% per assessment. This is the faculty of health sciences pass benchmark in the University where the study was conducted. The pattern of poor performance in written assessments was noted in previous years, but to a much lesser extent than this particular assessment. The study was then designed to seek students' opinions on poor performance and to identify strategies that can be utilised in order to improve academic performance.

Methodology

Aim

The aim of the study was to investigate the final year diagnostic radiography students' opinions and views on academic performance in order to inform teaching and learning methods.

Objectives

1. To explore students' opinions regarding poor academic performance.
2. To identify strategies to improve academic performance.

Study design

A qualitative study using a questionnaire with open ended questions was utilised to acquire rich qualitative data¹⁰ from a cohort of 35 final year diagnostic radiography students.

A questionnaire was administered to third year diagnostic radiography students following feedback on an assessment written two weeks prior. The questionnaire was completed by the students and submitted to the researcher at the end of the feedback session. The focus of this qualitative study was to try and understand the individual students in their life world.¹¹ An interpretative paradigm was utilised in order to explain the student performances in the context of their personal experiences. The research study was voluntary, and only twenty one ($n = 21$) students returned the questionnaire at the end of the feedback session (see Table 1).

Ethical consideration

Permission was obtained from the Head of Department: Radiography. Students were subsequently approached and their participation to the study meant consent as the study was voluntary. Confidentiality and privacy were maintained at all times.

Data analysis and coding

In order to protect the privacy and to uphold confidentiality of each participant, each questionnaire was allocated a category specific pseudonym. Two broad categories were identified, that is, those participants that failed and those that passed the assessments. The following codes were used PF = Participant failed and PP = Participant passed respectively. Each respondent was then given a number which was subsequently attached to the category code for example PF1, represented participant one from the failed category. Manual analysis of the questionnaire was then conducted, the data were coded and themes were subsequently identified.

Table 1
The questionnaire items.

The questions	
1.	What are your results for this test, pass or fail? (If you passed go to question 3)
2.	Why do you think you failed?
3.	What can you do to improve?
4.	How did you study?
5.	How can the lecturer assist you?

Results

Twenty one ($n = 21$) students participated in the study out of the cohort of 35 students. A response rate of 60% was achieved. Of the twenty one ($n = 21$) students that participated in the study eighteen ($n = 18$) 86% were females and three ($n = 3$) 14% were males. These gender based demographics are consistent with those of all the students enrolled within the radiography course. Twelve (12) 57% of these participants obtained less than the minimum requirement to pass that particular assessment. It is however, relevant to note that the subject in question is assessed on a continuous assessment basis and the above results reflect only the particular written assessment not the overall performance at the end of the academic year. Content analysis of the questionnaire responses revealed 5 themes (see Table 2).

Summary of themes

Inadequate and poor preparation

The majority of the participants who failed to obtain the minimum required mark to pass the particular assessment attributed their failure to poor preparation and poor time management. According to Sansgiry et al. (2006) time management skills are important for academic success.¹² Therefore poor time management skills do contribute to students' poor academic performance and subsequently a lower success rate. Students acknowledged that the lack of time management skills may have had a negative impact on their current academic performance.

PF3 felt that she needed to change aspects of her current assessment preparation methods and study well in advance in order to see a change in her academic performance.

'..... I need to learn everything in advance, give myself more time to study.'

The above statement was also echoed by those participants who obtained a mark above the minimum requirement to pass an assessment. PP7 noted that if he could start studying well in advance his academic performance would improve. He also highlighted that the use of peer studying could also contribute to positive results.

'I can improve my studying by starting earlier than I did, and may be try studying with fellow classmates.'

Numerous deadlines from different lecturers whereby students are expected to complete different modules, papers, assignments and projects exert an enormous amount of pressure on them. Students can achieve optimum functioning and success within the academic arena through planning their time around these deadlines. The lack of adequate planning may lead to unfavourable circumstances that may include, but not limited to, not meeting the stipulated deadlines, penalisation for late submissions and a general feeling of being overwhelmed, hopeless and helpless. A combination of these circumstances (and others) may result in a student failing to meet the required outcomes of a particular

subject/module. Subsequently prolonging the time spent studying towards the degree or diploma. These factors may further be exacerbated by procrastinating. Procrastination is the act of needlessly delaying a task until the point of some discomfort.¹³ The pressures of the university academic life and procrastinating may lead to overwhelming feelings of inadequacy followed by poor performance, failure and eventual dropping out of the course. Therefore it is important to note that higher academic performance may be achieved by effectively balancing time management and study techniques.¹²

Independent study

All students at the third level are expected to engage with their learning material independently. However one of the major themes that emerged from this study was that the current students did little or no reviewing of their work outside the classroom. Reviewing ones' work is imperative and tied to success in an academic course. PF6 felt that independent studying is one of the strategies he will have to utilise in order to improve his academic performance.

'In order to improve I will have to do a lot of studying at home and not only rely on the lecturer'. A variety of factors may have an influence on whether a student does review work at home/outside the classroom or not. These factors may include but not limited to, motivation to learn, fear of failure, home backgrounds and student's maturity.

These factors may include the lifestyle of the student. Healthy lifestyles relate to a college student's life, such as attending classes, working, socializing, and maintaining healthy interpersonal relationships⁶ including independent studying. Home study or independent study is achievable through willingness to minimise or sacrifice certain aspects of one's social life. Mature students demonstrate this willingness; they sacrifice or minimize exposure to aspects of their social life that might interfere with their academic performance, such as excessive socializing and intense interpersonal relationships.¹⁴ They are focused and goal oriented, they delay instant gratification for long term gains and goals. They resist the temptation to engage in instant pleasurable experiences that usually occur parallel to studying. Independent studying requires discipline, maturity and goal orientation in order to be successful.

Understanding the learning material and assessment questions

The majority of the students felt that even though they studied, they did not understand what they were studying. It also appears that they struggled with understanding the assessment questions and may have also misinterpreted questions.

PF2 was surprised to find out that she has failed the assessment despite her confidence to the contrary just after writing the paper.

'.....I think the problem was the fact that I didn't know what the lecturer expects of me (his style of marking). Because after the paper I didn't feel that I might fail it, I thought I wrote what was expected.'

The lack of understanding was also demonstrated by PF11.

'Eish Eish I still ask myself that question. I guess I learnt but did not understand what..... I'm studying '

This lack of understanding is well demonstrated particularly in students that failed to obtain the minimum mark required to pass the assessment. Evidently this was one of the major contributors to student' failure. Many variables may play a role in whether

Table 2
Emergent themes.

Themes	
1.	Inadequate and poor preparation.
2.	Independent study.
3.	Understanding the learning material and assessment questions.
4.	Inefficient studying techniques.
5.	Strategies to improve academic performance.

a student understands a particular learning material or not. These variables may include students' listening skills, cognitive ability, the level of complexity of the learnt material and the lecturer's approach to the teaching and learning environment. There is no single cause for poor or lack of understanding. Therefore each suspected causal factor should be investigated and dealt with systematically. In order to eliminate poor performance as a result of poor or lack of understanding, the source of the confusion should be isolated and dealt with accordingly.

Inefficient studying techniques

Third level students are assumed to be more or less stabilised, well oriented, well adjusted and more knowledgeable about the course.¹⁵ It is also assumed that they are knowledgeable about different types of studying techniques and that they are able to utilise them in order to be successful in an academic programme. However studying techniques utilised by the current students were inefficient and may have contributed to poor performance. PP9 stated that her source of information was solely the lecture notes.

'I just learnt from the notes', and PP4 also committed the same fallacy 'I just read the power point slides and the notes' and PF5 felt cheated on when 'some of the things in the test were not in our notes'

These students demonstrated a surface approach to learning. Their main aim was to study merely for the intention of reproducing information without any further analysis. Furthermore they did not demonstrate any utilisation of effort during the studying process. Effort is defined as the overall amount of energy expended in the process of studying.¹⁶ The student's studying techniques demonstrated that they lacked the knowledge that lectures are designed to sensitise them to the required and relevant information for a particular learning area. Lectures are also designed to introduce basic as well as difficult and novel concepts that are not readily acquired, assimilated and understood when studying independently. Consequently lectures do not contain in-depth information that is enough to master a particular learning area, further independent study and analysis of the learning material needs to take place before one can successfully comprehend all the concepts.

It is however, of interest to note that some students were well aware of their inadequate studying techniques. PF12 advocated to this through her comment.

'I studied from the notes given but clearly it was not enough'.

Strategies to improve academic performance

Further analysis of the participants' responses revealed the following improvement strategies.

- Studying well in advance of an assessment.
- Searching and utilising other sources of information other than lecture notes to prepare for an assessment.
- Engaging with the learning material outside the classroom.
- The need for the lecturer to provide printed handouts, past papers as well as worksheets.

Discussion

The emergent themes from the study illustrated the latent effects of the former teacher-centred paradigm, which is still utilised in some secondary schools and higher education

institutions.¹⁷ Students' perceived poor performing more as a consequence of poor learning and application techniques than teaching methods. It is important to note that students' poor academic performance may result from numerous factors including incongruence of the teaching strategy to the students' learning styles, lack of motivation, self efficacy doubts as well as inefficient studying techniques. Furthermore the type of assessment utilised may also have an impact on the students' performance. Written assessments have demonstrated a decreased performance pattern from students as opposed to other forms of assessments. Assignments, group projects, presentations and practical assessments enhanced student performance in the particular program.

It is relevant to note that the students' suggested improvement strategies were aligned with the principles of the learner-centred paradigm. These strategies were also aligned with the critical cross fields' outcomes (CCFO's), developed by the South African Department of Education (DoE).¹⁸ The CCFO's were developed in an effort to encourage independent and well developed individuals that can make a positive contribution in their societies and globally. However, the students in this study demonstrated a lack of practical application of these strategies. Therefore the educator needs to harness and nurture these concepts by employing protocols and methods that encourage their application.

The congruency of teaching methods with learning styles

Students have different learning styles and educators need to utilise a variety of teaching methods to accommodate most, if not all, leaning styles. Furthermore educators must be aware that they have the capacity to widen their teaching styles in ways that can meet the versatility of their students' learning preferences.¹⁹ Consequently this will enhance students' achievements.²⁰ Varying one's teaching methods ensures that a wide audience is reached and can access the information. Furthermore it promotes retention and application of new knowledge.¹⁹ Accordingly educators should be sensitive to different learning styles and be equipped to apply different teaching methods. Misalignment of teaching methods and students' learning styles may lead to students' inattentiveness, poor performance, loss of interest, and ultimately dropping out of the course.²⁰ The congruency of the teaching methods and learning styles may also enhance students' studying techniques.

The responsibility within the learning environment

Even though the current student's improvement plans were mainly a matter of self development and reported so. These students also strongly felt that their success depended mainly, if not solely, on the educator. This view is in stark contrast to the learner-centred approach, where students are within the centre of the learning phenomenon and as such also responsible for their learning. The comments from students demonstrated the lack of responsibility for their learning. PF 1 felt that the lecturer should *'Set an easier paper.....'* conversely PF5 wanted pointers that could possible make them aware of what to expect in future assessments.....*'The lecturer must give us past papers to work with'*

PP8 wanted hard copies of notes that can be easily referred to during a lecture....*'The lecturer should print us notes before lecture so that we can learn or study something that we can see.'*

Some of these requests are important and valid in order for student to succeed in academic programme. However a question arises; when do students get to be responsibly for their own learning within the learning environment. These requests can be fulfilled by students themselves: some universities have previous question papers posted on their websites and available for students to download. The university where the study was conducted was in

the process of setting up this previous question paper repository. Alternatively the current students can obtain these papers from previous students. Conversely students can compile and keep their own notes before a lecture. This is possible because students are given schemes of work with all the learning areas and learning objectives with dates of delivery per particular subject at the beginning of each year. There is a need to encourage a sense of responsibility from the students with regard to the learning environment.

Support from educators and other supporting departments within the institution designed to deal with student development is invaluable in this regard. Furthermore programmes designed to develop students' independency such as library orientation, library skills, use of internet and search engines for scientific information, self study and strategies in communication are vital to nurture student development. It is also necessary to allocate extra resources in the first year of study if successful retention strategies by higher education institutions are to be realised.¹⁴ These strategies and resources are designed to break the students' study habits formed in secondary school.¹⁷

Arguably universities imbed student development strategies within subjects or modules where students are encouraged to engage with their work independently. Accordingly educators create learning opportunities that re-enforce independent learning and research skills through student presentations, assignment projects and group projects. However, some students respond negatively to these strategies. This negative response could be as a result of the generation of learners coming to higher education. The current generation of students' values, ideas and ideals may prelude this resistance. These learners are referred to as generation NEXT learners whose characteristics include but not limited to consumer orientation, instant gratification, entertainment orientation and scepticism.² These students only respond to information that they perceive to be relevant to their needs. Value systems driven by consumerism do limit these students from exploring other options that might need more effort and appear less attractive with seeming fewer returns. However success in academic programme requires the utilisation of strategic studying techniques which in turn require attention, effort and consistency. Extensive course loads and the comprehensive information covered in today's curricula necessitate the use of effective study strategies for academic success.²¹ The strategic studying techniques require one to be attentive, consistent and motivated in order to be executed optimally. Students utilizing these studying techniques will be demonstrating a degree of responsibility for the self within the learning environment.

Motivation

Motivation is central to student success in an academic programme. Educators assume that their students are motivated to learn. Furthermore achievement, motivation and academic self-confidence have the strongest relationship to college grade point average.²² Therefore highly motivated students may demonstrate higher performance patterns. These students may either possess intrinsic motivation or extrinsic motivation. Extrinsic motivation is defined as the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself.²³ Intrinsic motivation is the doing of an activity for its inherent satisfaction rather than for some separable consequence. Furthermore intrinsically motivated learners learn to satisfy an inner need for knowledge that is accompanied by experiences of pride, achievement and development.²⁴ Students' academic achievements are linked to good support system and

motivation from parents and educators. Furthermore educators that are motivated make good teachers or facilitators and induce motivation on their learners. Educator motivation and interest on the subject taught may increase students' interest and academic performance.

Conclusion

The students in the current study reported inadequate and poor preparation, lack or absence of independent study, difficulty in understanding learning material and misinterpretation of assessment questions as factors that contribute to poor performance. These factors have also been identified in other studies as well.¹⁸ The current study also reports identified improvement plans such as studying well in advance of an assessment, triangulating information and increasing the frequency of independent study. Poor academic performance can be attributed to many factors and can be addressed using a variety of strategies.¹² It is imperative that educators conduct research studies on their teaching practices to find out what the student's needs and views are about the teaching environment. Student opinions are invaluable in the learner-centred approach. Decisions on developing strategies to combat poor performance should be made in consultation with various stake holders including the students. It is evident in this study that the students' perceived improvement strategies are aligned with the principles of the learner-centred paradigm. However there is a lack of practical application which is evidenced by the students' current studying techniques and demonstrated lack of responsibility for the learning environment.

Limitations of this study and recommendations for further studies

The sample selection was limited to the views of the core group in a particular university and is not representative of third year diagnostic radiography students in all South African universities. A more representative research study that will include all the universities could yield results that are more inferential. Further probing of the student responses would have yielded the meaning to their responses and perhaps further areas of study and improvement.

Conflict of interest

None declared.

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