RESEARCH ARTICLE

Perceptions of Engineering students, lecturers and academic development practitioners about academic development classes at a university of technology

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Abstract

With the increase in student enrolments in higher education, which has resulted in changes to student profiles, academic development has become important in terms of students' success. This article is a report on a qualitative study that used in-depth interviews to investigate the perceptions of Engineering students and staff to academic development classes at a university of technology (UoT) in South Africa. The students' feelings concerning the need for academic development to continue beyond their first year of study was of particular interest. Participants included five lecturers from the Engineering faculty and four academic development practitioners, who were all purposefully selected. The sample consisted of men and women who were interviewed individually. Interviews were also conducted with ten first-year Engineering students and ten second-year students, who were randomly selected on the grounds of having been involved in the academic development programme during their first year.

The responses of the lecturers were compared with those of the academic development practitioners and the first- and second-year students' responses were compared. It emerged that academic development was considered questionable as it did not seem to be structured and that the academic development curriculum, itself, was problematic.

Keywords

Academic development, engineering education, scaffolding, self-regulated learning, students.

Introduction

Students from previously disadvantaged schooling backgrounds entering university often have a negative perception of academic development (AD) classes. The Council on Higher Education (CHE, 2013, p. 72) suggested a limitation in AD programmes, such as extended foundation programmes within AD units, as they are seen to have a low status and are, consequently, often marginalised academically and administratively. Furthermore, students

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in extended programmes have been affected by the perceived status of the intervention. According to the CHE (2013, p. 72), research indicates an ambivalence in student attitudes where recognition of the programmes' value is often tempered by the threat of stigma and stereotyping. Different authors show that, when students enter university, they are often underprepared for the demands of higher education and, therefore, have a need for some kind of intervention. The establishment of academic support programmes in institutions was an initiative to assist students who, in addition to being socio-economically disadvantaged, had been systematically underprepared for university. The CHE (2013, p. 57) maintains that the dominant view for underperformance in higher education is that a high proportion of students are underprepared for study at university level. In this UoT, a Student Academic Development approach is used to assist students with curriculum strategies that enhance their teaching and learning, and this is the function of the Student Development and Support Unit. This is done through various strategies, including academic development classes.

I have, however, observed that often students in their first year of study absent themselves from the AD classes that I teach, but when they are in their second or third year of study, they frequently consult academic development practitioners (ADPs) on various issues, such as note-taking, study skills, reading and writing, time management and examination preparation. It is puzzling why they absent themselves from these classes in their first year and, instead, choose to seek help voluntarily in subsequent years with issues that are part of the AD curriculum. This situation challenges ADPs to maintain a high attendance rate in AD classes for a number of reasons, which are explored in the discussion section. Lecturers encourage their students to make use of services offered by Student Development and Support (SDS) as soon as they identify the need for them to do so. Researchers have indicated that scaffolding at university level should extend beyond the first-year level and continue until the student feels confident to tackle his/her studies without any support. Baleghizadeh, Memar and Memar (2011, p. 44) understand scaffolding as a knowledgeable participant creating supportive conditions in which the novice can participate and extend his/her current skills and knowledge to a higher level of competence. Donato (1994) and Schumm (2006, in Baleghizadeh et al. 2011, p. 44) emphasise that scaffolding provides support for students, which gradually diminishes as students become more independent. Many definitions highlight support 'by the other' and maintain that, at some point, scaffolding needs to be reduced to allow learners to become independent. It is likely that this would be the case when students achieve higher levels of competence. I support this view, having observed the practice of some Engineering students who come for support in their second year of study. Additionally, this corresponds to the aim of this article, which is to examine the perceptions of Engineering students to AD classes whose absenteeism was prominent in their first year and some of whom then consulted ADPs in their second or third year of study.

The purpose of this article, therefore, is to examine Engineering students' perceptions in relation to the AD classes at the UoT. To achieve that, the current AD model at this institution will be discussed within the relevant literature for existing information on AD,

both nationally and internationally. The methods used to gather information will then be given, followed by the results and a discussion of the issue of concern.

The concept of AD

As more and more underprepared students from previously marginalised communities gain access to, and enrol at, tertiary institutions, they fail to cope with the rigour of the programmes as they are faced with a variety of problems and challenges that need immediate intervention in the form of AD. This is the case in South Africa and elsewhere in the world; the concept of AD is not unique to South Africa, but it is found all over the world. Thayer (2000, p. 3), confirms that there is a growing awareness of effective interventions that increase student persistence.

What is academic development? The use of phrases like 'students at risk', 'students with poor English' or 'students with deficiencies' relates to the sensitive matter of students who need extra support to succeed in tertiary education. Scott (2001, p. 3) maintains that there is no official definition of the term. He is of the opinion that AD refers to the design and implementation of educational processes and initiatives that are intended to promote equity and to redress historical inequalities in student access to, and success in, higher education. Baume (2002, p. 110) asserts that AD is concerned with the improvement of processes in higher education, educational development and enhancing the capabilities of those who directly support learning in higher education. Underprepared students who enter university sometimes display a mismatch between the requirements for admission to higher education and their actual preparedness for it. Fisher and Scott (2011, p. 12) confirm the negative effect of this mismatch when they suggest that there is no single solution for addressing the articulation gap between secondary school and higher education; instead, they support a combination of approaches and strategies. This seems to be a move from the past when low-performing students were labelled 'educationally disadvantaged' in South Africa and 'disadvantaged minorities' in North America, as stated by Lillis (2001) in Zengele (2006, p. 18). Fisher and Scott (2011, p. 13) cite the following strategies for addressing the articulation gap:

1) Improving the academic preparedness of first-time-entering students by raising the quality of school learning outcomes;
2) Providing alternative entry routes into higher education through a college system and/or alternative and 'second chance' entry routes;
3) Expanding private provision of tertiary education and creating new public institutions; and
4) Improving the effectiveness of teaching and learning in higher education itself, particularly by adjusting the curriculum at entry level to meet the capacities of incoming students.

The different approaches and strategies are an indication of the complexity of the problem, but this discussion focuses mainly on the improvement of teaching and learning in higher education. According to Fisher and Scott (2011, p. 25), the constraints of the

mainstream curricula have particularly severe consequences for disadvantaged students and, in their opinion, there is effectively no space for these students to attain the conceptual development, learning approaches and academic literacies needed for success in advanced studies. Zamel (1998) in Zengele (2006, p. 18) maintains that students entering a new community must take on its ways of knowing and its 'ways with words'. Gee (1996) notes that there are particular literacies, social languages and discourses that are operational in these new communities that may pose a threat to someone who has not been adequately prepared for this kind of environment. Furthermore, Gee (2012, p. 158) explains 'discourse' as a socially accepted way of using language and other symbolic expressions; of thinking, feeling, believing, valuing and acting as well as using various tools, technologies or props that can be used to identify oneself as a member of a socially meaningful group or 'social network'; and as signalling (that one is playing) a socially meaningful 'role' or that one is filling a social niche in a distinctively recognisable fashion. For students entering university for the first time, there may be challenges in respect of whether they possess the relevant discourses that may assist them to cope within a new discourse community. For Fisher and Scott (2011, p. 25), this may be more problematic if English, which is the dominant language of instruction, is not students' mother tongue.

A variety of interventions have been introduced in response to the changing student profile, where students may not possess the relevant discourses for university education. For example, AD interventions have evolved from Academic Support in the 1980s to Academic Development and Student Development in more recent years. Some of the strategies mentioned by Fisher and Scott (2011, p. 25) are current interventions that involve supporting students in the mainstream curriculum through supplementary tutorials, mentoring schemes and study skills programmes, among others. With regard to these interventions, Fisher and Scott (2011, p. 25) believe that there has been limited success because they operate under flawed assumptions about students' academic preparedness and prior learning and such interventions further overload the students who are most in need of support. Another intervention, which is supported by Fisher and Scott, is that of extended programmes, which are degrees or diplomas of increased duration. According to Fisher and Scott (2011, p. 28), these programmes – some of which may have been developed from stand-alone foundational programmes into integrated degree or diploma programmes – provide sufficient additional curriculum space to address the articulation gap; address the gaps in subject knowledge and an inadequate grasp of concepts; and develop academic language skills, quantitative computer and information literacy skills, and teaching and learning approaches appropriate to higher education.

AD model at the university of technology (UoT)

Presently, AD is provided by SDS at the UoT. As a response to the institution's vision and strategic goals, the SDS unit has a task of providing a holistic student development approach that enhances the quality of teaching and learning for holistic student support. The service portfolio includes life skills, English proficiency interventions, personal and career counselling, writing skills, psychometric testing for placement and diagnostic

purposes, mentorship, and attention to students with disabilities. AD classes involve the facilitation of life skills and writing skills, which are credit-bearing. In the Engineering and ICT Foundation curricula, life skills is compulsory and, therefore, examinable, while writing is also credit-bearing for Education studies. In other faculties, students are identified by their lecturers and sent to the SDS for intervention, depending on the students' specific challenges. The SDS then uses diagnostic tools like LASSI (Learning and Study Strategies Inventory) and risk profiling, which focuses on the early identification of a student at risk of being unsuccessful in his/her studies at the UoT because of inadequate skills, underdeveloped emotional intelligence, career orientation or a lack of English language proficiency. The results of the assessments point to the relevant interventions required to address the identified needs.

As part of the available interventions, once-off workshops on examination preparation, study techniques, reading skills, etc. are conducted per department. The SDS also receives 'walk-in' students who come for individual study counselling. Another group of students consists of those who are put on probation by their departments due to poor performance and who may be denied re-admission unless they submit reasons for their poor performance, backed up by authentic evidence. A diagnostic test is first conducted with students in this group before they are referred for appropriate interventions, such as study counselling, personal counselling, or dealing with assessment and reading and writing skills. The targeted students are mainly Foundation and first-year students from all the faculties, so that they can be identified at entry level if they need intervention.

Research design

This study falls within the qualitative descriptive paradigm. Flick (2009), in Ormston *et al.* (2014, p. 3), describes qualitative research as a naturalistic, interpretive approach concerned with exploring phenomena from the inside and using the perspectives and accounts of research participants as a starting point. McMillan and Schumacher (2001, p. 283) see a descriptive research as one that concerns itself with the current or past status of something. This study of Engineering students' experiences and perception of the AD programme is to understand why the students do not use the service that is there to help them improve their results. The target population of this study has two components: Engineering students, both male and female, ranging from 18 to 21 years of age who had participated in the programme, and both male and female lecturers who taught those students. The sampling method is purposive and, according to Ritchie, Lewis and Elam (2003, p. 78), it involves selecting individuals based on particular features or characteristics that will enable detailed exploration and understanding of the central themes and puzzles that the researcher wishes to study. Having identified the targeted population through purposive sampling, I had to ensure that the research was seen as a true reflection of the problem being investigated. Morse *et al.* (2002, p. 1) maintain that without rigour, research is worthless, becomes fiction, and loses its usefulness. In order to ensure trustworthiness, the research questions for the student interviews were piloted with ten students who had been through the AD programme in previous years, as well as lecturers who were not part of the interview

process. This was done to ensure that the questions asked elicited the information that I was looking for.

In order to examine the students', Engineering lecturers' and ADPs' perceptions of the AD classes at this UoT, semi-structured interviews were conducted. The key questions to answer were: What are the perceptions of first- and second-year Engineering students of the AD classes at the UoT? What are the lecturers' and the ADPs' perceptions of the AD classes?

Results

The responses of the lecturers, the ADPs, and the first- and second-year students will be presented according to identified key themes.

Responses from ADPs and lecturers

1. Differing perceptions of what academic development classes are for
In response to the question about what they thought AD classes were for, the majority of the lecturers said they thought these classes were intended to develop lecturers' skills. One lecturer emphasised the development of skills among the academic staff; he made four references to the idea that lecturers also needed to be equipped with skills to develop their students. He commented that academic development was "to develop me to give better service to my students and to the university of technology, in general" (1 September, 16.00, Office). Another lecturer said AD was "to uplift us, to sort of make sure, to check on what we are doing". In response to the same question, half of the ADPs said that AD provided help for both students and lecturers. The minority of the ADPs said that, for them, AD classes were there "for supporting students" and "to help lecturers to identify students who [were] not performing well". A number of ADPs felt that AD was there to provide students with "coping skills". One ADP said that academic development gave students "the necessary support to cope and come up to expected level". The responses from the different groups were not the same. The lecturers from the Engineering faculty focused on staff development and the ADPs focused on student and staff development. Both agreed that AD plays a supportive role for two types of learners: those who are underperforming for various reasons and those who "are on the right path" – as one ADP observed – and who need to improve their level of performance. One ADP said that "academic development is to help students reach their full potential as far as academic studies are concerned", while one of the lecturers said that "academic development is maybe to help students who have some inefficiencies to cope with the amount of work". There was a general awareness among both lecturers and ADPs that some students enter tertiary institutions less prepared and that they lack the necessary skills that enable them to cope well with their studies. Some ADPs considered AD classes to be "remedial" because they provide interventions for the underprepared learners; one commented that "academic development classes are remedial in a way because we're trying to fix problems that schools didn't diagnose and fix".

The main attitude of the ADPs was that AD classes should develop students' academic skills and address the needs of staff so that lecturers are equipped to hone these skills

during their own teaching. The lecturers concurred with the view that the Department of Teaching and Learning Development has the overall responsibility for the development of academic staff in academic-related fields and that the ADPs are responsible for catering for the needs of academics. The majority of the lecturers strongly felt that they needed help with their own teaching. This was in contrast to the ADPs; of the ones interviewed, only a small minority made mention of the need to equip staff with the skills to provide academic development in their own classes.

2. Teaching and learning issues that should be dealt with in academic development classes
The second part of the question sought to establish which teaching and learning issues needed to be dealt with in AD classes. As it stood, this question explored the pedagogical issues related to AD and what teaching and learning actually means to these two groups of people. Most of the ADPs and lecturers indicated that there was "no relationship" between what lecturers do in the classroom and what the ADPs do with learners. One lecturer commented that "students must be aware that besides lecturers there are other people who are going to help them". The need to integrate academic development into mainstream courses appears to be crucial for both ADPs and lecturers, which seems to be a major problem at the institution as there is no clear link between academic development and mainstream subjects. Another lecturer felt that AD was non-existent at the institution, commenting: "I feel it is there; in a way it's not there; it feels like nothing is happening". This attitude suggests a serious challenge for the integration of AD into mainstream courses if some lecturers do not even recognise its existence or "feel it is there" but do not have a strong sense of what it is there for.

It seems that lecturers see ADP visibility in the classrooms as a major issue. This is supported by comments like "there should be enough visibility" and "academic development practitioners should be seen in the classroom set-ups", which means that they would like to see ADPs in class more often for them to have an impact on the students' performance. Lecturers' attitudes are that they are subject specialists and not "teachers"; this implies that they should not be expected to attend to academic development because they are not trained as teachers. However, there is a contradiction in this regard because some lecturers agreed that "[w]e come straight from industry and we walk into a class and we think we can teach". Another lecturer scornfully commented: "You guys are outside architecture; you guys are outside electrical; and what is it that you guys can tell us?" It is possible to conclude that there is an us-and-them attitude in the sense that lecturers may not see AD as part of their own problem and responsibility, but rather that of the ADPs; if this is the case, then teamwork among lecturers and ADPs may be negatively affected. This will have consequences for students' learning. A similar attitude is confirmed by Lewin and Mawoyo (2014, p. 92) when they state that AD staff are, generally, viewed as being on the periphery or seen as "outsiders" and that this has an impact on the relationship between lecturers and ADPs.

The majority of lecturers recognised the gap between high-school learning and higher education. They saw academic development as bridging the gap between Further Education and Training and Higher Education. They felt that it was the responsibility of the ADPs to bridge this gap so that students could adapt to, and cope with, tertiary education. One lecturer maintained that students "need someone who can help bridge the gap" while another suggested that "we need people who can help to bridge the gap for them". This "bridge" that may be problematic for new students could have something to do with feelings of loneliness and alienation brought about by a mismatch between the student and the environment in which he/she finds himself/herself. In such instances, an early relationship between an adviser and a new student should be established. This is where ADPs play a role in ensuring that students cope with the new climate and helping to bridge the gap to which the lecturers alluded.

3. Perceptions about whether academic development classes are succeeding in achieving their objectives
Most of the ADPs feel that AD classes are not achieving their intended objectives. Although there is a general belief from both groups that AD is important, lecturers and ADPs agree that some improvements need to be made so that AD meets the objectives as mentioned by Niezen and Soer (undated article, p. 11).

4. The role that lecturers play in academic development
The comments of some lecturers and ADPs show different perspectives on the role that lecturers should play in AD. There seems to be some uncertainty and confusion among lecturers about the purposes and intentions of academic development and this does not seem to be unique to the UoT. Dison and Rule (1996: 85) point out that the focus on developing academic skills as the primary function of ADPs is also potentially reductive. In other words, this approach suggests that the function of the ADP goes only as far as skills development. While some lecturers think that AD is solely the duty of ADPs, some ADPs feel that lecturers need, also, to play a vital role in terms of encouraging students to attend AD classes.

Responses from students

1. Students' understanding of the term 'academic development'
Both groups of students who were interviewed had participated in AD during their first year of study. However, one first-year student initially denied having taken part in AD and seemed to be more comfortable with the term 'life skills'. He admitted: "Yes, I have attended life skills classes". When asked how they knew about academic development classes, all the second-year students who were interviewed said that they had just found AD on their timetables. One student said:

> OK. Firstly, I didn't attend the orientation. It was there in my timetable that you have to attend AD and they asked us whether we wanted to attend or what because we ain't gonna write about it. We ain't gonna do anything about it. (25 August, 12.00, Boardroom)

All the second-year students agreed that they had the freedom of choice to participate or not to participate in AD, reflected in comments like "it was a matter of choice, it was up to you". Half of the second-years maintained that AD was not part of their diploma and this might have been the reason why one of them made the comment: "We ain't gonna write about it; we ain't gonna do anything about it" (24 August, 13.00, Boardroom). This suggests that students might have taken life skills seriously if they were assessed on it – otherwise, they did not see the need to do it. Another second-year student said that he had heard about AD from friends.

The first-year students painted a totally different picture. The majority of them agreed that AD was part of their curriculum. One student said: "It's part of my academic; it's part of my subjects" (28 August, 12.00, Boardroom). Half of the first-year students had heard about AD on registration while the other half said that these classes were introduced to them "by management". This suggests a shift in attitude over the two years – if AD is part of the students' curriculum, they tend to take it more seriously. The responses of the second-year students indicated poor attendance of AD classes. One student said: "Sometimes maybe we are writing", which shows that this student only saw the need to attend academic development classes if he was to sit for a test. Another second-year student considered this to be "too much work". No second-year student admitted to having attended all the AD classes; one reason for this might be that they were neither compulsory nor credit-bearing.

2. Students' participation in, and knowledge about, academic development classes
Only half of the first-year students had attended all of the AD classes. One student commented: "In my first year I thought life skills, why life skills? Why do I have to attend life skills?" This comment reflects confusion between AD classes and the life skills that he had attended and, as a result, he did not see any reason for attending these classes. A second-year student who had done badly in his first year associated this with the fact that he "didn't take things seriously" and questioned AD's validity with the question, "Why do I have to attend? I don't have to write". The student maintained that he did not have to attend AD classes because he did not have to write an examination in it. He continued by saying: "In my second year I saw that things they were teaching at academic development were helping; after that I passed all my subjects" (28 August, 12.00, Boardroom). He associated his success with his participation in AD classes.

3. Parts of the programme in which students participated
It was noted with interest that the commonalities of both groups during AD classes in their first year is note-taking. Aside from this, students mentioned various themes and topics that they had learnt about during AD classes. From the responses of the first-year students, their list included the following: trauma, time management, HIV and Aids, dealing with stress, drug abuse and racism. 50% of the first-year students emphasised that they had talked about HIV and Aids. A further 50% of the first-year students also made reference to trauma as one of the aspects that they had learnt about during AD classes. These were some of the much-needed psychological aspects that were dealt with during AD classes.

Some second-year students mentioned aspects like understanding sentences, listening skills, group work, attitude towards classes, study skills, reading, passing tests, submitting assignments and achieving high marks. One second-year student actually emphasised the importance of group work by making comments like "portray yourself in a group of people" and "how to relate to groups".

The majority of the first-year students knew that AD was part of their curriculum and this could have had an impact on their attendance of AD classes. Most of the students who had not attended all of the AD classes regarded these as an extra burden because of the lack of assessment. They were of the opinion that they would focus on tests and examinations rather than attending AD classes. This attitude agrees with that of Fisher and Scott (2011, p. 25), who maintain that such interventions further overload the students who are most in need of support.

Second-year students who had taken AD classes for granted and did not see the need to attend them in their first year suddenly had the following to say: "In my second year I saw that things they were teaching at academic development were helping; after that I passed all my subjects" (25 August, 1.00, Boardroom). Bjork, Dunlosky and Kornell (2013, p. 419) speak about becoming "truly sophisticated" as a learner, and some of the things they cite in becoming truly effective as a learner include knowing how to monitor the state of one's learning activities and understanding certain biases that can impair judgements of whether learning will support later recall and transfer. Of interest is the correlation that Zumbrunn, Tadlock and Roberts (2011, p. 10) have noted in self-motivated, self-regulated learners who tend to be autonomous. They believe that such learners are more likely to persist with difficult learning tasks and often find them gratifying. Some of these learners frequently seek help when necessary and this could apply to second-year students who consult ADPs of their own free will, which may be an indication that they have achieved a certain level of self-regulation.

Conclusions and recommendations

The purpose of this article was to examine the perceptions of Engineering lecturers and students of the AD classes at a university of technology. The students themselves admitted that they perceived these classes as too much work. There also seemed to be a misunderstanding with regard to the purpose and the naming of the AD classes as students thought these were different from life skills. The same applied to lecturers who thought that AD should be the responsibility of the ADPs. It would be recommended that the UoT reconsiders its AD model so that there is integration between normal teaching and academic development.

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