

12

**SOCIAL CONNECTEDNESS, COLLABORATIVE LEARNING AND STUDENT
PERFORMANCE IN AN ACADEMIC DEVELOPMENT PROGRAMME**

**NATASHA PATSIKA
(PTSNAT001)**

**A dissertation submitted in partial fulfilment of the requirements for the award of the
Degree of Master of Social Science in Organisational Psychology**

**Faculty of Commerce
University of Cape Town**

2009

COMPULSORY DECLARATION:

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works of other people has been attributed, cited and referenced.

Signature:

Date:

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

ACKNOWLEDGEMENTS

I would like to acknowledge my supervisor Dr Suki Goodman, who assisted me with this research project by providing me with invaluable advice and constructive feedback. I would also like to extend my gratitude to the Education Development Unit's programme director and staff that assisted me in making contact with students in the Academic Development Programme. Lastly, I would like to thank my family and friends for their support throughout the duration of this project. Funds from the National Research Foundation are also acknowledged.

ABSTRACT

This study investigated the relationship between social connectedness, collaborative learning and the academic performance of students in an academic development (AD) programme at a South African university. A final sample of 119 students responded to a survey questionnaire containing the campus connectedness scale and the collaborative learning scale, each measured on a six-point Likert scale. A multiple regression analysis revealed that social connectedness is a significant predictor of academic performance, which was measured using grade point average (GPA). The study found that collaborative learning did not contribute to variations in GPA, however it did relate positively to social connectedness. The results provide useful information to staff in the AD programme about elements of the programme that are succeeding in supporting student achievement.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
ABSTRACT.....	3
INTRODUCTION	7
ACADEMIC DEVELOPMENT.....	8
<i>Trends in academic development.....</i>	<i>8</i>
<i>Implementation of academic development programmes.....</i>	<i>9</i>
<i>Current best practice in academic development implementation.....</i>	<i>10</i>
<i>Evaluating academic development programmes.....</i>	<i>11</i>
CURRENT RESEARCH CONTEXT: AN ACADEMIC DEVELOPMENT PROGRAMME WITHIN A COMMERCE FACULTY.....	12
<i>A brief description of the historical development of the academic development programme under investigation.....</i>	<i>13</i>
<i>Operational definitions of the variables in this study.....</i>	<i>15</i>
Social connectedness.....	15
Social connectedness and academic performance.....	17
Collaborative and cooperative learning.....	17
Collaborative and cooperative learning within the academic development programme.....	18
Collaborative or cooperative learning and academic performance.....	19
The use of collaborative learning.....	21
Measuring academic performance using grade point average.....	23
<i>Additional factors related to academic performance.....</i>	<i>23</i>
Class size.....	23
Class attendance.....	24
Year of study.....	25
METHOD	27
RESEARCH DESIGN	27
SAMPLE.....	27
MATERIALS.....	28
<i>Measuring instrument.....</i>	<i>28</i>
Social connectedness.....	28
Collaborative learning.....	29
Final composite questionnaire.....	29
Academic performance.....	30
PROCEDURE	30
RESULTS	32
RELIABILITY AND VALIDITY ANALYSIS.....	32
FACTOR ANALYSIS FOR COLLABORATIVE LEARNING SCALE.....	32
DESCRIPTIVE STATISTICS	33
TESTING FOR NORMALITY	34
BIVARIATE CORRELATIONS BETWEEN THE VARIABLES	34
<i>Social connectedness and academic performance.....</i>	<i>34</i>
<i>Collaborative learning and academic performance.....</i>	<i>34</i>
<i>Social connectedness and collaborative learning.....</i>	<i>35</i>
REGRESSION ANALYSIS OF SOCIAL CONNECTEDNESS AND ACADEMIC PERFORMANCE	35

TESTING THE RELATIONSHIP BETWEEN DEMOGRAPHIC VARIABLES AND ACADEMIC PERFORMANCE.....	36
<i>Lecture attendance.</i>	36
<i>First generation participation in higher education.</i>	36
QUALITATIVE DATA ANALYSIS.....	37
DISCUSSION.....	40
SOCIAL CONNECTEDNESS AND ACADEMIC PERFORMANCE	40
COLLABORATIVE LEARNING AND ACADEMIC PERFORMANCE.....	43
SOCIAL CONNECTEDNESS AND COLLABORATIVE LEARNING.....	45
LECTURE ATTENDANCE, FIRST GENERATION PARTICIPATION IN HIGHER EDUCATION AND GPA	45
LIMITATIONS.....	46
<i>Sample size.</i>	46
<i>Data collection.</i>	46
RECOMMENDATIONS	46
<i>Developing social connectedness.</i>	47
<i>Provision of student support.</i>	47
<i>Improving the quality of teaching.</i>	47
CONCLUSION	48
REFERENCES.....	49
APPENDICES.....	55
APPENDIX A	55
SOCIAL CONNECTEDNESS AND COLLABORATIVE LEARNING SCALE.....	55
APPENDIX B	61
FIGURE B1. DISTRIBUTION OF SCORES FOR SOCIAL CONNECTEDNESS	61
FIGURE B2. DISTRIBUTION OF SCORES FOR COLLABORATIVE LEARNING .	61
FIGURE B3. DISTRIBUTION OF SCORES FOR GPA.....	62

LIST OF TABLES

TABLE 1: DESCRIPTIVE STATISTICS FOR PERSONAL INFORMATION FOR AD BCOM STREAM	27
TABLE 2: DESCRIPTIVE STATISTICS FOR PERSONAL INFORMATION FOR AD BBUSSc STREAM	28
TABLE 3: DESCRIPTIVE STATISTICS SHOWING DEMOGRAPHIC INFORMATION: STUDENTS' LANGUAGE	28
TABLE 4: DESCRIPTIVE STATISTICS SHOWING DEMOGRAPHIC INFORMATION: ACCOMMODATION TYPE AND LECTURE ATTENDANCE	28
TABLE 5: UNROTATED FACTOR ANALYSIS FOR COLLABORATIVE LEARNING SCALE: PRINCIPAL COMPONENTS EXTRACTION METHOD	33
TABLE 6: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE STUDY	33
TABLE 7: PEARSON'S R CORRELATION TEST FOR INDEPENDENT AND DEPENDENT VARIABLES (N = 119)	34
TABLE 8: SIGNIFICANCE AND STRENGTH OF THE REGRESSION MODEL OF SC PREDICTING GPA (N = 119)	35
TABLE 9: COEFFICIENTS OF THE REGRESSION MODEL OF SC PREDICTING GPA (N = 119)	35
TABLE 10: FACTORS THAT HINDER ACADEMIC PERFORMANCE	38
TABLE 11: FACTORS THAT PROMOTE ACADEMIC PERFORMANCE	39
TABLE 12: EXAMPLES OF HOW SUPPORT HAS BEEN PROVIDED TO STUDENTS IN THE AD PROGRAMME	40

LIST OF FIGURES

FIGURE 1: MODEL SHOWING VARIOUS FORMS OF ACADEMIC DEVELOPMENT PROVISION	10
---	----

INTRODUCTION

The academic performance of undergraduate students has been widely explored (Chen & Lin, 2008; Peterson, Louw & Dumont, 2009; Springer, Stanne, & Donovan, 1999; Walton & Cohen, 2007), however, there is limited research relating to their performance within the context of academic development (AD) programmes. The aim of this study was to explore whether social connectedness and collaborative learning contribute to the academic performance of undergraduate students within the context of an AD programme. The AD programme investigated in this study is located within the Education Development Unit (EDU) of a Commerce Faculty at a South African university.

Studies looking into the challenges associated with undergraduate students coming from educationally disadvantaged backgrounds have found that these students face several challenges as they enter higher education. They often lack the sound foundation of knowledge, skills, attitude and values that are required in order to achieve academic success (Scott, 2001; Wood & Lithauer, 2005). As a result, a high proportion of these students will exit the higher education system prior to graduation. Drop-out rates were reported to be higher among students who come from low socio-economic backgrounds (Walpole, 2003) with 66% found to have dropped out by the end of their first year of study (Groenewald, as cited in de Klerk, van Deventer & van Schalkwyk, 2006).

In response to the several obstacles faced by disadvantaged students, many institutions have implemented AD programmes. These programmes fall within the broader context of AD and their main aim is to provide a variety of additional support mainly to Black students, who fail to qualify for mainstream degree programmes. These students, who often struggle to meet the demands of university, require assistance in order to obtain the knowledge and skills necessary to succeed (Wood & Lithauer, 2005). This literature review shall proceed by exploring academic development before highlighting research that investigates social connectedness, collaborative learning and academic performance.

Academic Development

The focus of AD is on the development of the teaching and learning expertise of academics (Brew, 2004) or on the mobilisation of skills that students require for success (Amos & Fisher, as cited in de Klerk et al., 2006). In the South African context, AD is generally understood as the design and implementation of educational processes that are intended to promote equity and redress inequalities arising from previous apartheid practices (Scott, 2001). Within South Africa, AD operates in an environment characterised by an increasing number of students, particularly Black students, who come from disadvantaged backgrounds and who are less likely to graduate than their white counterparts (Cross, Shalem, Backhouse & Adam, 2009).

Research conducted at the University of the Witwatersrand (Wits) concluded that there is an increase in the intake of students who “do not possess the necessary social and cultural capital to meet the challenges of the academic culture at Wits” (Cross, Shalem, Backhouse & Adam, 2009, p. 23). The influx of such students into higher education is not unique to South Africa as it also occurs in countries such as America (Pascarella, Pierson, Wolniak & Terenzini, 2004). As institutions in South Africa strive to redress historical inequalities in education, they must ensure that being more inclusive of disadvantaged students does not compromise existing academic standards.

As the government attempts to support the implementation of AD strategies, it faces many challenges related, especially with relation to funding (Scott, 2001). In recent years, the Department of Education has sought to increase funding for AD and has in fact promoted the use of particular AD programmes (Boughey, 2005).

Trends in academic development.

Activist movements in South Africa during the 1980s sought to improve Black students' access to higher education and during this period many tertiary institutions became open universities (de Klerk, van Deventer & van Schalkwyk, 2006). The goal was to make universities more inclusive of students from disadvantaged backgrounds (Cross & Carpentier, 2009). Therefore, the initial mandate placed on academic development was to support Black students who were underprepared for university study. In order to fulfil this mandate, AD often took on a student-focused approach, which entailed placing students in remedial programmes. Such programmes targeted

students who lacked the language and numeracy skills required for higher education (de Klerk et al., 2006). This trend in AD provision focused on bridging the skills deficit experienced by students (de Klerk et al., 2006).

A second trend emerged in the mid-1980s at which point the focus then shifted to the “educational institution itself as a barrier to Black student access” (van Deventer & van Schalkwyk, 2006, p. 152). This shift challenged institutions to meet the needs of Black students by redirecting the efforts of mainstream staff that were now required to address the unique issues of these students. AD has seen a further shift since 1994, with the National Plan in 2001 promising support for “foundation type programmes” in the form of government funding (de Klerk et al., 2006, p. 152).

Implementation of academic development programmes.

There are many forms of AD provision as shown in Figure 1 (Leibowitz, as cited in de Klerk, van Deventer & van Schalkwyk, 2006). This framework is composed of three dimensions with each dimension detailing the different activities that characterise the different forms of AD support, each with its own advantages and disadvantages. Most authors agree that an integrated approach to AD is the most appropriate approach (Amos & Fisher, as cited in de Klerk et al., 2006).

In South Africa, universities provide AD support through extended degree programmes (EDP's) (de Klerk, van Deventer & van Schalkwyk, 2006), access courses (Downs, 2005) and foundational programmes (Wood & Lithauer, 2005). EDP's are degree programmes completed over a longer period with an additional year of study is usually undertaken. This means that students in the AD programme complete a 4-year BCom degree or a 5-year BBusSc as compared to students in the mainstream who would complete the same degrees in 3 or 4 years respectively. As universities strive to be more inclusive, access courses and foundational programmes have become the means by which students who do not meet the requirements of mainstream degree programmes enter university. Access courses and foundational programmes differ from EDP's in that the support they offer is less intensive and their duration may be over a semester as opposed to a year. However, the fact remains that the intent of EDP's, access courses and foundational programmes is to ensure that students from previously disadvantaged backgrounds are able to enter tertiary institutions.

The form of AD provision implemented is contingent on the situation and depends on certain factors such as the requirements of the students and their level of previous education.

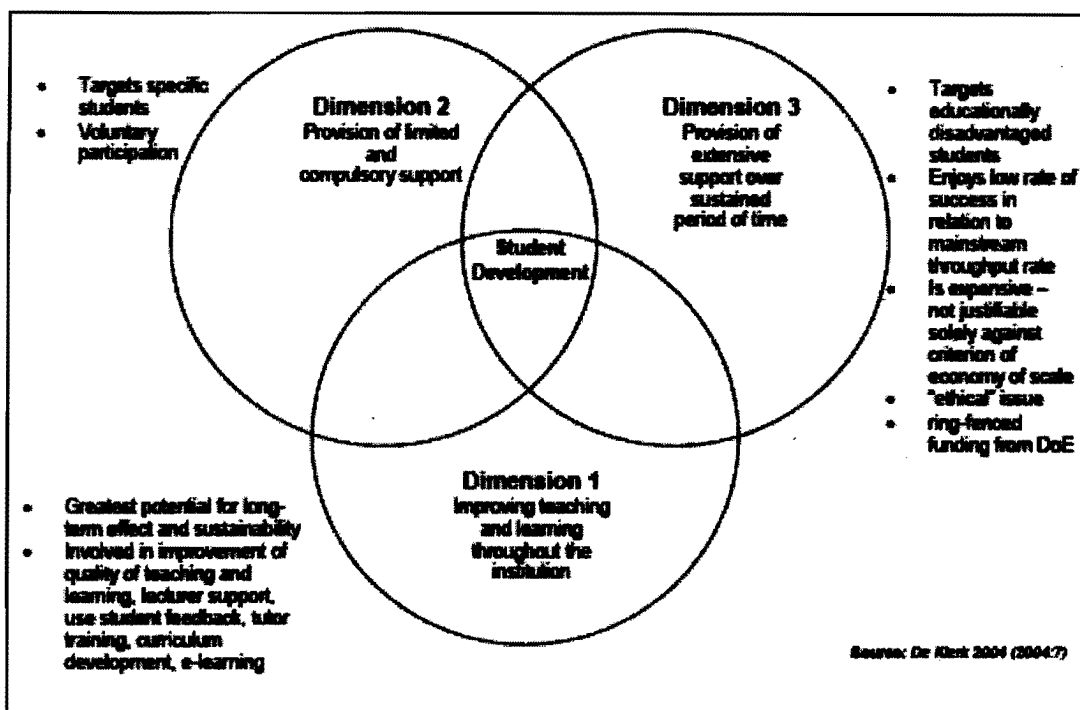


Figure 1: Model showing the various forms of academic development provision

Current best practice in academic development implementation.

Scott (2001) proposes that the most effective way of implementing AD initiatives is through what he refers to as an “extended curriculum” (Scott, 2001, p. 6). He believes that this type of AD programme articulates successfully with the mainstream and is the most appropriate for disadvantaged students. This form of AD aligns with the third dimension in the framework proposed by Leibowitz (as cited in de Klerk, van Deventer & van Schalkwyk, 2006). Students who are under prepared to enter the mainstream yet have the potential to graduate receive additional support throughout the course of their studies by way of additional lectures and tutorial sessions, training in specific areas such as numeracy skills training and contact with faculty staff. Such students are given the opportunity to develop their subject knowledge and skills to a level that forms the necessary foundation for successful completion of their higher education studies (de Klerk et al., 2006; Scott). In implementing any programme,

appropriate monitoring and evaluation is necessary to ensure the achievement of desired outcomes.

Therefore, in light of the efforts directed towards academic development programmes, it is important to evaluate the effectiveness of such programmes. The researcher explored the literature in order to establish whether any empirical studies provide results that justify the continued use of AD programmes.

Evaluating academic development programmes.

Wood and Lithauer (2005) undertook research to explore whether such programmes do in fact yield positive outcomes for students. They conducted their research at the Nelson Mandela Metropolitan University in South Africa, among former students who had completed a yearlong foundation programme. This programme represented an alternative means of access for students who failed to meet faculty admission requirements. Fifty-three students participated in the study with qualitative data obtained through focus group sessions. Their study revealed that these former students had positive experiences of the foundation programme and believed that the programme helped bridge the gap between school and university. In addition, students found that the programme added value in terms of developing their skills in self-management and communication. On a psychological level, the programme helped to improve students' sense of self worth. Students benefitted not only in an academic sense but also in terms of their own personal development, which was perceived to be a contributor to academic success (Wood & Lithauer). The results of this study revealed that foundation programmes have had a positive impact on students' intrapersonal and interpersonal growth and provided a good foundation for mainstream study (Wood & Lithauer).

Although Wood and Lithauer's (2005) study found that students' experiences in a foundation programme were generally positive, their study did not explore whether such experiences contribute to academic success. Downs (2005), however, did explore whether students' exposure to the increased academic support within a foundation programme affected the performance of students at the University of KwaZulu-Natal. This university's Science Foundation Programme is a year-long access course for previously disadvantaged Black students. This access course is completed prior to the commencement of the degree and aims to equip students with

the necessary skills and resources as they begin their science degrees. The study found that students' final grades in the access course did not necessarily influence performance in the first year of their science degree (Downs). The researcher suggested that a possible explanation for this result could be that students may not have developed higher order thinking skills that are vital for succeeding in their final examinations. Where students lacked these skills, their performance did not improve (Downs).

The studies by Woods and Lithauer (2005) and Downs (2005) suggest that AD programmes may have different outcomes depending on the context in which they operate and their particular structure. The present study aims to extend current research by investigating the factors that contribute to academic success in the context of an academic development programme at a South African university.

Current Research Context: An Academic Development Programme within a Commerce Faculty

The current research was conducted within an academic development (AD) programme at a South African university. This programme is located within the Education Development Unit of this university's Commerce Faculty. This AD programme's primary purpose is to attract and retain students who have experienced gaps and disparities in both education and life experience. Gaps in education are often the result of exposure to poor schooling and this becomes a concern within the university environment. This is because inadequate training at secondary level may affect students' performance at tertiary level. In terms of life experience, students have failed to develop the necessary strategies to cope with stress that is often characteristic of the University environment, may struggle to succeed (J. Pym, personal communication, March 23, 2009). The AD programme therefore aims to equip its students with the necessary educational and life skills that will ensure they succeed in their studies, and indeed in their future careers.

The programme is split into two streams: Bachelor of Commerce (4 year programme) and Bachelor of Business Science (5 year programme), that are referred to as the AD BCom and AD BBusSc streams respectively. This AD programme is unique as it runs throughout student's degree unlike the programmes offered at the Nelson Mandela Metropolitan University in Port Elizabeth (Wood & Lithauer, 2005)

and the University of KwaZulu-Natal (Downs, 2005) that are only offered in first year.

The AD programme targets students who come from previously disadvantaged backgrounds who may not have otherwise met the requirements for access to the mainstream degree programme of their choice. Although the focus has historically been on race as a criterion used to assess disadvantage, with the passage of time race may be used to a lesser extent as South African society begins to normalise (“Admissions policy to go under review”, 2009). Current discourse suggests that the focus should be on assessing disadvantage, which may or may not be associated with race (Scott, 2001).

According to the programme director (J. Pym, personal communication, March 23, 2009) the intake of AD students is predominantly disadvantaged Black students. They often possess language and numerical skills, which are at a slightly lower level than mainstream requirements. Historically admission into the AD programme was based on previous schooling, however, this has changed. The mark obtained for English taken at National Senior Certificate level (school leaving examination in South Africa) is one of the criteria for entry along with race.

The AD programme is strategically located in the university’s commerce faculty, in response to the need to increase the number of Black students studying commerce at tertiary level (Boughey, 2005). Allowing access to these students becomes relevant in the South African context in which companies strive to reflect the true demographic character of the country (Economist, as cited in Swartz & Foley, 1996). Companies can only recruit more Black graduates if universities make efforts to ensure that this cohort succeeds.

A brief description of the historical development of the academic development programme under investigation.

This AD programme has operated according to various models and followed a similar trend to the models that have characterised the broader AD context. According to the programme director, the programme operated from a deficit model when it began in the 1980s (J. Pym, personal communication, 23 March, 2009). However, since early 2000 the programme has followed an augmented model. This model, rather than providing isolated courses to address skill deficiencies (deficit model), places students

in the extended AD programme that runs parallel to the mainstream degree programme. This ensures that AD students are exposed to a curriculum similar to the one being offered to their counterparts in the mainstream degree programmes.

The AD programme offers numerous activities to students as a means of providing them with support during their studies. Upon admission into the programme, first years students go through an induction programme that orients them to the AD programme as well as the greater university environment (J. Pym, personal communication, 23 March, 2009). Many students have commented that this induction programme has helped them overcome the anxiety and loneliness that is often a characteristic of the early experiences at university.

Other activities that support student learning in the programme include the provision of various courses targeted at improving language and communication, regular tutorial sessions, workshops, interactions with the programme coordinator and having access to mentors. Experienced second and third year students, who are able to identify with the anxieties faced by first year students, fulfil the role of mentors. Each stream within the AD programme also has regular class meetings and together with the counselling services offered, students have various forums in which they can address any issues that they may be facing. The AD programme therefore incorporates elements from the model in Figure 1 and attempts to implement a more holistic approach to student development.

The AD programme in its various activities aims to foster both social connectedness and collaborative learning, which the programme's director and the staff in the Education Development Unit confirmed. Given the AD programme's objective of improving student performance, the present study investigated whether these two specific constructs related to the academic performance of students in the AD programme and the nature of this relationship.

A review of literature in the area of education and psychology assisted the researcher in formulating operational definitions for social connectedness and collaborative learning. These constructs serve as the two independent variables in this study and were investigated in relation to academic performance, which is the main outcome of the AD programme and the dependent variable in this study.

Operational definitions of the variables in this study.

Social connectedness.

Social connectedness (which is a sense of belongingness) relates to “one’s opinion of self in relation to other people” (Lee & Robbins, 1995, p. 239). Baumeister and Leary (1995) undertook an extensive review of the literature and succeeded in supporting the hypothesis that humans have a need to form and maintain strong interpersonal relationships. These authors explored many theorists among them Bowlby and Maslow (as cited in Baumeister & Leary) who identified the need to belong as fundamental to psychological well-being. It is therefore not surprising that people constantly reappraise relationships, mend friendships and seek new social connections all in an attempt to overcome a lack of belongingness (Lee & Robbins, 2001).

Behavioural psychology literature has many examples of human behaviour that confirm the importance of the need to belong. People exercise great effort in fostering relationships with one another, even where distance and material circumstances limit interaction (Baumeister & Leary, 1995). Such behaviour makes it evident that social connectedness is a fundamental need among humans (Baumeister & Leary; Lee & Robbins, 2000) that can predict favourable outcomes (Walton & Cohen, 2007) in relation to cognition, emotion, behaviour and mental well-being (Baumeister & Leary, 2005). Individuals who lack a sense of belonging often have few friendships and feel unrelated to others and society, which leads to feelings of loneliness (Lee & Robbins, 1995). The effect of loneliness on student performance, as measured by grade point average (GPA), has yielded mixed results. However, a study by Ginter and Dwinell (as cited in Nicpon, Huser, Blanks, Sollenberger, Befort & Kurpius, 2006) suggested that students who experienced less loneliness and had high levels of social support tended to exhibit higher levels of academic persistence. The link between academic persistence and academic performance was not proven in this study, however, it has been found that persistence increases the likelihood that a student will stay in college (Tinto, as cited in Nicpon et al., 2006).

Owing to the lack of research on the measures for belongingness Lee and Robbins (1995) developed a study with the aim of providing reliable and valid self-report measures that would tap into aspects of belongingness amongst students. Their sample consisted of undergraduate students from a large urban southeastern university

in America. Their proposition, based on a model developed by Patton, Connor and Scott (as cited in Lee & Robbins), was that belongingness was composed of three dimensions: connectedness, affiliation and companionship. They developed a questionnaire that included 45 randomised items that measured belongingness.

The scale development process resulted in the emergence of two distinct factors measuring belongingness. The first factor related to a sense of disconnectedness and detachment while the second factor related to the need for reassurance from others in order to feel a sense of belonging. The two scales were named the Social Connectedness Scale (SCS) and the Social Assurance Scale (SAS) respectively. This study led to the formulation of valid and reliable scales on belongingness. Lee and Robbins (1995) noted that their scales would need to be validated by additional research before their meaning could be established.

Since its development, various versions of the social connectedness scale have been used in research among college students in America (Lee & Davis, 2000; Lee & Robbins, 2000). An adapted version of the scale was used to measure campus belongingness for Asian American students specifically investigating the role of cultural orientation and multicultural experiences on belongingness (Lee & Davis). The original scale (Lee & Robbins, 1995) measured an individual's sense of connection to their social world. The campus connectedness scale, however, measured the psychological sense of belonging of students within the setting of a university.

As part of their research into this area, Lee and Robbins (2000) explored gender differences in the development of social connectedness. They found that college men and women derived a sense of social connectedness from different types of relationships. For women, social connectedness arose from relationships that emphasise intimacy and physical proximity. However, for men it came about when social comparison of competency, power and status underpinned their relationships. This research highlights the fact that connectedness has different antecedents for men and women.

The current study used an adaptation of Lee and Robbins's (2000) campus connectedness scale, which underwent a language review to make it suitable for the South African context.

Social connectedness and academic performance.

High-quality interpersonal relationships are important in improving one's capacity to function effectively in academic life (Martin & Dowson, 2009) with existing research suggesting a positive relationship between healthy interpersonal relationships and academic performance (McDonald Culp, Hubbs-Tait, Culp, & Starost, 2000; Morrison, Rimm-Kauffman & Pianta, 2003). This prior research focused predominately on children and adolescents, exploring the role that relationships with teachers and families have on academic performance. Although the present study relates to university students, this research on children and adolescents does provide some insight into the importance of relationships as a predictor of academic performance.

Walton and Cohen (2007) conducted research among minority Black American and Latino America university students in which they explored belongingness and its impact on performance. In the first experiment, students were led to believe that they had few friends in order to make them question their sense of belonging. Students in the second experiment were told that their feelings of a lack of social belonging were universal and not only shared by their racial group but by all students regardless of race. This study found that belongingness uncertainty contributed to racial disparities in achievement among Black students (Walton & Cohen). Where Black students felt a sense of disconnection, their performance was worse than that of their White counterparts. However, when led to believe that White students in the majority shared in their challenges, these Black students performed at a higher level. When minority students doubt their social connectedness, they question their ability to fit in and succeed in their discipline. In light of the fact that the AD programme targets Black students, it may be important to ensure that they are not made to feel as though they are a marginalised group. As Walton and Cohen's study showed, this may foster feelings of self-doubt and may pose a threat to the future academic performance of students. In addition to social connectedness, the AD programme also focuses on fostering collaborative learning.

Collaborative and cooperative learning.

Collaborative and cooperative learning are widely used instructional methods that have received a great deal of attention in the research literature (Dillenbourg, 1999;

Springer, Stanne & Donovan., 1999; Vaughan, 2002; Yamarik, 2007). Collaborative learning is most simply defined as a situation in which a group of two or more individuals attempt to learn something together (Dillenbourg). A common goal is usually established and individuals combine their efforts in order to achieve this goal (Meyers & Jones, 1993). Cooperative learning has a similar definition and refers to ‘the use of heterogeneous groups of students who work together to maximise their own and each other’s learning’ (Vaughan, 2002, p.359). The teaching and learning literature distinguishes between collaborative and cooperative learning (Cueso, 1992; Matthews, Cooper, Davidson & Hawkes, 1995, as cited in Springer, Stanne & Donovan) and although the terms can be used inter-changeably, they can hold different meanings based on certain features.

The main distinguishing features between collaborative and cooperative learning are the degree of division of labour among group members (Dillenbourg, 1999) and the perceived role of the tutor or facilitator (Bruffee, 1995). Concerning division of labour, collaborative learning requires group members to work collectively on assigned tasks with consensus achieved through a process of negotiation (Dillenbourg). Each member is required to exercise his or her influence over the others as the group works towards a final outcome. Learning takes place as group members share information with one another and this is an important part of the learning process. Cooperative learning, however, refers to learning that occurs when group members work independently of one another. Each member of the group is expected to work on a component of a task that has been broken up into its constituent parts. The group then comes together and reassembles the various parts into the final product (Slavin, 1983). In terms of the facilitator’s role, collaborative learning assumes that students possess certain knowledge (Bruffee). This knowledge enables students to work together and present appropriate answers to tasks set by their facilitator or tutor. However, in the context of cooperative learning the role of the facilitator or tutor is that of subject matter expert (Bruffee).

Collaborative and cooperative learning within the academic development programme.

The AD programme in this study uses a mix of collaborative and cooperative learning, both of which are emphasised through various activities such as workshops,

study groups and group tutorial sessions (J. Pym, personal communication, March 23, 2009). These activities aim to increase the interactions students have with one another in the learning process. As students share information and engage with their course material, learning becomes an active process, which greatly enriches the learning experience (Meyers & Jones, 1993). The establishment of successful cooperative groups is achieved by articulating common goals, maintaining a high frequency of face-to-face interactions with peers and providing constructive feedback to students (Dillenbourg, 1999). The result of such efforts is to ensure that an optimum learning environment is achieved.

The role of the staff in the AD programme is to empower students and tutors therefore act as facilitators rather than subject experts. This allows students to utilise their knowledge and skills to complete assigned tasks (J. Pym, personal communication, March 23, 2009). These tasks can only be successfully completed if group members accept individual accountability for their role in the task as is required in cooperative learning environments.

As the main aim of the AD programme is academic success, the literature was reviewed in order to investigate whether collaborative and cooperative learning are in fact related to academic performance.

Collaborative or cooperative learning and academic performance.

There is an extensive body of research that suggests a link between cooperative learning and the academic performance of students (Cohen, 1994; Felder, Fedler & Detz, 1998; Johnson, Johnson & Smith, 1998; Lopata, 2003; Meyers & Jones, 1993; Sharan, 1980; Springer, Stanne & Donovan, 1999; Slavin, 1983; Vaughan, 2002). This is an important finding as academic success is the ultimate aim of both students and colleges (Johnson, Johnson & Smith). There are also many other positive benefits that students who are exposed to cooperative learning experience such as psychological health, the formation of quality relationships, knowledge acquisition, greater interest in the subject material and better adjustment to college (Johnson, Johnson & Smith). Conversely, competitive and individualistic approaches to learning, although utilised in many classrooms, fail to harness the creative genius that arises from cooperative efforts (Johnson, Johnson & Smith).

Springer, Stanne and Donovan (1999) conducted a meta-analysis in order to investigate the effect that small-group learning has on the achievement, persistence and attitudes of under-graduate students in Science, Mathematics, Engineering and Technology (SMET). They included studies that used cooperative and collaborative learning as well as other mixed forms of group learning. The studies chosen were undertaken at accredited tertiary institutions in North America where students were taught in a classroom environment of between two and ten students. After searching the literature, the 39 studies that were analysed represented 10.2% of what the search initially produced. Of these studies, 37 presented data on achievement.

An analysis of the studies showed that learning in small groups had positive and significant effect on achievement, persistence and attitudes among undergraduate SMET students (Springer, Stanne & Donovan, 1999). One hundred and sixteen findings were analysed, which showed that students who learnt in small groups demonstrated greater achievement, persistence through SMET courses and attitudes that were more favourable (Springer, Stanne & Donovan).

In comparing different groups in terms of achievement, there were no significant differences in the positive effects of small group learning found between predominantly female and mixed gender groups (Springer, Stanne & Donovan, 1999). However, groups composed primarily of African Americans and Latinos showed greater achievement in comparison to mainly white or heterogeneous groups. This finding is consistent with the research conducted by Slavin and Oickle (as cited in Vaughan, 2002) who found that students of colour performed better in groups. No significant differences in the effects on achievement were found between studies that used cooperative, collaborative learning, and mixed forms of small-group learning. However, the teaching or learning setting was associated with different effects on achievement with out-of-class study groups reporting a higher average than in-class instruction. Sharan (1980) also found that academic achievement varied depending on the method of cooperative learning used.

In South Africa, Boughey (1997) explored the use of group learning as a tool in teaching academic writing to first-year occupational therapy students. In her study, Boughey assigned students a writing task that had to be submitted collectively, with feedback being given throughout the writing process. She found that the group

activity encouraged students to engage with the material as they interacted during the task. Likewise, Yamarik (2007) found that collaborative learning encouraged greater interest in course material. Students were also able to share ideas, which facilitated learning. Boughey's writing exercise yielded quantitative results with a comparison made between students' marks on the first and the last draft of the assignment. She observed that performance on the final draft showed an improvement from the previous draft possibly due to processes triggered by the collaborative learning environment. Anecdotal evidence gathered from students in this study revealed that they found the task easier to complete in a group environment and they preferred group work to working individually, which would have been more threatening. This study gives further insight into the effect of collaborative learning on performance but the extent to which the findings can be generalised to other contexts in South Africa is limited.

The use of collaborative learning.

Although research suggests that collaborative learning is an effective tool that has a positive influence on academic performance, it is often under-utilised by instructors. Exemplar teachers reported that their "actual use of cooperative learning differed significantly from the level that they identified as preferred" (Lopata, 2003, p. 235). A survey conducted among economics instructors affiliated with the American Economic Association also reported that only a small percentage of instructors use this method despite its proven effectiveness (Benzing & Christ, 1997). A possible explanation for the limited use of cooperative learning could be that instructors may not see its positive influence on academic performance, which may occur if it is not implemented correctly. For example, a group of individuals merely working together does not necessarily constitute a cooperative learning environment. A cooperative environment according to Johnson, Johnson and Smith (1998) comprises of five key elements: positive interdependence, individual accountability, promotive interaction, social skills and group processing and only under these conditions does cooperation exist.

Positive interdependence is the most important element and is used to describe the fact that students must perceive their success to be inextricably linked to that of their counterparts. For a learning situation to be truly cooperative 'students must

believe that they sink or swim together' (Johnson, Johnson & Smith, 1998, p. 30). This could be reinforced by linking rewards to the achievement of a particular goal by each member of the group. *Individual accountability* occurs when each member of a group is held accountable for their performance. In the AD programme this is best illustrated by end of semester exams that assess individuals despite the fact that they have learnt in a collaborative environment.

Promotive interaction occurs when group members praise each other's individual efforts face to face. Students are provided with useful feedback through the responses of others and they also get to know one another at a deeper level. Other processes that may occur include cognitive processes such as sharing one's knowledge with classmates and challenging the opinions of others in the group. *Social skills* refer to those interpersonal and small group skills such as communication and trust that are critical when one is working with others. Some developers of cooperative learning go as far as to recommend teaching these skills to students (Vaughan, 2002).

The final element necessary for cooperation is *group processing*. This involves evaluating the success of the group in meeting its goals and identifying the ways in which members can maximise their own and each other's learning (Johnson, Johnson & Smith, 1998).

Collaborative learning as a technique for enhancing learning assumes that students learn more efficiently when they collaborate on tasks (Dillenbourg, 1999). Within this group setting active learning occurs with mechanisms such as talking, listening and reflecting contributing to the expansion of students' thinking abilities (Meyers & Jones, 1993). Learning is enhanced as students begin to engage with the material they are exposed to and are given the opportunity to formulate their own ideas and clarify anything that they do not understand. Collaborative learning therefore has a positive effect on students' learning experiences and encourages students to engage with their course material (Yamarik, 2007).

Despite the numerous results suggesting the positive effects of collaborative and cooperative learning on academic success, there is limited empirical research in the South African context. Hence, the present study will contribute to this research

area by exploring the way in which these forms of learning help students in obtaining better results.

Although social connectedness and collaborative learning are the two independent variables in this study, numerous other factors can account for student performance. This includes factors such as lecture attendance, year of study and first generation participation in higher education. Each of these factors will be discussed below, following on from a brief discussion on grade point average.

Measuring academic performance using grade point average.

The various studies reviewed have predominantly used grade point average as a measure for academic achievement (e.g. Graunke & Woosley, 2005; Walton & Cohen, 2007). In following the pattern of previous research, the present study used a cumulative grade point average score made available from the university's student management system. Astin (as cited in Graunke & Woosley) states that learning and growth during a student's undergraduate years is best encapsulated in GPA, making it a useful measure to use in measuring performance.

Additional factors related to academic performance.

The literature was further explored to investigate other factors related to academic success and found that class size (Ceci & Konstantopoulos, 2009), class attendance (Chen & Lin 2008; St Clair, 1999; Thatcher, Frudjhon & Cockcroft 2007), student persistence, financial circumstances, social and cultural issues, extent of family support, school environment, race, gender (Fraser & Killen, 2003; Grimes, 1997) and language (Fraser & Killen) contributed to academic success.

Class size.

A relationship was found between student performance and class size, with an increase in performance evident in smaller classes (Ceci & Konstantopoulos, 2009). Ceci and Konstantopoulos refer to the longitudinal study among elementary school children commissioned by the governor of Tennessee in 1985. The initial phase of this study was conducted in seventy-nine elementary schools and was known as the Student Teacher Achievement Ratio Project. Children were assigned to small or regular-sized classes, which had 15 and 23 children respectively. The result was higher achievement in the smaller classes, however their research did not attempt to answer the question of the underlying mechanisms that lead to this increase in

achievement. In the second phase of the study, the aim was to establish whether the perceived benefits of being in a smaller class persisted (Mosteller, 1995). Children who were placed in smaller classes continued to perform better than their counterparts from larger classes, even when returned to larger classes.

Ceci and Konstantopoulos's (2009) concern, however, was that achievement appeared to be greater among children who were high achievers. When placed in smaller classes they seemed to gain more than average or poor achieving students did, thus widening the gap between these two groups (Ceci & Konstantopoulos). It may be that a mix of interventions, which includes reducing class sizes, is the best strategy if both high achievers and low achievers are to benefit equally. Although this study related to research among elementary school pupils, it did yield information that could prompt research into the effects of class size specifically on undergraduate students.

Class attendance.

An area that has received attention within higher education research is the effect of lecture attendance on the examination performance of students (Chen & Lin, 2008; St Clair, 1999). It has been found, in general, that the more lectures a student attends, the better overall grade he or she obtains (Schmidt, 1983; Jones, 1984; Park & Kerr, 1990; Romer, 1993; Durden & Ellis, 1995; Devadoss & Foltz, 1996; Dolton, Marcenaro & Navarro, 2003, as cited in Chen & Lin, 2008). Chen and Lin were able to confirm this finding in their experiment, using lecture attendance as their treatment among a group of 114 students undertaking a finance course at a private university in Taiwan. They found that attendance produces a significant and positive impact on students' examination performance, with greater lecture attendance resulting in greater benefits. Using a controlled experimental design provided a clear causal link between the treatment (lecture attendance) and the outcome (examination performance). However, caution should be exercised in generalising about populations outside of this particular context.

Thatcher, Frudjhon and Cockcroft (2007) conducted research in South Africa within a second year psychology course that comprised of 289 students. They found that students, who always attended lectures, achieved greater academic performance than those who never attended or who attended occasionally.

Although lecture attendance has such positive effects on academic success, St Clair (1999) warns against making lectures compulsory. She found this to have no significant impact on performance and that it could, in fact, negatively affect student motivation.

Year of study.

Graunke and Woosley (2005) explored the factors that lead to the academic success of sophomores (second year students) in their study of American students. This study was of particular significance as this cohort has received little attention in research literature related to America. According to Pattengale and Schreiner (as cited in Graunke & Woosley), sophomores are at a stage where their grades can be adversely affected due to disengagement from academic life during this period. The sophomore year is also characterised by the solidification of career decisions and personal goals (Anderson & Schreiner, 2000; Boivin, Fountai & Baylis, 2000 as cited in Graunke & Woosley) making this year a critical stage in one's academic life. Despite this, Pattengale and Schreiner (as cited in Graunke & Woosley) reveal that it is often during this time that institutions offer little support to sophomores as focus often shifts to ensuring first year students are retained.

In order to reveal the particular factors that affect the academic success of this cohort, Graunke and Woosley (2005) studied sophomore students using grade point average as the dependent variable measuring academic success and two categories of independent variables. The first category included 'demographic variables such as sex, ethnicity, transfer status (students admitted as transfer students), placement in the university honours program and employment status. The second category of independent variables included factors such as academic experiences and attitudes, institutional commitment, faculty and staff interaction, overall involvement in activities and commitment to one's major.

Building on the work of Tinto (as cited in Graunke & Woosley, 2005), a survey was used to establish the attitudes and experiences that affect the academic success of these sophomores. Tinto's model suggests that an individual student's attributes and experiences help in fostering integration into the social and academic context of an institution.

The study found that certainty in the choice of major, as well as interactions with one's faculty, was a significant predictor of academic success. It could be that, once a student decides on a choice of major, the motivation to succeed in that major increases (Graunke & Woosley, 2005). Faculty interactions also relate to success possibly because such interactions can be a source of positive feedback and motivation (Graunke & Woosley). Involvement in activities, which is a factor that predicts success in first-year students (Milem & Berger, 1997; Yazedjian, Toews, Sevin & Purswell, 2008), was not an important predictor of success in sophomores.

Students in the AD programme have extensive interaction with staff in the Commerce Faculty's EDU and according to the results of the study on sophomores this may lead to academic success. Interpretation of these results must be done with caution as sophomores in the American context differ considerably when compared with second year students in South Africa.

The additional variables discussed, excluding class size, were included in this study. The researcher excluded class size as students in the AD programme are taught in the same classes with their mainstream counterparts after first year, as opposed to being placed into classes exclusively for AD students. Although these variables are not the focus of this study, it is still important to explore these variables in view of the findings observed in the literature regarding student performance.

After an extensive review of the literature, it appears that many factors contribute to the academic success of undergraduate students. However, there are limited findings specifically related to the performance of students in the South African context. In the absence of such findings, this study explores the factors related to the performance of undergraduate students in the AD programme at a South African university. The focus is on measuring social connectedness and collaborative learning given that these two constructs are those that are emphasised in the AD programme and hence the reason, in the present study, for exploring these as they relate to academic performance. The first hypothesis, H_1 , is that there is a positive and significant relationship between social connectedness and academic performance. The second hypothesis, H_2 , is that there is a positive and significant relationship between collaborative learning and academic performance.

METHOD

Research Design

The type of study conducted was descriptive in nature, taking on the form of survey research, which generated quantitative and qualitative findings. Although a review of the literature revealed a myriad of variables related to academic performance, the present study focused on social connectedness and collaborative learning. The AD programme aims to foster both social connectedness and collaborative learning through its various activities and hence these two constructs were selected as the independent variables. Academic performance served as the dependent variable and was measured using cumulative GPA scores.

Sample

The sample was selected using convenience sampling, which is a non-probabilistic sampling technique (Terre Blanche & Durrheim, 1999). Of the 801 students registered in the 2009 AD programme, 129 participated in the survey, which represented a response rate of 16.10%. However, seven cases with missing data and three cases that were outliers, had to be excluded which made the final sample size 119. Table 1 and 2 show descriptive statistics for personal information for the AD BCom and AD BBusSci streams respectively, where $N = 122$ (three cases that were outliers were included but excluded when data was analysed).

Additional demographic information such as year of study within the AD programme, first language, additional first language, level of lecture attendance and type of accommodation information was also collected. This information is presented in Table 3 and 4, where $N = 119$.

Table 1: Descriptive Statistics for Personal Information for AD BCom Stream

Year Group ($n = 79$)	Male	Female	Total	Total Percentage
First	11	13	24	30.38%
Second	13	16	29	36.71%
Third	3	10	13	16.45%
Fourth	5	8	13	16.45%
Total	32	47	79	
Total Percentage	40.51%	59.49%		

Table 2: Descriptive Statistics for Personal Information for AD BBusSc Stream

Year Group (n = 43)	Male	Female	Total	Total Percentage
First	9	10	19	44.19%
Second	2	1	3	6.98%
Third	6	5	11	25.58%
Fourth	2	8	10	23.25%
Total	19	24	43	
Total Percentage	44.19%	55.81%		

Table 3: Descriptive Statistics Showing Demographic Information: Students' Language

N = 119	Afrikaans	English	Xhosa	Zulu	Other
First Language	2	54	24	18	21
Additional First Language	45	61	3	4	6

Note. 'Other' language describes one of the other seven official languages of South Africa

Table 4: Descriptive Statistics Showing Demographic Information: Accommodation Type and Lecture Attendance

Type of accommodation (N = 119)	Lecture attendance			
	Halls of residence	Off- campus	At home	
	59	13	47	
				25% 50% 75% 100%
				1 3 60 55

Materials

Measuring instrument.

Social connectedness.

The campus connectedness scale (Lee & Robbins, 2000) measured social connectedness among students in the AD programme. Dr Lee provided a copy of the complete scale together with terms and conditions for its usage. The scale had 14 items, measured on a 6-point Likert scale with responses ranging from Strongly Disagree (1) to Strongly Agree (6). An example of a scale item is 'I can relate to my fellow classmates' (Lee & Robbins).

A review of Lee and Robbins's (2000) campus connectedness scale revealed that some of the language used was not entirely appropriate to the South African

context; hence, the researcher adjusted the scale. The major changes related to language, for example, the word 'university' replaced 'college', the former being more commonly used within the South African context. Although the scale, which was developed in the United States, had been proven to be valid and reliable ($\alpha = 0.91$), these minor changes in language had to be made to ensure that it was contextually appropriate.

The researcher conducted a factor analysis to check the quality of the scale, due to the minor changes made to the scale. It revealed that the items measuring social connectedness related to one main factor as expected based on findings within the literature.

Collaborative learning.

The researcher reviewed the literature and found no suitable scale for collaborative learning, which necessitated the development of such a scale for this study. The items included in the scale were generated from exploring the literature on collaborative learning and consulting with the director of the AD program. A factor analysis of the scale items using the principal factors extraction method revealed that the construct loaded onto one main factor as expected based on the findings in the literature (see Results section). The final scale was composed of eight items, which the researcher tested for reliability and validity. The outcomes of these tests are presented in the results section.

Final composite questionnaire.

The final questionnaire developed had 13 items measuring social connectedness and 8 items measuring collaborative learning. Using a 6-point Likert scale forced participants to make a choice towards a particular end of the scale, given that there was no middle point (Lee & Robbins, 1995). The questionnaire included three optional open-ended questions. The first and second question required students to identify the factors that they felt either hindered or promoted their academic performance in the AD programme respectively. The third question asked students to identify ways in which the programme provided them with the necessary academic support. These three items were made optional as they did not measure the main constructs within this study namely social connectedness, collaborative learning and academic performance. They were however included as it was envisioned that they

would still provide useful information to staff in the AD programme. The questionnaire also included additional items that recorded demographic variables such as first generation participation in higher education and lecture attendance as well as personal information such as gender (see Appendix A for complete questionnaire).

An analysis was conducted which took a closer look at the correlations between items that measured social connectedness and collaborative learning. Lee and Robbins (1995) in their study sought to eliminate any scale items that showed word overlap as evidenced by a high correlation. They recommend following this procedure when developing a new scale. For the social connectedness scale, no two items had a correlation above 0.63, which suggests that the scale had no duplicate items that required deletion. For the collaborative learning scale, 0.72 was the highest correlation between two scale items. These items were 'participation in group learning assists me in my academic work' and 'study groups enhance my academic performance'. These two items had a high correlation, however they did not have words that overlapped and therefore they were included in the scale.

Academic performance.

Cumulative GPA scores, extracted from the student information management system, (PeopleSoft), measured the academic performance of students. Cumulative GPA was calculated by combining the actual performance of students (expressed as a percentage) in their various courses multiplied by the weighting for the specific course (A. Schlechter, personal communication, 27 August, 2008). The cumulative GPA scores used were from students' academic results at the end of the first semester in 2009. GPA scores are the best measure of academic performance as they best encapsulate student learning and growth (Astin, as cited in Graunke & Woosley, 2005). The AD staff that had the required system access provided the relevant GPA scores to the researcher.

Procedure

The researcher used an online survey tool to develop the final questionnaire. The survey tool recorded survey responses electronically and exported these into a spreadsheet for analysis. The researcher then approached staff within the AD programme and consulted with them regarding the best method to use for sending out the survey. Based on their recommendations, a web link to the questionnaire was

posted on the AD programme's course web page. Students then received a notification via email, which invited them to complete the online survey. The email provided details on the topic of research together with instructions on how to complete the questionnaire. In order to fulfil ethical standards, instructions outlined in the email stated that students' responses would remain anonymous and confidential. The researcher obtained ethical clearance from the Commerce Faculty's Ethics in Research Committee prior to the data collection process.

Student participation was encouraged by offering a gift voucher, with the winning student chosen by means of a random draw. At the end of the two-week period, all students in the AD programme received a reminder email because of the low response rate obtained. In addition to sending out a reminder email, the researcher attended the AD programme class meetings held during the semester and promoted the research project. AD staff also distributed several hard copies of the questionnaire. The researcher manually entered responses from these hard copies onto a spreadsheet and combined them with those received electronically.

As a further means of encouraging responses, the director of the AD programme also sent out a communiqué highlighting the importance of the research project and encouraging students to complete the survey. The researcher also made use of the university's short message service (sms) system, which sent text messages to students' mobile phones, instructing them to complete the survey available on the AD programme website intranet. Following this, the online survey remained available for a further week to allow students to respond. The objective of this extensive data collection process was to acquire the maximum number of responses, as this would improve the quality of the results obtained and the analysis thereof.

The researcher then calculated a composite score for social connectedness and one for collaborative learning for each student and matched each of the scores to his or her GPA score, in order to investigate the relationship between social connectedness, collaborative learning and academic performance. The results chapter below presents an analysis of these variables.

RESULTS

STATISTICA 8 was chosen to analyse the data collected. This statistical package has a user-friendly spreadsheet format and the capacity to perform a variety of statistical techniques. Descriptive and inferential statistics were computed in order to investigate the relationships between the variables in this study. Statistically significant relationships were evaluated using the Pearson's correlation test, which was conducted at a significance level of $p < .05$. This test was used to test the first and second hypotheses.

Reliability and Validity Analysis

As part of the data analysis process, the researcher assessed the quality of the campus connectedness scale (Lee & Robbins, 2000) and the collaborative learning scale that was developed for this study. The reliability analysis conducted for the campus connectedness scale resulted in a high Cronbach's alpha coefficient ($\alpha = .86$), which was similar to the result obtained by Lee and Robbins in their study. The scale for collaborative learning obtained the same alpha coefficient. This suggests that both scales were reliable.

Content or face validity was used to ascertain whether the items items in the collaborative learning scale accurately measured this construct as defined by the researcher. This type of validity requires that appropriate experts judge the scale measuring the construct of concern (Smithson, 2000). In this case, the AD programme director assessed each item in the scale and found it appropriate for measuring collaborative learning. Hence, face validity was satisfied. Scale items measuring social connectedness were assessed by following the same process and found to be valid.

Factor Analysis for Collaborative Learning Scale

A principal components factor analysis determined whether the eight items used to measure collaborative learning, loaded satisfactorily onto one factor. The results of the factor analysis are shown in Table 5. This table shows that the eigenvalue value for factor 1 explains the majority of the variance (50.65%). The additional variance explained by factor 2, which has an eigenvalue of 1, is small (14.78%) in comparison to factor 1. This indicates a strong one factor solution for the collaborative learning scale, which is consistent with previous research (Lee & Robbins, 1995).

Table 5: Unrotated Factor Analysis for Collaborative Learning Scale: Principal Components Extraction Method

Factor	Eigenvalue	Cumulative Eigenvalue	% Total Variance	% Cumulative Total Variance
1	4.05	4.05	50.65	50.65
2	1.18	5.23	14.78	65.43
3	0.76	5.99	9.51	74.94
4	0.70	6.69	8.71	83.65
5	0.43	7.12	5.37	89.02
6	0.36	7.48	4.51	93.53
7	0.28	7.76	3.52	97.05
8	0.24	8.00	2.94	100.00

Note. All figures are approximations rounded off to the nearest two decimal places

Descriptive Statistics

As illustrated in Table 6, social connectedness (SC) recorded the highest mean ($M = 59.79$), followed by GPA ($M = 57.39$) and CL ($M = 30.66$). Collaborative learning (CL) had the lowest standard deviation of 7.04, with SC and GPA falling within one standard deviation unit of each other. SC and GPA had similar minimum scores of 35 while CL recorded the lowest minimum score of 14. The highest maximum score was 80 for GPA, followed by SC and CL that had maximum scores of 77 and 45 respectively. Appendix B contains histograms, which graphically represent the distribution of SC, CL and GPA. SC is positively skewed and CL and GPA are negatively skewed.

Table 6: Descriptive Statistics of the Variables in the Study

	N	Mean	Median	Std Dev	Variance	Min	Max	Skewness
SC	119	59.79	61.00	8.88	78.90	35	77	0.364
CL	119	30.66	32.00	7.04	49.58	14	45	-0.474
GPA	119	57.39	55.68	9.02	81.34	35	80	-0.127

Note. SC = Social Connectedness, CL = collaborative learning, GPA = grade point average

Testing for Normality

The correlation (*t* test) and regression (*F* test) analysis assume that the dependent variable is normally distributed, therefore this had to be tested. The Shapiro-Wilk's test of normality demonstrated that GPA did not violate the assumption of normality ($p = .09$) (see Appendix B for graphical representation of distributions for independent and dependent variables). Hence, these tests could be used to analyse the data. Before a simple regression analysis of the variables can be undertaken, the relationship between the independent and dependent variables needs to be established (Foxcroft & Roodt, 2005). Table 7 shows the results of the investigation into these relationships.

Bivariate Correlations Between the Variables

Social connectedness and academic performance.

A Pearson Product Moment correlation was computed in order to investigate the relationships between the variables in the study. As shown in Table 7, a significant positive relationship was found between SC and GPA ($r = .259$; $p = .004$). However, the low correlation suggests that this relationship is weak. This result confirms the study's first hypothesis, H_1 , which stated that there is a positive and significant relationship between social connectedness and academic performance.

Collaborative learning and academic performance.

The analysis (see Table 7) showed that CL and GPA had an extremely low correlation, with $r = .053$. This correlation was not significant ($p = .566$). Therefore, the second hypothesis, H_2 , which stated that there is a positive and significant relationship between collaborative learning and academic performance, was not supported.

Table 7: Pearson's *r* Correlation Test for Independent and Dependent Variables ($N = 119$)

Variable	Total SC	Total CL	GPA
Total SC	1	.404*	.259*
Total CL	.404*	1	.053
GPA	.259*	.053	1

Note. Correlation significant at $p < .05$.

Social connectedness and collaborative learning.

The two independent variables, namely, SC and CL, were found to have a positive correlation ($r = .404$) at a significant p-value of .000. This relationship was not found in the previous research reviewed and therefore it was unexpected. It presents an interesting finding of this study and shall be discussed in detail further in the discussion section.

Regression analysis of social connectedness and academic performance

Using a simple regression analysis, a predictive model was developed using SC as a predictor and GPA as the outcome variable. The model was found to be significant ($p = .004$) and 6.7% of the variation in GPA is explained by the variation in SC ($R^2 = .067$) as illustrated in Table 8.

Table 8: Significance and Strength of the Regression Model of SC Predicting GPA (N =119)

Model		F	Sig.	R Square	Adjusted R Square
1	Regression	8.407	.004	.067	.059
	Residual				
	Total				

In order to develop an equation that allows for the prediction of GPA scores, the following regression equation, derived from the Beta values in Table 9, can be used:

$$GPA = 41.674 + 3.418 (SC)$$

From this regression equation, for every one unit increase in SC, GPA will increase on average by 3.418 units ($p = 0.004$).

Table 9: Coefficients of the Regression Model of SC Predicting GPA (N =119)

Model		B	SE B	β	Std Error of B	t	p-level
1	(Constant)	41.674	5.48			7.605	.000
	Total SC	3.418	1.179	0.259	.089	2.899	.004

Testing the relationship between demographic variables and academic performance

The analyses conducted above show that only social connectedness is significantly related to GPA. Further analyses were conducted in order to ascertain their effect of other variables on GPA. The first demographic variable to be tested was lecture attendance.

Lecture attendance.

The GPA scores for students who attended more lectures were higher ($M = 59.06$, $SD = 10.07$) than for those who attended fewer lectures ($M = 56.00$, $SD = 7.85$). Students identified what percentage of lectures they attended on a categorical scale with the following categories: 0%, 25%, 50%, 75% and 100%.

Owing to the numbers obtained in each category, the first three categories were combined. The result was that 53.78% of students ($n = 64$) fell into the first group that attends up to 75% of their lectures, while 46.22% of students ($n = 55$) fell into the second group that attends more than 75% of their lectures. Differences in GPA between the two groups were not found to be statistically significant.

First generation participation in higher education.

Students indicated whether or not they were first generation participants in higher education. Sixty-seven students (56.30%) were first generation participants in higher education while fifty-two students (43.70%) were not. A t-test was computed to establish whether being a first generation participant in higher education had an impact on GPA. Students who were first generation participants in higher education had higher GPA scores ($M = 57.78$, $SD = 9.18$) than those who were not ($M = 56.89$, $SD = 8.87$). However, the result was not significant.

Quantitative analysis of the data showed that social connectedness was the only significant factor in predicting academic performance.

The section below presents a qualitative analysis of the data obtained from the three open-ended questions in the survey. Each response, for each of the three questions, was recorded in an Excel spreadsheet. The responses were then reviewed and common key phrases were grouped into several themes. A similar process was used for all three questions until a complete list of responses was obtained for each

question. The analysis was simplified by the fact that students used similar words to answer the open-ended questions.

Qualitative Data Analysis

Sixteen themes, as shown in Table 10, emerged from the qualitative data in response to the first open-ended question: what are the factors, if any, that hinder your academic performance in the AD programme? From the students' perspective, psychological challenges and poor quality of teaching were the greatest hindrance to performance. One student said 'I found myself depressed sometimes, especially in instances when I felt like I did not belong and when I was feeling alone'. Many students felt the quality of teaching was inadequate as articulated in the following response: 'lack of good lecturers - lecturing methods could be improved'. Fourteen per cent of the sample admitted that these particular themes negatively affected their academic performance. Unstructured workshops, stress, partying, noisy lecture environment, lack of knowledge about available resources and course structure received the least attention from respondents, with three per cent of the sample falling into each theme.

Table 10: Factors that hinder academic performance

Theme	Number of comments made	Percentage of responses
Psychological challenges	5	14%
Poor quality of teaching	5	14%
No hindrances	4	11%
Lack of discipline	3	8%
Insufficient support from family or staff	3	8%
Poor time management	2	6%
Lengthy travel times	2	6%
Ineffective study technique	2	6%
Financial constraints	2	6%
Excessive tutorials	2	6%
Unstructured workshops	1	3%
Stress	1	3%
Partying	1	3%
Noisy lecture environment	1	3%
Lack of knowledge about resources	1	3%
Course structure	1	3%
Total Number of Comments	36	

A further twelve themes were identified as promoting student academic performance in the academic development programme. Table 11 displays the qualitative data in response to the second open ended question: what are the factors, if any, that promote your academic performance in the AD programme? Forty-one percent of the sample suggested that additional workshops, classes and tutorials contributed to their performance and this represented the largest theme. This was followed by friendly and supportive staff, which was identified as an aspect of the academic development that promotes performance. Student awards, advice from staff, motivational talks, studying and maintaining a positive attitude were the least prominent themes.

Table 11: Factors that promote academic performance

Theme	Number of comments made	Percentage of responses
Additional workshops, classes and tutorials	24	41%
Friendly and supportive staff	14	24%
Group learning	5	9%
Support from family and friends	4	7%
Good lecturers and tutors	2	3%
Small group lectures	2	3%
Mentoring	2	3%
Student awards	1	2%
Advice from staff	1	2%
Motivational talks	1	2%
Studying	1	2%
Positive attitude	1	2%
Total Number of Comments	58	

Table 12 shows the themes drawn from the final open ended question in the survey: has the AD programme provided you with sufficient support during your studies? If yes, please give examples of how it has done so. Analysis of this question revealed that the most frequent theme was workshops (39%), followed by approachable staff (15%). The AD programme also offers services such as a library and career advice; each of which had a frequency of 7%.

Table 12: Examples of how support has been provided to students in the AD programme

Themes	Number of comments made	Percentage of responses
Workshops	18	39%
Approachable staff	7	15%
Motivational talks	4	9%
Skills training	4	9%
Career advice	3	7%
Mentors	3	7%
AD library	3	7%
Staff support	1	2%
Counselling services	1	2%
Efficient administrators	1	2%
Class meetings	1	2%
Total Number of Comments	46	

The quantitative and qualitative findings presented above are discussed in the following section.

DISCUSSION

The results of this study generate a number of significant findings. The aim of this section is to present an in-depth discussion of the relevance of these findings, by utilising existing theory and research found within the fields of education and psychology. This section shall conclude by addressing the limitations of the study and offering recommendations for further research.

Social connectedness and academic performance

This study confirms the hypothesis that there is a positive relationship between social connectedness and academic performance. Applying the definition of social connectedness as “one’s opinion of self in relation to others”, (Lee & Robbins, 1995, p. 239) it is evident that the students in the AD programme feel a strong sense of connection with one another, as confirmed by their high mean scores for the campus connectedness scale. This suggests that the AD programme has, through its various activities, succeeded in developing social connectedness and a sense of belonging among students. The positive correlation between social connectedness and academic performance confirms that a student with a strong sense of belonging or

connectedness is likely to obtain a higher GPA than a student who experiences less of a sense of belonging. This result is consistent with previous studies, which have concluded that healthy interpersonal relationships have a positive effect on academic performance (Culp, Hubbs-Tait, Culp, & Starost, 2000; Marjoribanks, 1996; Pianta, Nimetz, & Bennett, 1997). It is evident from these results that the way in which social connectedness is engendered into the programme appears to be positively contributing to the performance of students.

The AD programme provides a high level of support for students throughout their university career and therefore students feel a consistent sense of connection. This is due to the efforts made by the staff in the EDU who ensure that positive relationships exist between staff and students in the programme. This support does not depend on students' year of study as suggested by Pattengale and Schreiner (as cited in Graunke & Woosley, 2005) who claim that tertiary institutions tend to offer less support to second year students as the focus shifts to the retention of first year students.

While staff in the EDU encourage student participation in the various activities within the AD programme, those students who fail to attend these activities may feel a sense of disconnection. Despite the positive benefits of social connectedness on academic performance, the AD programme does rely a great deal on the willingness of students to become actively involved in the programme's activities designed to foster social connectedness. If students attend only those activities deemed compulsory, this may threaten the extent to which they feel a sense of belonging which in turn may threaten their academic performance. The qualitative data analysis conducted shows that many students identified activities such as workshops as contributing to their academic performance. This further suggests the importance of involvement in these activities. The programme also provides students with skills identified as vital for commerce graduates through the 'skills for commerce' programme. This results in graduates who are better prepared as they have the appropriate knowledge and skills to succeed and, in doing so, meet the demand for more Black graduates in the commerce field (Economist, as cited in Swartz & Foley, 1996).

Although the relationship between social connectedness and academic performance is positive and significant, social connectedness only accounts for 6% of the variation observed in GPA scores. As this is only a small percentage, there are likely to be other variables that impact on the academic performance of students within the AD programme. The choice to pay particular attention to social connectedness was made because the AD programme aims to foster this construct through its activities; hence other variables that could have been included in this study were excluded. Further studies should aim to investigate the other key factors involved in student performance

Social connectedness may also have another positive benefit in that it decreases feelings of loneliness. Ginter and Dwinell (as cited in Nicpon et al., 2006) suggest that students who experience less loneliness and higher levels of social support are more likely to exhibit greater academic persistence. Although they did not find a link between academic persistence and academic performance, academic persistence increased the likelihood of staying at university (Tinto, as cited in Nicpon et al, 2006). In the South African context, in which a large proportion of students drop out of university after their first year of study (Groenewald, 2005 as cited in de Klerk, van Deventer & van Schalkwyk, 2006), fostering academic persistence becomes important if it contributes to higher student retention rates.

There are, of course, many factors that may contribute to a sense of belonging and this could be an important area of future research, given the effect of belongingness on student performance. Walton and Cohen (2007) investigated the effect of cultural orientation and multicultural experiences on one's sense of belonging. They found that belongingness uncertainty, which made students feel marginalised, negatively affected their academic performance. Their study proposes that efforts should be made to ensure that students in an AD programme do not feel sidelined in comparison with their mainstream counterparts as such feelings may adversely affect their performance.

The AD programme has made concerted efforts to ensure that students form strong bonds with one another in order to develop a sense of belonging. These efforts have made a significant impact on student performance thereby suggesting the AD programme's design meets the needs of its students.

Collaborative learning and academic performance

This study's second hypothesis states that there is a positive relationship between GPA and collaborative learning. No significant relationship emerged between collaborative learning and GPA thereby refuting the argument that students exposed to collaborative and cooperative learning record gains in academic performance (Springer, Stanne & Donovan, 1999).

In order to explain this finding, one must closely examine those conditions that undermine the positive benefits associated with learning in a collaborative learning environment such as increases in GPA. Students identified two main areas of concern that may hinder their academic performance: psychological challenges and poor quality teaching. It may well be that these two issues prevent students from excelling in their academics, even when placed in a collaborative learning environment that previous research has confirmed contributes to GPA. The counselling services offered within the AD programme may mitigate psychological factors that affect performance. Students' perception is that the poor quality of teaching within the AD programme hinders their academic performance. Further investigation is required to ascertain the validity of such a perception and whether any improvements need to be made. D'Andrea and Gosling (2005) identify teaching as a critical factor that can impact student performance and therefore a continued focus on quality teaching must be sustained. When students experience challenges related to teaching style they may score a low GPA, even though they are in a collaborative learning environment. Ultimately, students have to take responsibility for their own learning and cannot rely on collaborative learning activities. This would entail allocating sufficient time to studying course material. The extent to which this occurs needs to be explored further as it is likely to contribute to student performance.

Although students may be in a collaborative learning environment, there may be specific conditions within this environment that are required before any changes in their GPA occur. Students in the AD programme are often required to work in groups; however, this does not necessarily constitute a cooperative learning environment as defined by Johnson, Johnson and Smith (1998). These authors view a cooperative learning environment as comprising of five elements, namely, positive interdependence, individual accountability, promotive interaction, social skills and

group processing. They believe that the most important element is positive interdependence, which occurs when the success of an individual student is dependent upon the success of the entire group. For example, if the assessment of students occurs on an individual basis without considering the achievement of group goals, this may not constitute a truly cooperative learning environment. This highlights that the nature and structure of a collaborative environment impacts on how well it facilitates academic performance

Vaughn (2002) also asserts that students should undergo training in order to equip them with the skills required to create the espoused cooperative learning environment. Such skills include communication and active listening skills, which are important in helping students relate to one another as they perform group tasks. Collaborative learning is most effective when talking, listening and reflecting contribute to the expansion of students' thinking skills (Meyer & Jones, 1993). Facilitators and tutors must provide an environment in which students can grapple with the material they are learning by utilising the skills previously mentioned. This is likely to lead to a greater understanding of their subject matter. When this does not occur, collaborative learning becomes ineffective and its expected effect on performance is not realised.

Other factors such as group size, criteria for group membership, classroom set-up and the choice of assigned tasks (Dillenbourg, 1999) may also contribute to the effectiveness of collaborative learning. For example, larger classes may actually hinder collaborative learning from taking place. The type of group formed could also determine the effectiveness of collaborative learning given that Springer, Stanne and Donovan (1999) have found that out-of-class study groups reported higher averages than in-class instruction groups. The present study did not specifically investigate the nature of the collaborative learning environment but chose to focus on the extent to which such an environment affects student performance. Perhaps further research could attempt to test a more nuanced and detailed model that includes additional factors.

Lastly, the researcher acknowledges that because the collaborative learning scale was self-developed the items may have not been refined enough to tap into the right aspects of collaborative learning. A different scale with more refined items may

have yielded results that are consistent with existing research that confirms the effect of collaborative learning on GPA.

Social connectedness and collaborative learning

The data analysis process reveals a positive and significant correlation between social connectedness and collaborative learning. Although the direction of this relationship was not investigated, it is proposed that the collaborative learning environment triggers increased interactions among students and these interactions contribute to a greater feeling of belonging. This particular result suggests that the collaborative environment creates situations that allow students to become better acquainted with one another as they work on assigned tasks. As this happens, students feel greater belongingness, which results in better academic performance. When students feel a strong sense of connection, they achieve higher GPA scores than those who experience belongingness uncertainty. Conversely, the opposite may be true in that social connectedness may increase the likelihood of collaborative learning. This is an interesting result and provides useful information to staff in the AD programme whose efforts to promote collaborative learning and social connectedness appear to be succeeding.

Lecture attendance, first generation participation in higher education and GPA

Students in the AD programme were asked to rate their lecture attendance which was investigated in relation to academic performance. The researcher found that lecture attendance did not relate to variations in GPA scores among students. This result differs from various studies which have found that the more lectures a student attends, the better will be the overall grade that he or she obtains (Schmidt, 1983; Jones, 1984; Park & Kerr, 1990; Romer, 1993; Durden & Ellis, 1995; Devadoss & Foltz, 1996; Dolton, Marcenaro & Navarro, 2003 as cited in Chen & Lin, 2008). The subjective approach used to measure lecture attendance may not have truly represented the actual attendance of students who may have wanted to give social desirable responses. A more rigorous approach to recording lecture attendance may have yielded different results. However, this particular variable was not a focus of this study and hence utilising such an approach fell outside the scope of this study.

First generation participation in higher education did not have a significant impact on academic performance. However many students valued the support that

their family gave and reported that this was a factor which promoted their academic performance.

In conclusion, social connectedness related to academic performance. This finding is consistent with the literature reviewed. The results obtained in relation to collaborative learning are, however, inconsistent with existing research. The researcher recommends that further research be undertaken to explore the extenuating variables that could account for these inconsistencies.

Limitations

Sample size.

The obvious limitation to this study is the sample size. Despite the extensive multi-pronged approach used, the final sample size was smaller than expected. The use of an electronic survey that was distributed by email, meant that the researcher relied on students checking their emails, in order to be directed to the online link to the survey. Despite the researcher sending email reminders and short message service (sms) notifications, the response rate remained low. The survey in this study also went live at the same time as several other surveys and students may have been reluctant to respond to multiple surveys thus resulting in a poor response rate. This means that the sample is not a complete or accurate representation of the entire population (students in AD programmes across South Africa) from which it was drawn. Furthermore, obtaining a sample from students in an AD programme at a specific university means that these findings are unique to this university. The implication of this is that the researcher is limited in terms of drawing conclusions from the results obtained, as they are most relevant to this sample only.

Data collection.

The researcher made use of the university's sms system to notify students about the online link to the survey. In order for every student in the AD programme to receive a sms, his or her current mobile number had to be on the system; in some instances, this was not the case. Network problems, or the fact that some students may not have had a mobile phone created further challenges in the data collection process.

Recommendations

The researcher found limited empirical literature concerning the factors that relate to student performance in the context of an AD programme in South Africa. The few

studies that were found related to foundational programmes that run over a twelve month period, as opposed to extended degree programmes such as the AD programme in this study. Coupled with this, the final sample size obtained was small, despite all efforts to obtain a representative sample. It is thus challenging to make any valid generalisations from this sample. Therefore, further research undertaken in relation to student performance within AD programmes, particularly in the South African context, should focus on obtaining a sample that is more representative.

In addition to the broad suggestions for further research mentioned above, educational institutions working within the area of academic development should make a number of key considerations.

Developing social connectedness.

It is important to develop students' sense of belonging within AD programmes given the link between social connectedness and academic performance. In order to achieve this, activities that encourage student interactions could be organised. The creation of collaborative learning environments is important as such environments trigger student interaction, which in turn fosters a sense of belonging that has a positive impact on student performance. The researcher suggests that the EDU staff continue in their efforts to foster social connectedness.

Provision of student support.

The role of academic staff in providing support to students in AD programmes is crucial. An analysis of the qualitative data collected suggests that students view staff support as a factor that relates to their academic performance. In particular, students valued interacting with staff members who are friendly and approachable. It is therefore vital that staff are readily accessible to students and that they are adequately trained in assisting students with any issues they may have.

Improving the quality of teaching.

Many of the students in the AD programme are often under-prepared for university and, given this, facilitators and tutors have an important role to play in equipping these students with the necessary skills for academic success such as time and stress management. The staff in the EDU constantly investigate ways in which improvements can be made to the quality of teaching in the AD programme and it is hoped that such efforts will continue in the future.

Conclusion

This study has investigated the relationship between social connectedness, collaborative learning and the academic performance of students in an AD programme at a South African university. The study generated some significant and useful results and explored areas that have not previously been explored in the South African context. On the one hand, it found that social connectedness is linked to academic performance which is in line with the findings of prior research. However, the extent of this relationship can only be confirmed by conducting a longitudinal study. This type of study could follow a particular cohort throughout their university career to explore whether their sense of belonging is related to their GPA scores over a long period of time. Collaborative learning, on the other hand, was not found to be related to academic performance and several explanations have been suggested for this result. Interestingly, social connectedness and collaborative learning, which are the two constructs the AD programme aims to foster, are positively related; possibly because students experience a greater sense of connection by working together in groups.

Several limitations of the study have been identified and recommendations for further research have been made. The researcher has also highlighted areas of improvement that staff in the AD programme should consider in view of the results from this study. This study presents a preliminary investigation into the myriad of factors that affect student performance within an AD programme and it is envisaged that its results will spark further interest in potential researchers.

REFERENCES

- Admissions policy to go under review. (2009, April 27). *Monday Paper*. Retrieved from <http://www.uct.ac.za/mondaypaper/archives/?id=7436>.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin* 117(3), 497–529.
- Benzing, C., & Chirst, P. (1997). A survey of teaching methods among economics faculty. *Journal of Economic Education*, 28(2), 182–188.
- Boughey, C. (2005). Epistemological access to the university. An alternative perspective. *South African Journal of Higher Education*, 19(3), 230–242.
- Boughey, C. (1997). Learning to write by writing to learn: A group-work approach. *ELT Journal*, 51(2), 126 – 134.
- Brew, A. (2004). The scope of academic development. *International Journal for Academic Development*, 9(1), 5–7.
- Bruffee, K. A. (1995). Sharing our toys. *Change*, 27(1), 20–27.
- Burke, V.C., Sikakana, C.N.T., Yeld, N., Seggie, J.L., & Schmidt, H.G. (2007). Performance of academically at-risk medical students in a problem-based learning programme: A preliminary report. *Advances in Health Sciences Education*, 12(3), 345–358.
- Ceci, S., & Konstantopoulos, S. (2009). It's not all about class size. *Chronicle of Higher Education*, 5(21), 30.
- Chen, J., & Lin, T.-F. (2008). Class attendance and exam performance: A randomized experiment. *Journal of Economic Education*, 39(3), 213–227.
- Cheung, C.K., Rudowicz, E., Lang, G., Yue, X.D., Kwan, A.S.F. (2001). Critical thinking among university students: Does the family background matter? *College Student Journal*, 35(4), 577–598.

- Cohen, E.G. (1994). Restructuring the classroom: Conditions for productive small groups. *Review of Educational Research*, 64(1), 1–35.
- Cross, M., & Carpentier, C. (2007). New student in South African higher education: institutional culture, student performance and the challenge of democratisation. *Perspectives in Education*, 27(1), 6–18.
- Cross, M., Shalem, Y., Backhouse, J., & Adam, F. (2009). How undergraduate students negotiate academic performance within a diverse university environment. *South African Journal of Higher Education*, 23(1), 21–42.
- D' Andrea, V., & Gosling, D. (2005). *Improving teaching and learning in higher education. A whole institution approach*. England: Open University Press.
- De Klerk, E., van Deventer, I., & van Schalkwyk, S. (2006). Small victories over time: the impact of an academic development intervention at Stellenbosch University. *Education as Change*, 10(2), 149–169.
- Dillenbourg, P. (1999). What do you mean by collaborative learning? In P.Dillenbourg (Ed.), *Collaborative-learning: Cognitive and computational approaches* (pp. 1–19). Oxford: Elsevier.
- Downs, C.T. (2005). Is a year long access course into university helping previously disadvantaged black students in biology? *South African Journal of Higher Education*, 19(4), 666–683.
- Felder, R.M., Fedler, G.N., & Deitz, E.J. (1998). A longitudinal study of engineering student performance and retention. V. comparisons with traditionally-taught students. *Journal of Engineering Education*, 87(4), 469–480.
- Fink, A. (1995). *How to analyze survey data*. Thousand Oaks: Sage Publications.
- Foxcroft, C., & Roodt, G. (2005). *An introduction to psychological assessment in the South African context* (2nd ed.). Cape Town, South Africa: Oxford University Press.

- Fraser, W.J., & Killen, R. (2003). Factors influencing academic success or failure of first-year senior students: do education students and lecturers perceive things differently? *South African Journal of Education*, 23(4), 254–263.
- Grimes, S.K. (1997). Underprepared community college students: Characteristics, persistence, and academic success. *Community College Journal of Research and Practice*, 21(1), 47–56.
- Graunke, S.S., & Woosley, S.A. (2005). An exploration of the factors that affect the academic success of college sophomores. *College Student Journal*, 39(20), 367–376.
- Johnson, D.W., Johnson, Roger, T., & Smith, K.A. (1998). Cooperative learning returns to college: What evidence is there that it works? *Change*, 30(4), 26–35.
- Lassibille, G., & Navarro Gómez, L. (2008). Why do higher education students drop out? Evidence from Spain. *Education Economics*, 16(1), 89–105.
- Lee, R.M., & Robbins, S.B. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology*, 48(3), 310–318.
- Lee, R.M., & Robbins, S.B. (2000). Understanding social connectedness in college women and men. *Journal of Counseling and Development*, 78(4), 484–491.
- Lee, R.M., & Robbins, S.B. (1995). Measuring belongingness: The social connectedness and the social assurance scales. *Journal of Counseling Psychology*, 42(2), 232–241.
- Lopata, C., Miller, K.A., & Miller, R.H. (2003). Survey of actual and preferred use of collaborative learning among exemplar teachers. *The Journal of Educational Research*, 94(4), 232–239.
- Martin, A.J., & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and educational practices. *Review of Educational Research*, 79(1), 327–365.

- McDonald Culp, A., Hubbs-Tait, L., Culp, R.E., & Starost, H.-J. (2000). Maternal parenting characteristics and school involvement: Predictors of kindergarten cognitive competence among head start children. *Journal of Research in Childhood Education, 15*(1), 5–17.
- Meyers, C., & Jones, T.B. (1993). Promoting active learning. *Strategies for the college classroom*. San Francisco: Jossey-Bass Publishers.
- Milem, J. F., & Berger, J.B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*(4), 387–400.
- Morrison, E.F., Rimm-Kauffman, S., & Pianta, R.C. (2003). A longitudinal study of mother-child interactions at school entry and social and academic outcomes in middle school. *Journal of School Psychology, 41*(3), 185–200
- Mosteller, F. (1995). The Tennessee study of class size in early school grades. *The Future of Children, 5*(2), 113–127.
- Nicpon, M.F., Huser, L., Blanks, E, H., Sollenberger, S., Befort, C., & Kurpius, S, E, R. (2006). The relationship of loneliness and social support with college freshman's academic performance and persistence. *Journal of College Student Retention. 8*(3), 345–385.
- Overlock, T.H. (1994). *Comparison of effectiveness of collaborative learning methods and traditional methods in physics classes at Northern Maine technical college* (Doctoral dissertation). Nova southeastern university, Florida.
- Pascarella, E.T., Pierson, C.T., Wolniak, G.C., & Terenzini, P.T. (2004). First-generation college students. *Journal of Higher Education, 75*(3), 249–284.
- Peterson, I., Louw, J., & Dumont, K. (2009). Adjustment to university and academic performance among disadvantaged students in South Africa. *Educational Psychology, 29*(1), 99–115.
- Sadler, E., & Erasmus, B.J. (2003). The academic success and failure of black chartered accounting graduates in South Africa: A distance education perspective. *Mediatri Accountancy Research, 13*(1), 29–50.

- Scott, I. (2001). Public funding for academic development: Analysis and proposals. Individual submission to the Ministry of Education in response to the 2001 Discussion Document, *Funding of Public Higher Education: A New Framework*.
- Sharan, S. (1980). Cooperative learning in small groups: Recent methods and effects in achievement, attitudes, and ethnic relations. *Review of Educational Research, 50*(2), 241–271.
- Slavin, R.E. (1980). Cooperative learning. *Review of Educational Research, 50*(2), 315–342.
- Slavin, R.E. (1983). When does cooperative learning increase student achievement? *Psychological Bulletin, 94*(3), 429–445.
- Smithson, M. (2000). *Statistics with confidence*. London: Sage Publications.
- Springer, L., Stanne, M.E., & Donovan, S.S. (1999). Effects of small-group learning on undergraduates in science, mathematics and technology: A meta-analysis. *Review of Educational Research, 69*(1), 21–51.
- St Clair, K.L. (1999). A case against compulsory class attendance policies in higher education. *Innovative Higher Education, 23*(3), 171–180.
- Swartz, E., & Foley, P. (1996). Higher education in South Africa: The skills debate. *Education and Training, 38*(9), 34–40.
- Teferra, D., & Altbach, P.G. (2004). African higher education: Challenges for the 21st century. *Higher Education, 47*(1), 21–50.
- Terre Blanche, M., & Durrheim. K. (1999). *Research in practice: applied methods for the social sciences*. Cape Town: UCT Press.
- Thatcher, A., Frudjhon, P., & Cockcroft, K. (2007). The relationship between lecture attendance and academic performance in an undergraduate psychology class. *South African Journal of Psychology, 37*(3), 656–660.

- Vaughan, W. (2002). Effects of cooperative learning on achievement and attitude among students of colour. *The Journal of Educational Research*, 95(6), 359–364.
- Walton, G.M., & Cohen, G.L. (2007). A question of belonging: Race, social fit and achievement. *Journal of Personality and Social Psychology*, 92(1), 82–96.
- Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *The Review of Higher Education*, 27(1), 45–73.
- Wood, L.A., & Lithauer, P. (2005). The added value of a foundation programme *South African Journal of Higher Education*, 19(5), 1002–1019.
- Yamarik, S. (2007). Does cooperative learning improve student learning outcomes? *Journal of Economic Education*, 38(3), 259–277.
- Yazedjian, A., Toews, M.L., Sevin, T., Purswell, K.E. (2008). “It’s a whole new world”: A qualitative exploration of college students’ definitions of and strategies for college success. *Journal of College Student Development*, 49(2), 141–154.

APPENDICES

Appendix A

Social Connectedness and Collaborative Learning Scale

Instructions on how to complete the survey:

This survey is part of a study which explores some of the variables, such as social connectedness and collaborative learning, that impact on the performance of students in the AD programme.

Please note that responses to the survey will be stripped of any identifiers, making it anonymous.

This survey contains statements which reflect the various ways in which you may describe your experiences within the Academic Development Programme and at university.

Rate the extent to which you agree or disagree with each statement using the following scale (1=Strongly Disagree, 2=Disagree, 3=Mildly Disagree, 4=Mildly agree, 5=Agree and 6=Strongly Agree).

Please ensure that you do not leave any question marked with an asterik (*) unanswered.

***** Please circle your response *****

1. PeopleSoft ID number:*

--

2. There are people within the academic development (AD) programme with whom I feel a close bond *

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

3. The AD programme's induction helped me develop a sense of belonging with fellow students*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

4. I do not feel that I really belong around the people that I know in the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

5. I feel that I can share my academic concerns with other students in the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

6. I am able to make connections with the diverse group of people within the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

7. I feel no sense of connection with the other students in the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

8. I can relate to other students in the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

9. I do not socialise with students from the AD programme outside of university hours*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

10. I find myself losing all sense of belonging with university life*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

11. I feel a sense of belonging within the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

12. I feel a sense of belonging at UCT*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

13. I feel a sense of brother/sisterhood with the friends that I have in the AD programme *

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

14. Other students in the AD programme make me feel at home on campus*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

15. I regularly participate in study groups with other students in the AD programme*

Strongly Disagree	Mildly Disagree	Disagree
Mildly Agree	Agree	Strongly Agree

16. Participation in group learning assists me in my academic work*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

17. The AD programme provides sufficient opportunities for group learning*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

18. Study groups enhance my academic performance*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

19. I learn best when I study on my own*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

20. I learn best when I study with other students in the AD programme*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

21. The AD programme provides group learning opportunities that have helped me better understand my course material*

Mildly Agree	Agree	Strongly Agree
Strongly Disagree	Mildly Disagree	Disagree

22. I would benefit from additional structured group learning opportunities in the AD programme*

Mildly Agree Agree Strongly Agree
Strongly Disagree Mildly Disagree Disagree

23. Gender*

Male Female

24. Please select your stream*

AD BComm AD BBusSci

25. I am in my ___ of the AD programme.*

1st year 2nd year 3rd year 4th year

26. I have been studying at UCT for ___ year(s)*

1 2 3 4 5

27. I attend ___ of my lectures*

0% 25% 50% 75% 100%

28. I currently live ___ *

In halls of residence In off-campus accommodation At home with family

29. Please state your first language*

Afrikaans English IsiXhosa IsiZulu Other

30. Please state your first additional language*

Afrikaans English IsiXhosa IsiZulu Other

31. Within your immediate family, are you a first generation participant in higher education?*

Yes No

32. What are the factors, if any, that hinder your academic performance in the AD programme? [This question is optional]

33. What are the factors, if any, that promote your academic performance in the AD programme? [This question is optional]

34. Has the AD programme provided you with sufficient support during your studies? If yes, please give examples of how it has done so. [This question is optional]

Note. Social connectedness scale: Reverse score items 3, 6, 8, 9 and sum items 2 – 14.
Collaborative learning scale: Reverse score item 19 and sum items 15 – 22.

Appendix B

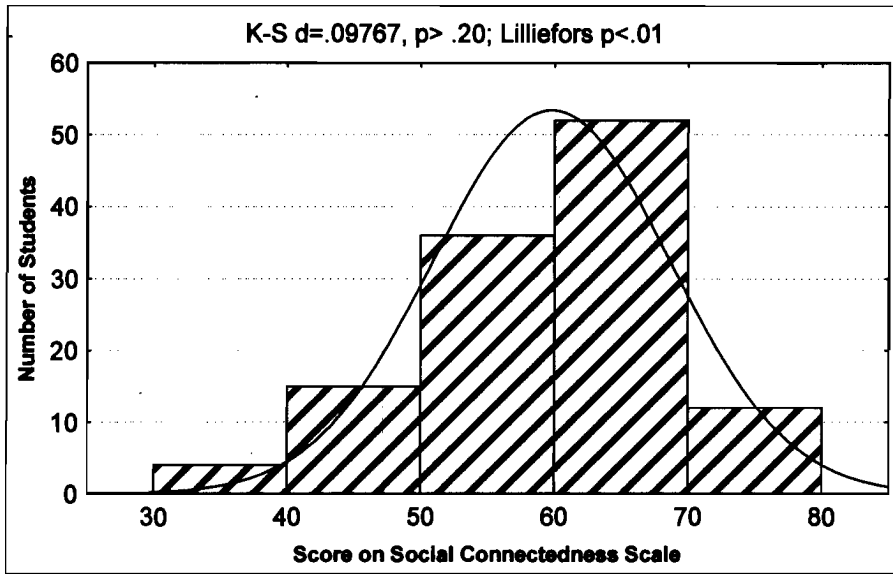


Figure B1. Distribution of scores for social connectedness

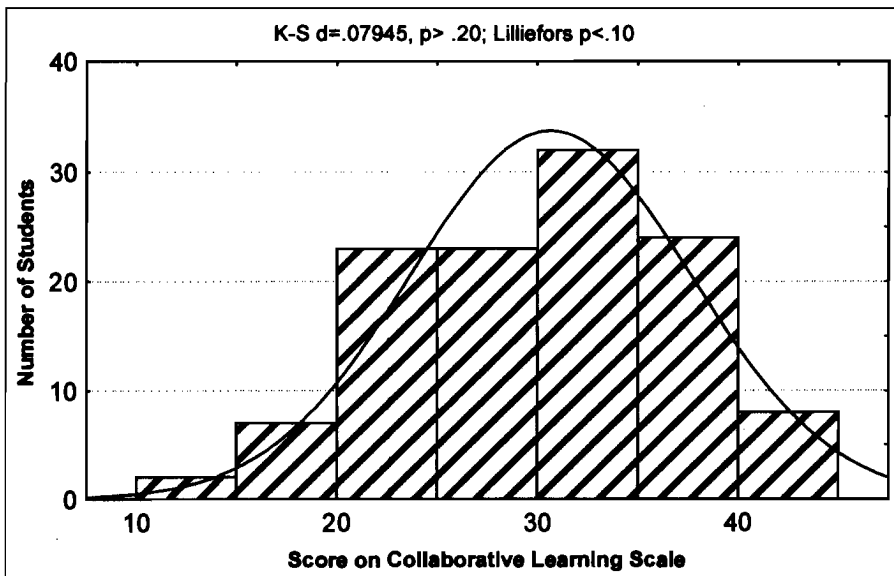


Figure B2. Distribution of scores for collaborative learning

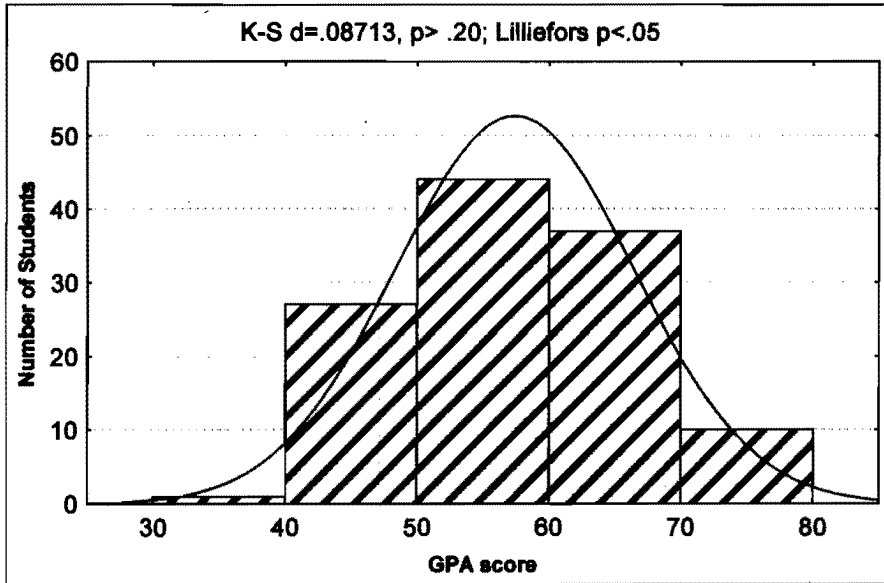


Figure B3. Distribution of scores for GPA