Psychosocial factors and academic performance among first-year financial aid students: Testing adjustment as a mediator variable

By

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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, and has been cited and referenced.

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Abstract

Students eligible to receive need-based financial aid represent a group of students that are of particular concern for universities in post-apartheid South Africa. The academic success of these students is a concern considering the high failure and attrition rates among these students, which represents a huge waste of financial resources for universities. There is however a paucity of literature on the determinants of academic performance among these students. The present study attempted to address the gap in the existing literature by investigating the effect of various psychosocial factors on the academic performance of first-year university students, who were the recipients of need-based financial aid at the University of Cape Town (UCT). The main aim of the present study was to test the hypothesis that adjustment mediates the relationship between students' help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload, and their academic performance. This hypothesis has not been tested previously.

The sample for the present study consisted of 194 of the 465 students considered eligible to participate in the Student Development Programme at UCT. All of these students received need-based financial aid from the university. The sample for the present study consisted of participants between 17 and 28 years (M=19 years) who were mostly 'black' African participants and who mainly spoke an African language as their first language.

Path analysis was utilised to test the hypotheses. The results show that adjustment did not function as a pure mediator. It was found that adjustment mediated some of the effects of the psychosocial factors on academic performance. Academic performance was best explained by the direct and mediated effects of the psychosocial factors. Intrinsic motivation, identified regulation, self-esteem and perceived stress were significant predictors of adjustment. Only extrinsic regulation and academic overload were significant predictors of academic performance. Further analyses revealed that the proposed model, including adjustment as a mediator variable, was more appropriate in

explaining academic performance among male students than among female students. Gender differences in the effect of introjected regulation, self-esteem and perceived stress on adjustment were found. Only amotivation was a significant predictor of academic performance among female students. Adjustment, academic overload and self-esteem were significant predictors of academic performance among male students. Further analyses were conducted to explore the effects of the individual SACQ sub-scales on academic performance. Academic adjustment had a significant positive impact on academic performance whereas social adjustment had a significant negative impact on academic performance.

Chapter 1
Introduction

Research on Financial Aid and University Outcomes

Universities are becoming increasingly concerned with developing ways to increase the access and retention of students, and in ensuring equal educational opportunity to redress past inequalities (Grant-Vallone, Reid, Umali & Pohlert, 2003-2004). Low enrolment and graduation rates are a concern considering the correlation between the level of participation in post-secondary education and economic development (National Plan for Higher Education, 2001). Enrolment, retention and graduation rates are perceived as indicators of institutional efficacy (National Plan for Higher Education, 2001). One strategy that institutions have employed in order to increase access, retention and graduation rates is making financial aid packages available to students. Universities offer various types of financial aid, including institutional grants (merit- and need-based aid), loans and work-study packages (Campos, 2002; Lam, 1999; Gansemer-Topf & Schuh, 2005). Research shows that students' ability to pay university fees and the availability of financial aid are major determinants of enrolment at university (Imenda, Kongolo & Grewal, 2002; Lam, 1999; Redd, 2004). Making financial aid easily accessible also promotes equal educational opportunity by providing financial aid for students with the academic potential to succeed at university but who lack the financial resources to enter university (National Plan for Higher Education, 2001; Redd, 2004).

Much of the literature on students receiving financial aid has focused on the impact of financial aid on enrolment, retention and graduation rates (see Alon, 2005; Braunstein, McGrath & Pescatrice, 2000-2001). The literature mainly addresses how financial aid enables students to "get in the door" with financial aid and whether financial aid helps them "get out the door" or complete university (Campos, 2002, p. 6). The research investigating the impact of receiving financial aid on retention and graduation is however inconclusive (Alon, 2005; Braunstein et

al., 2000-2001). Some studies have found that the receipt of financial aid had a positive impact on retention and graduation (e.g. Lam, 1999; Gansemer-Topf & Schuh, 2005) whereas others have found no impact (e.g. Braunstein et al.; Pedrini & Pedrini, 2001). Much of the literature on the impact of financial aid on university outcomes shows that financial aid has a positive impact on students' retention and graduation rates (Campos, 2002).

Alon (2005), Lam (1999), and Gansemer-Topf and Schuh (2005) indicate the need to take into account the different types of financial aid in investigating the impact of financial aid on retention and graduation. Lam investigated the impact of the receipt of loans and grants, and participation in a work-study package on time-to-degree completion. Lam found that students, who received loans to fund their university studies, took the least time to complete their course of study compared to students who received the other forms of financial aid. Students, who worked in order to fund their studies and did not receive any loans or grants, took the longest time to complete their course of study. Gansemer-Topf and Schuh investigated whether the amount of money spent on institutional grants predicts the retention of first-year students and the graduation rate over a ten-year period. They found that the receipt of institutional grants had a significant impact on retention and graduation rates. The receipt of institutional grants was found to be more important for economically disadvantaged students than non-disadvantaged students.

Alon (2005) suggests that a possible reason for the incongruous findings, with regard to the impact of financial aid on retention and graduation rates, could be the difficulty in controlling the effects of the relationship between financial aid eligibility, and retention and graduation. Recipients of financial aid may differ from non-recipients in several aspects, such as academic preparation and family background, which are independently related to persistence and graduation. For example, family and personal attributes are related to qualifying for financial aid as well as the likelihood of graduating from university. Alon developed models separating the effects of financial eligibility on retention and graduation, from the effects of the actual dollar amount received on retention and graduation. The effects of financial aid eligibility including, 'race', parental level of education, pre-university academic performance, athlete status, sex, number of mentors at

university and institutional selectivity, were controlled. He found that receipt of grants and loans correlated positively with graduation and retention when the effects of financial aid eligibility were controlled.

Alon (2005) also emphasised the need to distinguish between need-based financial aid and merit-based financial aid, as receipt of need-based financial aid indicates a great probability of low socio-economic status (SES) and academic preparation whereas receipt of merit-based financial aid is likely to indicate the opposite. He suggests that need-based financial aid eligibility is likely to be negatively correlated with graduation likelihood whereas merit-based financial aid eligibility is likely to be positively correlated with graduation likelihood.

While much of the literature on financial aid has addressed how financial aid enables students to "get in the door" with aid and whether aid helps them "get out the door", there seems to be a paucity of literature on the experiences of financial aid students while at university (Campos, 2002, p. 6). The only research study on the experiences of financial aid students that could be found was that conducted by Campos. She attempted to address the gap in the existing literature by comparing the quality of life of first-year students receiving financial aid in comparison to non-recipients of financial aid at an American university. In her study, quality of life included four aspects: material possessions, housing, use of time and support mechanisms. Her measure of financial aid included need-based grants, loans, and work-study forms of financial aid. She found significant differences in the quality of life of the recipients of financial aid compared to non-recipients with regard to their material possessions, use of time and support mechanisms with the results favouring non-recipients of financial aid.

Although much research on the impact of financial aid on retention and graduation exists, research investigating the determinants of academic performance among students receiving financial aid could not be found. There is also a paucity of literature on students receiving financial aid at South African universities. The present study attempted to address the gap in the existing literature by investigating the effect of various psychosocial factors on the academic performance of first-year

university students who received need-based financial aid at a South African university.

Students who are eligible to receive need-based financial aid represent a group of students facing challenges that are different from that faced by other students. They are likely to be economically and educationally disadvantaged (Alon, 2005).

Disadvantaged Students in South Africa

In the South African context, disadvantaged students are students who attended historically 'black' high schools[1] (De Villiers, 1999; Huysamen, 2000; Nunns & Ortlepp, 1994; Shochet, 1994). These students are considered to be relatively educationally disadvantaged considering the inequalities in schooling due to the legacy of apartheid (De Villiers, 1999; Huysamen, 2000; Nunns & Ortlepp, 1994; Shochet, 1994). Huysamen (2000, p. 146) states that, "Although the departments of education for the different demographic groups were integrated in 1995, the ill effects of the former DET may still be expected to prevail in the historically black high schools". The ill effects of the racial segregation implemented by the apartheid regime are still apparent in many South African high schools. Students at historically 'white' universities, who attended historically 'black' schools, would

[1] Historically 'black' high schools refer to schools that were previously governed by the departments of the 'black' education system. During apartheid schools were classified according to the four 'race' groups (i.e., 'white', 'black', 'coloured' & 'indian') and were governed by different education departments (De Villiers, 1999; Sennett et al.; 2003). The 'black' education system included the education departments that were designated for the 'coloured', 'indian and 'black' African 'race' groups by the apartheid regime. The four education departments were:

- Department of Education and Culture, House of Assembly (reported to White Own Affairs Minister);
- Department of Education and Culture, House of Representatives (reported to Coloured Own Affairs Minister); Department of Education and Culture, House of Delegates (reported to Indian Own Affairs Minister);
- Department of Education and Training (DET) (reported to Black General Affairs Minister); and,
- Education Department that operated in the homelands and were independent from the South African government.

The education departments received different levels of resources such that the Department of Education and Culture, House of Assembly (reported to White Own Affairs Minister) received the most resources and the DET and independent Education Departments received the least resources (De Villiers, 1999; Sennett et al.; 2003). This resulted in 'whites' experiencing a superior level of education and 'black' Africans experiencing the most inferior level of education (Cloete, 2001; De Villiers; Sennett et al.). The four education departments were done away with in 1991 and a single education system (for the whole country) was established (De Villiers).

thus face the challenge of having to adjust to the cultural and social norms of the university (Leon & Lea, 1988; Honikman, 1982; Sennett, Finchilescu, Gibson & Strauss, 2003). Disadvantaged students are also likely to be 'black' African (according to the apartheid classification system). Nunns and Ortlepp (1994), and Shochet (1994) indicate that 'black' African students are generally considered to be disadvantaged, but that not all 'black' African students should be considered disadvantaged. Neither should it be assumed that only 'black' Africans are economically and educationally disadvantaged, and thus eligible to receive need-based financial aid. Disadvantaged students are also likely to speak English as a second or third language, likely to be first generation students[2], and likely to be under-prepared for university considering the inadequate level of schooling they received (Huysamen, 2000; Sennett et al., 2003; Woollacott & Henning, 2004). Thus students, who are eligible to receive need-based financial aid, represent a group of students that are of particular concern for universities in post-apartheid South Africa.

Educational Context

In post-apartheid South Africa the academic success of students, who receive need-based financial aid, is a particular concern for universities, especially since the high failure and attrition rates among these students represent a huge waste of financial resources for universities (National Plan for Higher Education, 2001).

The South African government has placed great importance on transforming the higher education system in order to redress past inequalities and serve the needs of the South African society. The term "higher education" is the official term used in referring to South Africa's post-secondary education system (De Villiers, 1999).

Higher education in South Africa

The higher education system in South Africa has been described as "a system in transition" (Ndebele, 2004, p.1). The Education White Paper 3 has placed strong emphasis on equity of access to higher education and equity with regard to

[2] First generation students are students who are the first individuals in their families to attend university (Grayson, 1997).

opportunity to succeed within higher education (Hendry, 1998). South African universities are required to respond to the National Plan for Higher Education[3] (2001) by focussing on increasing the enrolment of students, particularly disadvantaged students, and improving retention and graduation rates (Hendry, 1998). Various problems identified in the National Plan include lack of access, poor graduation and retention rates, and high drop-out rates. Drop-out is defined as "students not re-registering even though they have not completed the requirements for their qualifications" (National Plan for Higher Education, 2001, section 2.1.3).

The National Plan (2001, section 2.1.3) indicates that while higher education institutions have been successful in meeting the goal of equity of access, "the total growth in graduates has not kept pace with enrolment growth in higher education", with 17 % as the average graduation rate for universities in the period 1993 – 1998. The National Plan (2001, section 2.1.3) defines the average graduation rate as "the number of graduates as a percentage of head count enrolments". An annual drop-out rate of 20% is reported for undergraduate and post-graduate students and an average of 25% for first-time entering students (National Plan for Higher Education, 2001). The overall quantity and quality of graduate outputs has been identified in the National Plan as an indicator of the overall effectiveness and efficiency of the higher education system. It is reported in the National Plan that a drop-out rate of 20% costs the government about R1,3 billion in subsidies each year for students who do not complete their study programmes. Higher education institutions in South Africa also have relatively high failure rates, particularly among undergraduate students (Ferreira, 1995; Ochse, 2001). According to Hendry (1998), the World Bank has identified poor graduation rates, and high repetition and drop-out rates (including both academic exclusion and voluntary withdrawal) as key factors that tend to increase costs per graduate. According to Bean (1990a as cited in Hendry, 1998), the university looses three years (or four years in the case of four-year bachelors' degree programmes) of potential fee income when a single bachelors' student drops out during his/her first-year of study. Thus high repetition and drop-out rates are costly, representing wasted resources and are indicators of

[3] The National Plan for Higher Education (2001) provides the strategic framework for the transformation of the higher education system in South Africa in implementing and realising the goals set-out in the Education White Paper 3: A Programme for the Transformation of Higher Education (1997).

poor institutional performance. South African universities have thus become increasingly concerned with developing ways to increase retention and graduate output in order to achieve the goals outlined in the National Plan. Historically 'white' universities, such as the University of Cape Town (UCT), where this study is located, are faced with the particularly difficult task of developing ways to improve retention and graduation rates, and redress past inequalities, against a backdrop of diminished government funding (Hendry, 1998).

The National Plan (2001) has emphasised the importance of taking the South African context into account in addressing the underlying factors contributing to retention and graduate output. Honikman (1982) suggests that the university should be seen as a micro-society, experiencing problems generated in the macro-society.

The long-term plan to redress pass inequalities and increase retention and graduation rates at South African universities, as communicated in the National Plan (2001), highlights the need for universities to re-examine the factors that determine students' academic success and failure (Fraser & Killen, 2005). The South African government has emphasised the need for universities to go beyond the 'numbers game' of merely increasing access for disadvantaged groups into a static system (a process referred to as the 'massification' of higher education) because this sets people up for failure (Fraser & Killen, 2005, p. 26). The National Plan emphasised the need to address the underlying factors that contribute to low retention and graduation rates, including inadequate schooling, under-preparedness for university and students' lack of financial resources to fund their academic studies. The National Plan has proposed three strategies (amongst others) to address the underlying factors contributing to low retention and graduation rates: improving the quality of schooling to adequately prepare learners for university; making financial aid easily accessible to disadvantaged students; and increasing funding for the implementation of academic development and support programmes aimed at assisting under-prepared students to bridge the gap between high school and university compensating for inadequate schooling.

Condition of schools in South Africa

Although apartheid was abolished more than ten years ago, the effects of inequality are still apparent in post-apartheid South Africa (De Villiers, 1999; Nunns & Ortlepp, 1994; Sennett et al., 2003). Even though efforts have been made to redress inequalities, backlogs in education still exist (Bujowoye, 2002; De Villiers, 1999; Sennett et al., 2003). The South African education system is still suffering the effects of the unequal distribution of resources under the apartheid regime that has resulted in schools that previously formed part of the 'black' education system in the apartheid era, being under-resourced. Masehela (2005), who spent a week testing Grade 3 learners at seventeen schools in a rural area in KwaZulu-Natal as part of the Assessment Modelling Initiative project, described the situation of the schools as appalling. Masehela (2005, p. 8) states that, "Despite government policies, resources, and structures to alleviate poverty and improve the quality of education, it appears that nothing has filtered down to the poor." The chronic underfunding of the departments of the 'black' education system during apartheid has resulted in many of the schools that had previously formed part of this system being, in a situation that is not conducive for teaching and learning (Hendry, 1998; Huysamen, 2000; Masehela, 2005; Miller, Bradbury & Pedley, 1998). Many of these schools are overcrowded and lack adequate facilities, textbooks, and qualified teachers.

Students from economically and educationally disadvantaged backgrounds are at a disadvantage when applying to study at university. Cabrera and La Nasa (2001) state that the likelihood of high school learners continuing on to attend university depends on the completion of three critical tasks: (a) acquiring at least minimal university qualifications at high school; (b) passing Grade 12 (i.e. matric); and (c) applying for study at university. They state that the process of completing high school and attending university among socially and economically disadvantaged high school learners "can best be characterised as hazardous" (p. 119). Chisholm (2004) reported that less than 40% of learners in South Africa, who enrolled for Grade 1 in 1991, reached Grade 12 in 2002. Only 13.7% of learners in South Africa, who make it to Grade 12, proceed to enter higher education. Cabrera and La Nasa state that little change in the participation of economically disadvantaged students will take place as long as schools lack adequate resources necessary for

preparing such students for university. Research on the experiences of economically disadvantaged students shows that these students are likely to be under-prepared for university (Redd, 2004).

Woollacott and Henning (2004) defines under-preparedness as the condition where a student, entering an educational programme at a higher education institution, possesses knowledge and competencies that compare negatively with the knowledge and competencies on which that educational programme is based. According to these authors, under-preparedness "carries with it the implication that the student's innate ability may be masked by deficiencies in knowledge, skills and academic proficiencies, that they are likely to perform below their potential and, in a significant number of cases, will fail when they may have the ability to pass" (p. 3). Under-prepared students may not perform well at university due to an inferior level of schooling and not because of a lack of sophistication or a deficiency in his/her cognitive functioning.

Miller, Bradbury and Acutt (2001) and Woollacott and Henning (2004) indicate that under-prepared students should not be perceived as a homogenous group. Miller et al. found that not all of the students who participated in a foundational programme improved in academic performance. They conducted a longitudinal study that assessed the effects of participation in a tutorial-based foundational programme for first-year Psychology students at the University of Natal. The foundational programme was designed to enhance students' academic performance. They found that students, who had performed well in their third academic year, had improved in the foundation programme whereas those students, who had failed in their third academic year, had declined in academic performance over the course of the foundational programme. This was despite the fact that all of the students, who had participated in the programme, showed initial competence levels to succeed at university. This indicates that not all of the students, who show initial competence levels to succeed at university, will improve in academic performance after participating in academic development and support programmes (Miller et al., 2001). Miller et al. thus cautioned against using the label 'under-prepared' in a global and undifferentiated way. Woollacott and Henning (2004) reported on the foundation and extended programmes for Chemical and Metallurgical Engineering

students at the University of the Witwatersrand. They also found differences in performance among under-prepared students. They distinguished between severely and moderately under-prepared students. These two groups of students were found to have divergent needs and thus separate programmes were developed.

Academic development and support programmes

Implicit in the notion of under-preparedness is the perception that under-preparedness is not a fixed state but a temporary condition that can be reversed by appropriate intervention (Miller et al., 2001). Universities have thus introduced various programmes to assist under-prepared students. According to Miller et al. (2001, p. 147), "the main theoretical construct that is embedded in the discourse of academic development is the notion of academic under-preparedness".

Universities in South Africa have introduced various interventions aimed at dealing with the problem of under-preparedness of first-year students. The design of the different interventions vary from programmes aimed specifically at assisting students to bridge the gap in the specific content of a course, to programmes aimed specifically at facilitating students' adjustment to university and equipping them with necessary life-skills (Miller et al., 2001). There is, however, some overlap in the nature of the different programmes (Woollacott & Henning, 2004). According to Woollacott and Henning, all programmes dealing with under-preparedness focus on developing students' academic proficiency. They defined academic proficiency as "the ability to function effectively in a tertiary learning environment" (p. 3). The typical proficiencies that students require in order to function effectively at university include learning and study skills, note-taking skills and appropriate motivation (Woollacott & Henning, 2004). Academic proficiency also includes life-skills such as time-management, social skills, the ability to adapt to the unfamiliar university environment and the awareness of the facilities available and how to access those facilities (Woollacott & Henning, 2004). The ultimate aim of academic development programmes is "to bring about enduring cognitive changes" reflected in improved levels of academic performance (Miller et al., 2001, p. 147).

The different types of interventions aimed specifically at assisting students to bridge the gap in the specific content of a course of study offered by universities are

referred to as academic development programmes. Academic development programmes include access, bridging, foundation and extended programmes[4]. Evaluations of academic development programmes offered by some universities in South Africa, show that the programmes have been successful in improving the students' academic performance (e.g. De Boer & van Rensburg, 1997; Miller et al., 2001; Woollacott & Henning, 2004).

The different types of interventions aimed specifically at facilitating students' adjustment to university and equipping them with necessary life-skills that are offered by universities are referred to as student development programmes. Student development programmes include mentoring and workshops/group programmes. Evaluations of student development programmes offered by some universities in South Africa show an improvement in the quality of the students' adjustment to the university and the development of various life-skills (e.g. Du Rand, 1998; Nienaber, 1992; Schreiber, 1998; Wassenaar, 1997). Some of the evaluations also show that the students, who participated in the particular programmes, tended to perform well academically (e.g. Du Rand, 1998; Schreiber, 1998).

The chronic underfunding of the 'black' education system in South Africa during the apartheid era has resulted in the schools that had previously formed part of this system being under-resourced. The inadequate level of schooling provided by these schools may undermine students' preparedness for university. The South African government has emphasised the need for universities to re-examine the factors that determine students' academic success and failure, particularly for disadvantaged students, so that increased access to university does not lead to a 'revolving door' syndrome for students (Education White Paper 3, 1997, section 2.29).

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[4] Woollacott and Henning (2004) provide a description of the various types of academic development programmes. An access programme assists under-prepared students who do not meet the required entrance qualifications to a university programme. Bridging and foundation programmes have the common aims of assisting students to gain necessary knowledge and skills in order to improve their chances of success in their studies at university. The difference between bridging and foundation programmes is that foundation programmes recognise that the problem of under-preparedness, for a particular course of study, is not so much a gap in knowledge and skills, but about an inadequate foundation for learning. An extended programme is a foundational programme that runs parallel to and is integrated into the main stream course programme and allows learners to obtain main stream credits.

Academic Performance

Much research shows that academic performance is a major determinant of retention and graduation (Bean, 1985; Boulter, 2002; Braunstein et al., 2000-2001; Lam, 1999; Nonis & Wright, 2003; Pascarella & Terenzini, 1991; Pedrini & Pedrini, 2001). Academic performance has been referred to as the single most revealing indicator that a student is coping with the academic demands of the university and is thus likely to graduate (Pascarella & Terenzini, 1991). Dass-Brailsford (2005) suggests that in the South African context, academic performance can be seen as an indicator of resiliency for disadvantaged students as it is an accomplishment of an important development task.

Predicting academic performance is of particular concern in the South African context considering the high failure and drop-out rates of first-year, particularly disadvantaged students at university (Miller et al., 1998). Universities in South Africa are facing the challenging task of developing ways to increase the enrolment and retention of disadvantaged students against a background of limited financial resources (De Villiers, 1999; Hendry, 1998).

De Villiers (1999) indicates that there is a lack of success in predicting the academic performance of disadvantaged students because of the static view of the determinants of academic performance. Much of the research on academic performance shows that cognitive factors, particularly matric grades (i.e. pre-university grades), are the most reliable predictors of academic performance (see Bean, 1985; De Villiers, 1999; Nunns & Ortlepp, 1994). Matric grades have been shown to predict most of the variance in academic performance. Cognitive factors include intelligence, aptitude and matric grades (De Villiers, 1999; Pascarella & Terenzini, 1991). Matric grades are the traditional selection criteria for entrance into South African universities, as it is assumed that matric grades adequately reflect students' academic potential and readiness for university (Fraser & Killen, 2005; Nunns & Ortlepp, 1994; Shochet, 1994). Matric grades are not only used as an indicator of learners' academic potential for university, but also as an important benchmark for measuring learners' academic performance and the standard of

education in South Africa (Kanjee, 2004). The research on the impact of matric grades on academic performance in South Africa has mirrored that of other countries (e.g. United States of America and the United Kingdom). De Villiers (1999) and Nunns and Ortlepp (1994) found that students (in the South African context), who had high matric grades performed well in terms of academic marks at university.

Research on the correlation between matric grades and academic performance does, however, show contradictory results. Hendry (1998) investigated the academic performance and retention of university students at a South African university. She found that in the BA/BSocSc cohort, neither the matriculation authority nor the faculty point score (based on matric grades) were associated with the students' final undergraduate academic performance within this cohort. Huysamen (2000, 2002) investigated whether matric grades or academic grades at university were better predictors of subsequent academic performance. Huysamen found that disadvantaged students' (mainly 'black' African students) first-year academic performance was a better predictor of academic performance in subsequent years than the students' matric grades in comparison to non-disadvantaged students (i.e. 'white' students).

Huysamen (2000) investigated the late blooming hypothesis in predicting the academic performance of disadvantaged students at a South African university. The late blooming hypothesis, developed in the United States of America, postulates that minority students would show greater improvement in the students' academic performance from their first academic year to their final academic year at university in comparison to non-minority students due to the academic and social acculturation of minority students at university (Huysamen, 2000). Huysamen suggests that, in the South African context, the late blooming hypothesis postulates that as students from historically 'black' high schools adjust to the demands of university life, are exposed to qualified university lecturers with a better command of the English language, participate in academic support services, and develop more effective study methods, their academic performance will increasingly overlap with the academic performance of students from historically 'white' high schools. The results of Huysamen's (2000, 2002) studies support the late blooming hypothesis.

Disadvantaged students showed improvement in their academic performance from their first to final academic year, and succeeded in narrowing the gap between their academic performance and that of their counterparts from non-disadvantaged backgrounds. The disadvantaged students' academic performance in second year was a better predictor of academic performance in third year than their academic performance in their first year. Huysamen indicates that a major limitation of these studies, which may have diminished the significance of the findings, is that only students who progressed through to their final academic year were included in the studies. Thus students who failed an academic year (or more) or dropped out of university were excluded from the studies.

The late blooming hypothesis postulates that disadvantaged students' under-preparedness could be remedied by participating in academic development and support programmes offered by universities (Huysamen, 2000, 2002). Thus universities globally have introduced academic development and support programmes to assist under-prepared students in bridging the gap between high school and university, and in reaching their full academic potential at university (Redd, 2004).

According to Chisholm (2004), De Villiers (1999), Fraser and Killen (2005), Nunns and Ortlepp (1994), and Shochet (1994), it is questionable whether matric grades obtained via a disadvantaged social and educational system, which is the case with many South African schools, is a fair and accurate indication of the students' academic potential. These authors suggest that more appropriate criteria be used for admission to university considering the condition of schools in the context of post-apartheid South Africa. Chisholm, in her article discussing the proceedings of a colloquium on the quality of the South African educational system and the school-leaving certificate, showed the necessity of finding alternative criteria for admission to university. Finding alternative admissions criteria is particularly important considering the recent change in the school curriculum and the imminent change from the Matric Certificate to the Further Education Training Certificate (FETC), which was developed specifically for the South African context. The FETC will replace the Matric Certificate in 2008.

De Villiers (1999) and Pascarella and Terenzini (1991) indicate that although cognitive factors have been shown to be major determinants of academic performance at university, cognitive factors on their own are not appropriate for determining the academic performance of disadvantaged students. Various authors (e.g. De Villiers, 1999; Malefo, 2000; Pascarella & Terenzini, 1991; Pavlich, Orkin & Richardson, 1995) suggest that non-cognitive factors play an important role in predicting the academic performance of disadvantaged students, considering their social and educational backgrounds. Non-cognitive factors include motivation, personality, learning strategies and attitude (De Villiers, 1999). Although there is much literature on the possible determinants of the academic success among disadvantaged students, there is a paucity of empirical research in this area (Miller et al., 1998).

The present study aimed to investigate the effect of various psychosocial factors on the academic performance of disadvantaged students receiving need-based financial aid at UCT. The psychosocial factors included in the study were: help-seeking behaviours, academic motivation, self-esteem, perceived stress, academic overload and adjustment to university. All of the factors, except academic workload and perceived stress, were identified by Robbins, Lauver, Davis, Davis, Langley, & Carlstrom (2004) in their meta-analysis in which they examined the relationship between psychosocial and study skill factors and university outcomes (i.e. academic performance and attrition). They identified nine broad constructs of psychological and study skill factors: achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general self-concept, academic-related skills, and contextual factors (i.e. financial support, size of institutions, and institutional selectivity). These nine constructs were based on the dominant educational and motivational theories and study skill factors.

The two factors that do not form part of the nine constructs and were included in the present study were academic overload and perceived stress. Academic overload and perceived stress have been identified as important factors influencing the experiences and academic success of disadvantaged students, and more particularly

'black' students at predominantly 'white' universities (Prillerman, Myers & Smedley, 1989; Malefo, 2000).

Determinants of academic performance in the present study

Robbins et al. (2004) attempted to integrate the dominant educational and motivational theories on university outcomes in determining what constitutes university outcomes and in identifying their nine constructs. Robbins et al. (2004, p. 261) state that, "Conceptual confusion occurs when defining college success and its determinants". They identified academic performance and persistence as the two major indicators of university outcomes to be measured in their meta-analysis. Robbins et al. state that the literature investigating university outcomes has varied in the saliency of adjustment to university. Some studies have measured adjustment as an outcome variable indicating academic success whereas others have measured adjustment as a predictor variable for academic performance and/or persistence. Robbins et al. included adjustment as a predictor variable. The present study proposes that adjustment mediates the effect of help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload on academic performance among disadvantaged students.

Dominant educational theories

The premise that the quality of the students' adjustment to university mediates the effect of the various psychosocial variables on academic performance is supported by the most dominant educational theories that form the conceptual framework for numerous studies on university outcomes, and the literature on the academic performance of 'black' students at predominantly 'white' universities (with particular focus on the problem of person-environment fit). According to Cabrera, Castaneda, Nora and Hengstler (1992) and Robbins et al. (2004), the dominant educational theories predicting university outcomes are that of Tinto (1975, 1985) and Bean (1985). These theories also emphasise the importance of the integration of students into the university environment and their commitment to the university in determining university outcomes.

Tinto (1975, 1985) developed a longitudinal model, that is, the student integration model, predicting students' voluntary withdrawal from higher education. Tinto

proposed that the students' family backgrounds (e.g. SES), individual attributes (e.g. personality and attitudinal attributes) and pre-university schooling (e.g. educational environment), influence their social and academic integration into the university environment (Pascarella & Terenzini, 1980, 1983; Stoecker, Pascarella & Wolfle, 1988; Tinto, 1975, 1982, 1985). The students' social and academic integration into the university environment in turn influences their goal and institutional commitment, which affects their decision to voluntarily withdraw from university (Robbins et al., 2004; Tinto, 1975, 1982, 1985).

Bean (1985) developed a longitudinal model, that is, the student attrition model, predicting drop-out from higher education. He defined drop-out as the failure of students enrolled at a university to enrol at the same university the following semester, and excludes students transferring to other higher education institutions and students who had graduated from the university. He emphasised the importance of including intent to drop-out, discussion of intent to drop-out and actual drop-out figures in measuring persistence, and referred to this measure of persistence as 'drop-out syndrome' (Bean, 1985, p. 36).

Tinto and Bean's theoretical models have several factors in common (Cabrera et al., 1992). The similarities are that both models postulate that the process of persistence involves a series of complex interactions between students and their institutional environments over time, and that the students' pre-university characteristics influence their social and academic integration into the university environment (Cabrera et al, 1992). Both models emphasise the important role that the fit between the students and their institutional environment plays in the students' social and academic integration into the university environment, and the importance of the students' social and academic integration in predicting persistence (Bean, 1985; Cabrera et al, 1992; Robbins et al., 2004). Tinto's model is essentially a variation of the theory of person-environment fit as the students' academic and social integration are of primary explanatory importance in the model (Pascarella & Terenzini, 1983). Bean (1985, p. 60) states that the student attrition model is consistent with that of Tinto's model in that both models propose "the theoretical foundation that socialization is a dominant force in influencing dropout decisions".

Tinto and Bean's models differ in that Tinto proposed academic performance at university as an indicator of academic integration into the university environment, whereas Bean proposed academic performance as an intervening variable resulting from certain psychosocial processes (Cabrera et al., 1992). Another major difference between Tinto and Bean's models is their definition of drop-out. Tinto measured voluntary withdrawal whereas Bean measured all forms of drop-out (excluding students transferring to other higher educational institutions and those who graduated), and emphasised the importance of the effect of students' intent to drop-out and their open discussion of their intent to drop-out on persistence (Bean, 1985; Cabrera et al., 1992).

Cabrera et al. (1992) empirically investigated the convergent and discriminant validity between the student integration model and the student attrition model. They found that although the student integration model was found to be more robust than the student attrition model, the findings yield complementary explanations. They concluded that a model integrating the key factors in each theory may explain the process of persistence better. Even though various studies have used the student integration model as the foundation for exploring university outcomes among disadvantaged students (e.g. Malefo, 2000), the model was mainly developed to explain the persistence process of traditional students (Cabrera et al., 1992). It is thus necessary to consider the literature focussing specifically on the experience of disadvantaged students in establishing the key determinants of academic performance among these students.

'Black' students at predominantly 'white' universities

The literature investigating university outcomes among disadvantaged students indicate the importance of drawing from multidimensional theories of stress, coping and adjustment in investigating the determinants of the academic performance of disadvantaged students, and more particularly 'black' students attending historically 'white' universities (Malefo, 2000; Prillerman et al., 1989). According to Prillerman et al., the central concepts that emerge from the literature on 'black' students attending historically 'white' universities are stress, coping and adjustment. Chartrand (1990) states that the person-environment fit theories essentially propose that a successful fit between an individual and his/her

environment results in enhanced academic performance and adjustment. The problematic person-environment fit between 'black' students and the environment of historically 'white' universities has to be taken into account in investigating the academic performance of such students (Malefo (2000); Prillerman et al., 1989). Much research on the experiences of 'black' students attending historically 'white' universities exists (see Adan & Felner, 1995; Cheatham, Slaney & Coleman, 1990; Honikman, 1982; Jay & D'Augelli, 1991; Leon & Lea, 1988; Sennett et al., 2003). The research shows that 'black' students attending historically 'white' universities often experience greater difficulty adjusting to the social and academic demands of the university than 'black' students at historically 'black' universities (e.g. Adan & Felner, 1995). Students attending universities with environments that are congruent with the environments of the schools they attended and/or their community environment, tend to adjust better in the transition from high school to university and tend to achieve better academic success (i.e. better academic performance and persistence) compared to students who find a lack of congruency (Bean, 1985; Pascarella & Terenzini, 1980, 1983; Stoecker et al., 1988; Tinto, 1975, 1985).

Tinto and Bean's theories, and the literature on the academic performance of 'black' students at predominantly 'white' universities (with particular focus on the problem of person-environment fit) indicate the key role of students' social and academic integration into the university, and adjustment to the social and academic demands of the university in determining university outcomes among disadvantaged students.

Further support for the suggestion that the quality of the students' adjustment to university mediates the effect of the various psychosocial variables on academic performance is provided by numerous empirical studies demonstrating that the psychosocial variables included in the present study have a significant impact on adjustment and academic performance (e.g. Baker, 2003, 2004; Boulter, 2002; Chambel & Curral, 2005; Crocker & Luhtanen, 2003; DeStefano et al., 2001; Du Rand, 1998; Grant-Vallone et al., 2003-2004). There is much evidence indicating that adjustment is a key determinant of academic performance, particularly among disadvantaged students (see Baker & Siryk, 1989; Dahmus & Bernardin, 1992; Prillerman et al., 1989; Sennett et al., 2003; Strahan, 2003). Disadvantaged

students have been shown to face various challenges that traditional students do not face in 'bridging the gap'. Various interventions aimed at assisting disadvantaged students in 'bridging the gap' from high school to university, focus on facilitating these students' adjustment to university. Such interventions generally operate on the assumption that facilitating under-prepared students' adjustment to university, thus assisting them in dealing with the academic, social and personal-emotional demands of the university, assists these students in performing well academically and persisting with their academic studies (e.g. Schreiber, 2003).

The premise that the quality of the students' adjustment to university mediates the effect of the various psychosocial variables on academic performance is also supported by the late blooming hypothesis, which postulates that (in the South African context) as disadvantaged students become integrated into the academic and social environment and adjust to the demands of university life, their academic performance will increasingly overlap with the academic performance of non-disadvantaged students.

As the above discussion shows, there is thus strong theoretical and empirical evidence supporting the suggestion that the quality of adjustment to university mediates the effect of students' help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload on academic performance among disadvantaged students (Bean, 1985; Prillerman et al., 1989; Tinto, 1975, 1985).

The adjustment of first-year students, with particular focus on disadvantaged students, and the effect of adjustment on academic performance will first be discussed. Secondly, the effect of each of the psychosocial factors included in the present study on adjustment and academic performance will be discussed.

Transition from High School to University

The transition from high school to university has been described as a particularly stressful life change (Baker, 2003, 2004; Bojuwoye, 2002; Earwaker, 1992; Gelman, 1999; Honikman, 1982; Jay & D'Augelli, 1991; Sennett et al., 2003; Urani, Miller, Johnson, Petzel, 2003). The transition has been described as a process requiring students to adapt to a host of demands including academic, social and personal-emotional demands (Baker, 2003, 2004; Baker & Siryk, 1989; Honikman, 1982; Leon & Lea, 1988). Research on adjustment to university has identified various factors influencing the adjustment difficulties experienced by first-year students including, social isolation, academic demands, poor schooling, and financial difficulties. Adjustment is defined as a multi-dimensional process of interaction between an individual and his/her environment in an attempt to bring about harmony between the demands and needs of the individual and his/her environment (Baker & Siryk, 1984, 1989; Mouton, 1988).

The transition from high to university involves both danger and opportunity for each student (Rickinson, 1998). Individual experiences of and reactions to the transition differs (Bojuwoye, 2002; Rickinson, 1998; Urani et al., 2003; Woosley, 2003). Some students find ways to adapt and cope with the demands of the university whereas other students may feel overwhelmed and unable to cope (Gerdes & Mallinckrodt, 1994). Research shows that disadvantaged students are particularly vulnerable to adjustment difficulties during the transition. In the South African context, disadvantaged students are students who attended schools that had previously formed part of the 'black' education system, are likely to be classified as 'black' African using the apartheid classification, are likely to speak English as a second or third language, are likely to be first generation students, and are likely to be under-prepared for university.

Adjustment of disadvantaged students

Disadvantaged students may have to adjust to a university environment that is often vastly different from their previous school and home environments. They would have to adjust to the physical, emotional, social and academic demands of the new environment. Most disadvantaged students have to make transitions from an impoverished (often rural) environment to an urban environment and are required to adjust to the new institutional culture that is likely to be different from their own cultures (Bojuwoye, 2002; Miller et al., 1998; Sennett et al., 2003). Many students coming from impoverished backgrounds experience the physical environment of the university as intimidating and alienating, as they often come from environments that have simple buildings (Bojuwoye, 2002). The size of the university may also affect students' adjustment to the university as students at big institutions have less opportunity for active interpersonal contact and are thus less socially integrated (Pascarella & Terenzini, 1991). In the South African context many students, particularly 'black' students at historically 'white' universities, would also come in close contact with students from different 'racial' and cultural groups for the first time due to the legacy of apartheid's racial segregation policy. These students are thus more likely to experience loneliness, social isolation and alienation in the transition from high school to university. Here alienation is defined as "the outcome of one's holding values highly divergent from those of the social collectivity, and ... insufficient personal interaction with the other members of the collectivity" (Loo & Rolison, 1986, p. 60). These students are at risk of experiencing social anxiety (Bojuwoye, 2002; Earwaker, 1992; Rickinson, 1998). Strahan (2003), who investigated the effect of social anxiety on adjustment among undergraduate students at an American university, found a significant negative correlation between social anxiety and adjustment.

The literature on 'black' students[5] attending predominantly 'white' universities show that 'black' students experience greater difficulties in adjusting to the new environment than their 'white' counterparts. Various studies investigating the adjustment experiences of African American students at predominantly 'white' universities have been conducted. Jay and D'Augelli (1991) explored the social

[5] In this case the term 'black' students refers to 'black' African students in the South African context and African American students in the American context.

support patterns of African American students at a predominantly 'white' university in comparison to their 'white' counterparts. They found a significant difference between African American students and 'white' first-year students with regard to the social support that they felt were available to them. The 'white' students reported the availability of more support. Another significant difference found was that the African American students showed lower levels academic achievement than their 'white' counterparts. Social support was not, however found to be directly related to academic adjustment. Adan and Felner (1995) investigated the influence of prior interracial experiences on first-year student's ability to cope with the demands of the university environment. They investigated the experiences of first-year African American students at both predominantly 'black' and 'white' universities. They found that for students at the predominantly 'white' universities, higher levels of prior interracial experiences were associated with better adjustment whereas at the predominantly 'black' universities, lower levels of prior interracial experiences were associated with better adjustment. They suggest that African American students at the predominantly 'white' universities generally experience more adjustment difficulties than their 'white' counterparts or African American students at predominantly 'black' universities. Students experiencing the best 'fit' between their previous environment and their current environment (at university) had better adjustment results.

Similarly, in the South African context, 'black' students attending predominantly 'white' universities have been reported to be particularly vulnerable in the transition to university. Sennett et al. (2003) investigated the adjustment experiences of 'black' African first-year students in comparison to 'white' first-year students at UCT, which is a predominantly 'white' university and is the context for the present study. It was found that the 'black' African students achieved significantly lower scores for social adjustment than did their 'white' counterparts. Sennett et al. (2003, p. 113) suggest that the "'black' African students were relatively less socially integrated into the university environment." They suggest that the fact that these students have fewer support structures could have contributed to this situation. Sennett et al. also found a tendency for the 'black' African students to display lower levels of personal-emotional adjustment than their 'white' counterparts.

Many of the 'black' African first-year students and most of the students receiving need-based financial aid at UCT often reside in the residences on the university campus (Sennett et al., 2003). Many students, particularly students living away from home, may feel disconnected from previous sources of support (e.g. family, friends, community, etc.) (Earwaker, 1992). Developing their own network of support can be difficult and may take time. These students may experience difficulty adjusting to university, which may result in feelings of homesickness and an intense desire to return home (Urani et al., 2003). Burt (1993) investigated the effects of the experience of homesickness on academic performance and ability to concentrate. He found that the experience of homesickness may reduce the ability to concentrate, but did not have a significant effect on academic performance. Woosley (2003) found that students, who thought that they were adjusting well, had made friends and were satisfied with their social life during the first three weeks of university, were more likely to complete a degree.

Feelings of alienation, lack of social support and homesickness may also adversely affect students' sense of belonging at the university, and thus their attachment or commitment to the university. Students' attachment or commitment to the university they attend has been found to have a direct effect on university outcomes, such as adjustment and persistence (see Baker & Siryk, 1984, 1989; Gerdes & Mallinckrodt, 1994; Loo & Rolison, 1986).

Disadvantaged students are likely to be first generation students. Research on the experiences of first generation university students suggests that such students face various challenges not experienced by traditional students (Grant-Vallone et al., 2003-2004; Grayson, 1997). For example, Grayson compared the experiences (i.e., social and academic involvement) and academic performance (i.e., GPA) of first generation and traditional students at a Canadian university. He found that the first generation students showed lower levels of involvement in cultural activities at university, reported spending fewer hours per week on the university campus, and reported less involvement in university clubs/organizations and non-required academic activities (e.g. attending seminars by guest lecturers) in the two months preceding the survey than the traditional students. Grayson concluded that first generation students were only slightly disadvantaged with regard to academic

performance as lower levels of involvement in lubs/organizations and other social activities at university positively contributed owards academic performance as these types of social involvement were found to detract from academic performance. The results of Grayson's study also suggest that first generation students experience a lower level of attachment to the university they attend.

First generation students are also likely to have less encouragement, support, guidance and expectations from their parents and peers; fewer role models, and are more likely to feel isolated. Parental knowledge of higher education and parental level of education was found to be more important than the saliency of higher education institutions, financial considerations, high school academic resources, students' academic abilities, and students' educational and occupational aspirations in influencing economically disadvantaged students' decision to enrol at university compared to students of high SES (Cabrera & La Nasa, 2001). Cabrera and La Nasa found that economically disadvantaged American students' parents had lower levels of education and were less knowledgeable about the requirements for entering university, the methods for financing education, etc. compared to the students of high SES. The parents of low SES were therefore less likely to be aware of the long-term benefits of attending university and were thus less likely to encourage their children to attend university. Students who receive less encouragement, support, guidance and expectations from their parents, are thus likely to experience greater difficulty in their social and academic adjustment than traditional students, considering that they also report less involvement in social and academic activities at university. Grant-Vallone et al. (2003-2004) indicate the need for providing social and emotional support to first generation students (such as peer mentoring and counselling programmes) as social support is just as important as academic support in the retention of first generation students.

Other factors that affect the adjustment of disadvantaged students include the experience of financial difficulties and speaking English as a second or third language.

Concerns about financial difficulties may be an additional source of stress for first-year students (Earwaker, 1992; Maxwell, 1979). Bojuwoye (2002) investigated the

adjustment of students at various South African universities. The study identified various aspects of university life that the students reported as causing them intense psychological pressure affecting their physical and mental well- being, and level of confidence. The aspects of university life that the students reported as most stressful are, namely, financial difficulties and factors associated with the physical environment (e.g. the physical structure and situation in relation to the rest of society).

Students, who speak English as a second or third language, are likely to experience difficulty in understanding the required reading material, lecturers, tutors and examination questions (Bojuwoye, 2002; von Gruenewaldt, 1999; Miller et al., 1998). In this way, language difficulties may affect the students' ability to cope with the various educational demands that are characteristic of the university experience, and thus their academic adjustment.

Research on the adjustment of first-year students to university shows significant positive correlations between academic adjustment and academic performance (Baker & Siryk, 1984, 1989; Dahmus & Bernardin, 1992; Sennett et al., 2003; Strahan, 2003). Beyers and Goossens (2002) found that academic adjustment did not, however, significantly correlate with academic performance in the sample of students at a European university. Baker and Siryk (1984, 1989) also found significant correlations between personal-emotional adjustment and general adjustment (including academic, social and personal-emotional adjustment and institutional commitment), and academic performance. Baker and Siryk did not find a significant correlation between social adjustment and academic performance. Sennett et al. also found significant positive correlations among students' social, personal-emotional and general adjustment, and institutional commitment and academic performance (Sennett et al., 2003). They compared the adjustment of 'black' African students with 'white' students and found that the only difference in adjustment between these two groups was that social adjustment had a significant association with academic performance for the 'black' African students and not the 'white' students. Baker (2003) conducted a longitudinal study investigating social problem-solving, adjustment, perceived stress, health, motivation and academic performance among undergraduate students at a university in the United Kingdom.

Baker found that adjustment was a significant predictor of academic performance in that sample.

There is thus much evidence that adjustment to university is a significant factor among first-year students making the transition from high school to university. It has been shown that adjustment, including academic, social and personal-emotional adjustment and institutional commitment, is particularly important for disadvantaged students. Students' adjustment to university has also been shown to have a significant impact on their academic performance.

Relationship between Stress and Adjustment and Academic Performance

The majority of university students experience high levels of stress at one point in their academic career (Shaikh, Kahloon, Kazmi, Khalid, Nawaz, Khan, & Khan, 2004). Factors related to high levels of stress include examinations, family problems and homesickness (Shaikh et al., 2004). Shaikh et al. indicate that students on financial aid have higher levels of stress than non-recipients of financial aid. Much of the literature on the experiences of disadvantaged students making the transition from high school to university shows that the transition is particularly stressful for these students, particularly 'black' students attending historically 'white' universities (Bojuwoye, 2002; Prillerman et al., 1989; Sennett et al., 2003). According to Prillerman et al. (1989, p. 203), several theorists have argued that "stress should be understood as a product of transactions occurring in a broader social context", instead of being conceptualised in individualistic terms. 'Black' students attending historically 'white' universities, face unique challenges not experienced by traditional students, including the problem of inadequate person-environment fit. The unique challenges include, coming from a physical environment that is (culturally and socially) different from the university, financial difficulties, living away from home for the first time, lack of (parental, peer and faculty) support and encouragement, difficulties completing their studies in their second or third language, and under-preparedness due to inadequate schooling. All of these factors have been linked to increased levels of stress. Urani et al. (2003) indicate that the increased levels of stress experienced by students living away from

home often leads to feelings of alienation, isolation and loneliness, which commonly results in feelings of homesickness and an intense desire to return home. A lack of social support provided by the university environment has been shown to increase students' feelings of alienation, loneliness and isolation; which has been shown to influence the quality of students' adjustment to university.

Individuals experiencing high levels stress may experience difficulty in coping with the new social, personal and academic demands presented by the university, which may adversely affect their adjustment (Coffman & Gilligan, 2002-2003; Malefo, 2000; Prillerman et al., 1989). Coffman and Gilligan investigated the relationship between social support, perceived stress, self-efficacy and life satisfaction among first-year students at an American university. They found that perceived stress had a significant negative impact on life satisfaction.

The research investigating the effect of stress on academic performance demonstrates contradictory results. Various studies have found a significant negative association between stress and academic performance (e.g. Neville, Heppner, Ji & Thye, 2004; Struthers, Perry & Menec, 2000) whereas other studies have found that stress did not have a significant impact on academic performance (e.g. Malefo, 2000; Trockel, Barnes & Egget, 2000). The only South African study investigating the effect of stress on academic performance that could be found was the study conducted by Malefo. She explored the relationships between family environment, experiences of life stress and coping behaviours, and the effects of these on academic performance among 'black' African female students at a predominantly 'white' university in South Africa. Malefo (2000) did not however find a significant relation between stress and academic performance.

Various studies (e.g. Charles, Dinwiddie & Massey, 2004) investigating the impact of stress on academic performance among disadvantaged students in comparison to non-disadvantaged students have found that stress had a significant negative effect on academic performance among disadvantaged students.

The above discussion shows that some studies have found a significant negative impact on adjustment to university. Stress has been suggested to be one of the

central components emerging from the literature on the determinants of the academic performance of 'black' students at historically 'white' university. The research on the effect of the experience of stress on academic performance has however yielded contradictory results.

Relationship between Academic Workload and Adjustment and Academic Performance

Many students making the transition from high school to university experience difficulty in managing the academic workload at university (Bitzer & Troskie-De Bruin, 2004; Doyle, 2002). According to Bitzer and Troskie-De Bruin, the out-of-class time that students are required to spend on academic work increases immensely from high school to university and is an indicator of the amount of effort students put into their academic studies. Students' perceptions of the demands of the academic tasks and their perceptions of their ability to succeed in completing the tasks influences the amount of effort they put into academic work, and an insufficient amount of effort put into their academic work may lead to academic failure (Bitzer & Troskie-De Bruin, 2004; Doyle, 2002).

Bitzer and Troskie-De Bruin (2004) investigated the relationship between pre-university schooling experiences and student persistence at a South African university. Their study was based on Tinto's (1975, 1985) theory of the process of persistence in identifying factors related to persistence. They found that the majority of the students participating in the study reported being concerned about the difference between the out-of-class time required during matric and the out-of-class time required in the first year of university. Twenty-five percent of the students in their study reported having spent less than 6 hours per week completing homework and studying in their final year of high school, and only 8.2% reported having spent more than 20 hours per week completing homework and studying in their final year of high school. According to Bitzer and Troskie-De Bruin, all university programmes require students to spend an average of about 18 hours of out-of-class time per week on academic work. The danger with the steep increase in out-of-class time required in the first year of university is that students may not be able to adequately adapt and cope with the new academic demands (Bitzer &

Troskie-De Bruin, 2004). Possible reasons for students not being able to cope with the academic demands at university are that they do not accurately perceive the demands of the academic tasks or that they are unable to manage their time effectively (Agar, 1990; Bitzer & Troskie-De Bruin, 2004; Doyle, 2002).

Educationally disadvantaged students seem to experience great difficulty in coping with the academic workload in their first year at university (Agar 1990; Huysamen & Raubenheimer, 1999). In the South African context many disadvantaged students have had inadequate levels of schooling and are thus likely to be under-prepared for university. These students' educational backgrounds may not have prepared them for managing and coping with the academic demands of the university. They may not have developed adequate time management and planning skills for managing their workload. A lack of skills for managing the academic workload may further be exacerbated by difficulties experienced in reading and studying academic material in their second or third language (Agar, 1990; Miller et al., 1998). Many disadvantaged students speak English as their second or third language, and may experience difficulty understanding complex reading material and academic jargon, as well as finding it difficult to concentrate when reading their required academic readings (Agar, 1990). These students may thus take longer to complete academic tasks and thus experience difficulty in managing their time. A lack of competence in understanding English encourages rote learning, which could be detrimental to students' academic studies (Agar, 1990). Students speaking English as their second or third language may also find it difficult to communicate with their English-speaking lecturers and tutors. These students may thus experience difficulty in adjusting to the academic demands of the university.

The difficulties students experience in managing their academic workload, have been shown to have a negative impact on students' academic adjustment to university and their academic performance. For example, Chambel and Curral (2005) investigated the relationship between work characteristics, student well-being and academic performance among Portuguese students. They found significant negative correlations between students' perceptions of their academic workload, and their well-being and academic performance.

Relationship between Contact with Faculty and Student Support Services, and Adjustment and Academic Performance

The literature on the determinants of university outcomes indicates the important role played by student-faculty contact and the utilization of student support services offered by universities in students' success at university. Student-faculty contact and the utilization of student support services, such as counseling and career guidance services, and student support programmes, have been shown to have a positive impact on adjustment to university and academic performance (Aspinwall & Taylor, 1992; Boulter, 2002; Grant-Vallone et al., 2003-2004; Pascarella & Terenzini, 1979, 1980, 1983).

Much theoretical and empirical evidence suggests that students' social and academic integration into the university environment are the primary predictors of persistence/withdrawal (Bean, 1985; Pascarella & Terenzini, 1979, 1980, 1983; Stoecker et al., 1988; Tinto, 1975, 1982, 1985). Tinto proposed that social integration into the university environment occurs primarily through participation in extra-mural activities, student-peer interactions and informal student-faculty interactions for non-academic purposes, which results in better socialisation and perceived faculty support. Bean and Stoecker et al. state that students experience and learn institutional values and requirements through their interaction with faculty, other university staff and their peers. This assists them in their adjustment to the university environment. Out-of-class student-faculty interaction is particularly important at large universities considering that the possibility for individual student-faculty interaction is low at large universities (Bean, 1985; Pascarella & Terenzini, 1991). Academic integration includes cumulative grade point average (i.e. GPA), students' perceptions of intellectual development and out-of-class student-faculty interactions for academic purposes (Tinto, 1975, 1982, 1985). Stoecker et al. and Pascarella and Terenzini conducted longitudinal studies aimed at empirically testing Tinto's theoretical model of persistence among students at various American universities. They found social and academic integration to be the primary predictors of persistence. Stoecker et al. included both 'black' (African American) and 'white' students in their study. Pascarella and Terenzini also found that social integration had a direct positive impact on students'

institutional commitment. Bean, in testing his model predicting persistence, found that student-faculty contact did not have a significant impact on institutional commitment and that student-peer interaction had a greater influence on students' social integration than student-faculty contact. Bean indicates that his findings could be a result of the sample he used, which was biased toward higher ability and traditional students.

Bean (1985), Pascarella and Terenzini (1979, 1980, 1983), and Tinto (1975, 1985) suggest that social integration may enhance academic integration, which includes students' academic performance. Boulter (2002) investigated the effect of a multi-dimensional measure of self-esteem on academic performance among first year students at an American university. The study included 12 domains that were divided into two categories: competencies and abilities (e.g. intellectual ability and creativity), and social relationship (e.g. social acceptance and instructors' support). Boulter (2002) found that instructors' support was a significant predictor of academic performance.

The literature on the utilization of student support services (such as counseling and career guidance services, and student support programmes) shows that receiving assistance with personal-emotional, social and academic difficulties has a positive impact on adjustment to university and academic performance (e.g. DeStefano, Mellott & Petersen, 2001; Rickinson, 1998). DeStefano et al. investigated the effect of counseling on the quality of students' adjustment at an American university. They found that students who received counseling displayed a significant improvement in their adjustment, whereas the students who did not receive counseling did not display a significant difference in their adjustment. Rickinson investigated the effectiveness of a counseling programme in assisting students in dealing with psychological distress at a British university. She found that the programme was successful in reducing students' psychological distress, and in assisting students in adjusting to the social and academic demands of the university. The majority of the students, who participated in the programme, also performed well academically. Sharf and Bishop (1973), who investigated the difference in adjustment between students who sought counseling and students who did not, found no difference between these two groups of students for those who

sought help with vocational and educational problems. Students, who sought assistance with personal problems showed worse levels of personal and emotional adjustment compared to those who did not seek counseling.

Many of the universities in South Africa offer academic support and student development programmes (including mentoring and workshops/group programmes) aimed at assisting under-prepared students in bridging the gap from high school to university. Evaluations of student development programmes offered by some universities in South Africa show an improvement in the quality of the students' adjustment to the university and the development of various life-skills (Du Rand, 1998; Nienaber, 1992; Schreiber, 1998; Wassenaar, 1997). Du Rand and Schreiber also showed that the students, who participated in the particular programmes, tended to perform well academically.

Hence, much of the literature investigating the impact of student-faculty contact and the utilization of student support services on the quality of students' adjustment to university and academic performance demonstrate that receiving assistance from faculty, mentors and counselors/psychologists with (personal-emotional, social and academic) difficulties experienced has a positive impact on adjustment and academic performance.

Relationship between Self-Esteem and Adjustment and Academic Performance

Global self-esteem is defined as "the individual's positive or negative attitude toward the self as a totality" (Rosenberg, Schooler, Schoenbach & Rosenberg, 1995). According to Rosenberg et al., the central aspects of global self-esteem (hereafter referred to as self-esteem) are self-acceptance and self-respect. Self-esteem has been referred to as a personal resource necessary for positive psychological adjustment to stressful life transitions (Aspinwall & Taylor, 1992; Coffman & Gilligan, 2002-2003). Thus individuals with high levels of self-esteem may be more resilient during stressful life transitions (Aspinwall & Taylor, 1992). Various authors state that individuals with high levels of self-esteem would perceive themselves to have the ability to adequately complete certain tasks, and

would thus employ effective coping strategies and management of their resources in completing those tasks (see Aspinwall & Taylor, 1992; Chemers, Hu & Garcia, 2001; Coffman & Gilligan, 2002-2003; Ochse, 2001). These individuals are thus likely to succeed in completing those tasks.

Numerous studies have demonstrated a positive association between self-esteem and several social and academic-related factors, including psychological well-being and academic performance (see Aspinwall & Taylor, 1992; Chemers et al., 2001; Crocker & Luhtanen, 2003; Grant-Vallone et al., 2003-2004; Rosenberg, 1979; Rosenberg et al., 1995). Grant-Vallone et al. examined key contributors to the social and academic adjustment and institutional commitment/attachment of students who were either first generation or financially disadvantaged students. They found that students who reported high levels of self-esteem showed better social and academic adjustment. Crocker and Luhtanen investigated the impact of level of self-esteem and contingencies of self-worth on the experience of social difficulties and academic performance among first-year students at an American university. They found that self-esteem had a significant negative relation to the experience of social problems. Self-esteem was not a significant predictor of academic performance when the effects of the contingencies of self-worth were controlled. This finding indicates that the relation between self-esteem and academic performance was more a function of whether the students' levels of self-esteem were based on contingencies of self-worth (such as academic performance and physical appearance) rather than whether their levels of self-esteem were high or low.

Although numerous studies have shown a positive relation between self-esteem and psychological well-being and academic performance, it is unclear as to whether self-esteem is a predictor or a symptom of the experience of academic and social difficulties as many of the studies that have investigated the relationship between self-esteem and academic and social difficulties have been correlational studies (Crocker & Luhtanen, 2003; Grant-Vallone et al., 2003-2004; Rosenberg et al., 1995). The empirical evidence of the relation between self-esteem and academic performance is also unclear. Some studies have shown self-esteem to have a positive effect on academic performance (e.g. Boulter, 2002; Chemers et al., 2001)

whereas others have shown self-esteem to have no effect or have shown the effect of self-esteem on academic performance to be mediated by another variable (e.g. Aspinwall & Taylor, 1992).

Some authors have suggested the use of measures of specific as opposed to global self-esteem, and others suggest the use of multidimensional measures of self-esteem. Rosenberg et al. (1995) suggest that specific self-esteem is better related to behavioural outcomes, such as academic performance, than global self-esteem. Rosenberg et al. conducted a longitudinal study investigating the impact of global and specific (i.e. academic) self-esteem on the psychological well-being (including depression, general anxiety, life satisfaction, etc.) and academic performance of tenth-grade boys in 87 American high schools. They found that global self-esteem was more strongly related to psychological well-being whereas academic self-esteem was more strongly related to academic performance. Global self-esteem did however have a small but significant effect on academic performance. Boulter (2002) investigated the effect of a multi-dimensional measure of self-esteem on academic performance among first year students at an American university. The study included 12 domains that were divided into two categories: competencies and abilities (e.g. intellectual ability and creativity), and social relationship (e.g. social acceptance and instructors' support). Only self-perception of intellectual ability and instructors' support were positive predictors of academic performance.

Rosenberg (1979) has emphasized the importance of taking the social and cultural context into consideration in measuring self-esteem. According to Rosenberg, individuals judge and evaluate themselves by comparing themselves to other individuals, groups and/or social categories in their environment. Individuals' self-esteem tends to suffer when they compare unfavourably to others in their surroundings. Individuals of lower SES and minority groups (particularly 'blacks') are expected to display low levels of self-esteem if they compare themselves to privileged majority groups. Disadvantaged students attending historically 'white' universities are thus likely to have low levels of self-esteem. Clark (1985) investigated the relations among racial and gender stereotypes and self-concept among 'black' and 'white' American students. He found that these students held

more favourable perceptions of their own racial groups and that the 'black' students' self-concept was related to their own racial group.

Hence, even though the empirical evidence on the effect of global self-esteem on adjustment and academic performance is unclear, there is much evidence that global self-esteem plays an important role in predicting adjustment and academic performance.

Relationship between Academic Motivation and Adjustment and Academic Performance

Motivation has been referred to as one "of the most important psychological concepts in education" (Vallerand, Pelletier, Blais, Briere, Senecal & Vallieres, 1992, p. 1004). Much of the literature on the effects of academic motivation on educational outcomes shows that academic motivation is linked to adjustment and academic performance at university (see Aspinwall & Taylor, 1992; Baker, 2003, 2004; Beyers & Goossens, 2002; Deci, Vallerand, Pelletier & Ryan, 1991; Struthers et al., 2000; Tinto, 1985). Graham (1989) indicates that academic motivation is a particularly important predictor of educational outcomes for minority youth, particularly 'black' (African American) youth. She suggests that academic motivation among 'black' (African American) students is as important to the understanding of academic performance as the more traditional (mainly cognitive) determinants of academic performance.

Eccles and Wigfield (2002), in their review of modern theories of motivation, indicate that modern theories of motivation focus on the association of beliefs, values and goals with behaviour. They grouped motivational theories into four broad categories: (1) theories focusing on beliefs about competency and expectation for success, (2) theories focussing on the reasons for individuals engaging in different activities, (3) an integration of theories on expectancy and value constructs, and (4) a category focussing on the relations between motivational and cognitive processes. According to Eccles and Wigfield, although the theories focusing on individuals' beliefs about their competency and their expectations for success provide useful explanations for their performance on different achievement

tasks, these theories do not deal with the reasons for individuals engaging in the different activities. The theories focussing on the distinction between intrinsic and extrinsic motivation deal with the reasons for individuals engaging in the different activities (Deci et al., 1991; Eccles & Wigfield, 2002; Vallerand et al., 1992). Self-determination theory (SDT) is one theory focussing on the reasons for individuals engaging in the different activities (Deci et al., 1991; Eccles & Wigfield, 2002; Muller & Louw, 2004; Vallerand et al., 1992). Baker (2004) and Vallerand et al. state that SDT has generated a considerable amount of research and appears to be pertinent for the educational domain.

SDT "distinguishes between self-determined and controlled types of intentional regulation", that is, intrinsic and extrinsic types of motivation (Deci et al., 1991, p. 326). SDT posits that behaviour can be intrinsically or extrinsically motivated, or amotivated (Deci et al., 1991; Vallerand et al., 1992). Intrinsically motivated behaviours are behaviours that are engaged in to feel competent and self-determining (Deci, 1975; Deci et al., 1991; Vallerand et al., 1992). People who are intrinsically motivated "engage in activities that interest them, and they do so freely, with a full sense of volition and without the necessity of material rewards or constraints" (Deci et al., 1991, p. 328). Intrinsically motivated behaviours include curiosity, exploration, manipulation, spontaneity and interest (Deci 1975; Muller & Louw, 2004). For example, a student who reads the required and additional readings for a course because s/he is interested in learning more about the subject and s/he finds it satisfying would be intrinsically motivated for that activity. Intrinsic motivation represents the prototype of self-determination theory (Deci et al., 1991).

Intrinsically motivated behaviours are reinforced by the internal consequences, which it brings about, that are experienced as rewarding (Deci, 1975) whereas extrinsically motivated behaviours are reinforced by external consequences that are experienced as rewarding. Extrinsically motivated behaviours are engaged in not out of interest, but as a means to an end (Deci et al., 1991; Muller & Louw, 2004; Vallerand et al., 1992). For example, a student who reads the required readings for a course in order to attain good academic marks and to avoid losing a bursary would be extrinsically motivated for that activity. Three types of extrinsic

motivation have been identified: external regulation, introjected regulation and identified regulation. It is proposed that these differ in the extent to which they represent self-determined responding and they can be placed along a continuum ranging from lower to higher levels of self-determination (Deci et al., 1991; Vallerand et al., 1992). The argument for the different forms of extrinsic motivation was based on the concept of internalisation (Deci et al., 1991). Internalisation is the process by which individuals transform regulation external to the self into regulation by internal processes (Deci et al., 1991; Muller & Louw, 2004). Deci et al. proposed a fourth type of extrinsic motivation, integrated regulation, which results from the internalisation of values and regulation that become integrated into one's self. The process of internalisation is reinforced by the interaction between the individual and significant others or groups (Muller & Louw, 2004).

Extrinsic regulation is the least self-determined form of extrinsic motivation, which Muller and Louw (2004, p. 171) refer to as 'classical' extrinsic motivation. Extrinsically regulated behaviours are behaviours reinforced by external consequences that are experienced as rewarding (e.g. attaining good academic marks or avoiding punishment).

Introjected regulation involves the internalisation of regulations or demands that coerce one to behave a certain way and are not integrated into one's self. Thus the behaviour is controlled by external consequences. For example, a student who reads the required readings for a course because s/he believes that is what a good student does.

Identified regulation represents the most self-determined type of extrinsic motivation. Identified regulation occurs when the individual values and identifies with the behaviour and perceives it as relevant. For example, a student who willingly reads the required and suggested additional readings for a course because s/he believes it is important for succeeding in that course would show identified regulation for that activity. The student's behaviour is considered to be relatively self-determined as s/he engages in the activity willingly because it is of personal

importance. It is, however, not completely self-determined as the behaviour is still performed primarily for its usefulness in achieving a goal (Deci et al., 1991).

The third motivational construct, amotivation, represents a type of motivation that falls outside of intrinsic and extrinsic motivation. Amotivation is considered important in order to fully understand human (learning) behaviour (Muller & Louw, 2004; Vallerand et al., 1992). Individuals who are amotivated perceive their behaviours as caused by external contingencies that are outside of their control, that is, their behaviours are not a result of intentional regulations. Amotivated students start wondering why they attend university or school at all and may eventually stop participating in academic activities and drop out of university (or school) altogether (Muller & Louw, 2004; Vallerand et al., 1992).

The literature on SDT indicates that high levels intrinsic motivation have been linked to better adjustment to university and better academic performance at university (Baker, 2003; Deci et al., 1991; Muller & Louw, 2004; Vallerand et al., 1992). Baker conducted a longitudinal study investigating social problem-solving, adjustment, perceived stress, health, motivation and academic performance among undergraduate students at a university in the United Kingdom. Intrinsic motivation was found to be a significant predictor of academic performance even when the effects of the students' demographic details and high school grades were controlled. None of the other motivational orientations were found to be significant predictors of academic performance. Baker also found that female students displayed higher levels of identified regulation and better academic performance than male students. Vallerand et al. found that the female students in their sample were more self-determined than the male students. Baker (2004) conducted a longitudinal study investigating the relationships between motivational orientations (i.e. intrinsic motivation, extrinsic motivation and amotivation), and well-being, perceived stress, adjustment and academic performance among undergraduate students at a university in the United Kingdom. Amotivation was found to be a significant predictor of psychosocial adjustment. High levels of amotivation were associated with poor psychosocial adjustment. None of the motivational orientations were, however, found to be significant predictors of academic performance when the effects of high school grades were controlled. She states that one explanation for

these findings are that the students in the present study displayed higher levels amotivation and lower levels of intrinsic motivation than that found in previous studies. She suggests that the effect of the motivational orientations on academic performance could be mediated by adjustment. The indirect effects of the motivational orientations on academic performance were not, however, tested in Baker's (2004) study. Such an explanation is in accordance with research that shows that higher levels of self-determined motivation and lower levels of amotivation are associated with better adjustment, and better adjustment is associated with better academic performance (Baker, 2004). The present study tested whether adjustment mediated the effects of the motivational orientations, as well as various other psychosocial factors, on academic performance.

Hence, the research investigating the relation between academic motivation and adjustment and academic performance shows that the more self-determined forms of motivation have a positive impact on adjustment and academic performance.

Conclusion

This chapter has argued that there is a need for research investigating the determinants of academic performance among students receiving need-based financial aid in the context of post-apartheid South Africa. These students are considered to be economically and educationally disadvantaged. In the South African context, socially and economically disadvantaged students are students who attended schools that had previously formed part of the 'black' education system. These students are likely to be classified as 'black' African using the apartheid classification, are likely to speak English as a second or third language, are likely to be first generation students, and are likely be under-prepared for university. Disadvantaged students are particularly vulnerable during their transition from high school to university. These students face challenges that are unique to them, including alienation, loneliness, social anxiety, homesickness, a lack of support (from their parents, peers and university staff), lack of attachment or commitment to the university, financial difficulties, language difficulties, and difficulties coping with the various educational demands that are characteristic of the university

experience. These students are thus likely to experience difficulty adjusting to the academic, social and personal-emotional demands during their transition from high school to university.

The academic success of disadvantaged students is a particular concern for universities considering the high failure and attrition rates among these students, which represent a huge waste of financial resources for universities (National Plan for Higher Education, 2001). Predicting academic performance is of particular concern in the South African context considering the high failure and drop-out rates of first-year, particularly disadvantaged, students at university. There is, however, a paucity of literature on the determinants of academic performance among students receiving financial aid at South African universities and disadvantaged students in general.

Robbins et al. (2004, p. 261) state that, "Conceptual confusion occurs when defining college success and its determinants". Much of the research on the determinants of academic performance among disadvantaged students demonstrates that non-cognitive factors (e.g. motivation, personality, attitude, etc.) play an important role in predicting the academic performance of these students, considering their social and educational backgrounds. Various authors state that cognitive factors on their own are not appropriate for determining the academic performance of disadvantaged students (see De Villiers, 1999; Pascarella & Terenzini, 1991). Robbins et al. (2004) state that the literature investigating university outcomes have varied in the saliency of adjustment to university. Some studies have measured adjustment as an outcome variable whereas others have measured adjustment as a predictor variable for academic performance and/or persistence. The present study argues that the effects of students' personal attributes (i.e. self-esteem and academic motivation), their appraisal of their ability to cope with various demands (i.e. levels of perceived stress and academic workload) and their interaction with the various sources of support provided by the university, on their academic performance are mediated by the quality of their adjustment to university. It is thus proposed that adjustment plays a key role in determining academic performance among disadvantaged students. The premise

that adjustment mediates the effect of the various psychosocial factors on academic performance has not been tested previously.

This premise is supported by the most dominant educational theories (i.e. Tinto and Bean's theories) that form the conceptual framework for numerous studies on university outcomes, and the literature on the academic performance of 'black' students at predominantly 'white' universities (with particular focus on the problem of the person-environment fit). Tinto and Bean's theories predicting persistence, and the literature on the academic performance of 'black' students at predominantly 'white' universities indicate the key role played by students' social and academic integration into the university, and their adjustment to the social and academic demands of the university in determining university outcomes, particularly among disadvantaged students.

The premise that adjustment mediates the effect of the various psychosocial factors on academic performance among disadvantaged students is also supported by the evidence indicating that adjustment is a key determinant of academic performance, particularly among disadvantaged students. Various interventions aimed at assisting disadvantaged students in 'bridging the gap' from high school to university also operate on the assumption that facilitating under-prepared students' adjustment to university, thus assisting them in dealing with the academic, social and personal-emotional demands of the university, assists these students in performing well academically and persisting with their academic studies (e.g. Schreiber, 2003).

Further support for the premise that the quality of the students' adjustment to university mediates the effect of the various psychosocial variables on academic performance is provided by numerous empirical studies demonstrating that all of the psychosocial variables included in the present study have a significant impact on adjustment as well as academic performance, and that adjustment is a key determinant of academic performance.

The literature on adjustment shows that disadvantaged students are particularly vulnerable during the transition from high school to university. Students'

adjustment to university has also been shown to be a key determinant of academic performance, particularly among disadvantaged students.

Much research on the determinants of university outcomes among first-year students demonstrate that higher levels of self-esteem and more self-determined motivation is associated with better adjustment to university and better academic performance. Student-faculty contact and the utilization of student support services (such as counseling and career guidance services, and student support programmes) have also been shown to be associated with better adjustment to university and better academic performance. High levels of perceived stress and the appraisal of the academic workload as too demanding has been shown to be associated with poor adjustment and academic performance.

There is thus strong theoretical and empirical evidence supporting the premise that the quality of adjustment to university mediates the effect of students' help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload on academic performance among disadvantaged students.

The following chapter describes the research design employed and the methods utilised in empirically testing whether adjustment in fact mediates the relation between the various psychosocial factors and academic performance among disadvantaged students in the present study.

Chapter 2

Method

Sample

Sampling strategy

First-year students making the transition from high school to university were considered to be the most appropriate group to study for the purposes of the present study. Furthermore, students receiving full financial aid from the university form a sub-group of first-year students whose academic success is of particular concern to the university. First-year financial aid students are thought to be under-prepared for university and thus more vulnerable in the transition from high school to university. According to the director of UCT's Undergraduate Funding Office (UFO) (T. Salasa, personal communication, June 2004), an analysis of the academic performance of financial aid students at UCT compared to non-financial aid students at UCT shows that financial aid students take longer to complete a degree. It was also found that the majority of the students seeking counselling from Student Psychological Services at UCT are students receiving funding from the UFO (T. Salasa, personal communication, June 2004). There is also a paucity of research investigating the determinants of academic performance among first-year financial aid students. There is thus a need for research investigating the learning experiences of these students in finding ways to improve their academic performance and efficiency of graduation outputs among these students.

The target population for the present study were the 465 first year students considered eligible to participate in the Student Development Programme (SDP) at UCT. The SDP was initiated in response to the need for an intervention aimed at assisting first-year financial aid students at UCT in their adjustment to the university. The SDP was initiated in 2004 by the Student Psychological Services at UCT. Students who were considered eligible to participate in the SDP were students receiving full financial assistance from the UFO. Students who received

full funding from the UFO were thought to largely come from economically and educationally disadvantaged backgrounds considering the criteria for receiving funding. The criteria for receiving financial aid (Financial Matters, n.d.) was that the student:

- must be a South African citizen.
- must be a first-time entering student.
- must apply and register for full-time study.
- may not already hold any tertiary level qualification.
- must meet the financial eligibility criteria, which is assessed on the basis of the National Means test (NMT). A student would be considered financially eligible if his/her total pre-tax family annual income does not exceed R100 000 unless it is determined that the family assets enables the student to obtain bank loans.

The group of financial aid students consisted of 465 first year students. Students enrolled in the Faculty of Health Sciences were excluded from the SDP because these students had access to a mentoring programme with similar aims to the SDP. Students with missing information on their university application forms, that is, students who did not indicate their age, population group, etc., were also excluded. Most (i.e. 59.8%) of the 465 students identified themselves as 'black', 22.6% as 'coloured', 9% as 'white', and 8.4% as 'indian'. One student identified him/herself as 'other'.

Most of the students received accommodation in UCT's residences as part of the funding they received.

These students were enrolled in various courses in all of the faculties at UCT except the Health Sciences. Most (i.e. 33.6 %) of the students were registered in the Faculty of Commerce, 26.9% in the Faculty of Humanities, 20.4% in the Faculty of Science, 18.1% in the Faculty of Engineering and the Built Environment, and 1.1% in the Faculty of Law.

Sample for the present study

The sample for the present study consists of 194 (41.7%) of the 465 students considered eligible to participate in the SDP. The 465 students in the target population were sent an e-mail inviting them to participate in the present study. One hundred and ninety five (41.9%) of the 465 students completed and returned the questionnaire. One participant was excluded from the study because the Institutional Planning Department at UCT (IPD) did not have his/her student number on record and thus his/her demographic details and academic marks could not be obtained. The average age of the participants was 19 years and ranged from 18 – 27 years. The sample included 109 (56%) males and 85 (44%) females. Most (i.e. 148 or 76%) of the participants identified themselves as 'black', 32 (17%) participants identified themselves as 'coloured', 10 (5%) participants identified themselves as 'white' and 4 (2%) participants identified themselves as 'indian'. The pattern of the distribution of 'race' is similar to that of the target group of first year financial aid students. There were however more 'black' students in the sample for the present study in comparison to the target group. Most (i.e. 129 or 67%) of the participants identified an African language (i.e. one of the African languages identified as one of the 11 official languages in South Africa) as their first language, 41 (21%) participants identified English as their first language and 24 (12%) participants indicated that their first language was a language other than English and the official African languages.

Most (i.e. 169 or 87%) of the participants attended government high schools, 13 (7%) attended private high schools and 12 (6%) attended high schools that were not classified as either government or private schools. The mean matric points obtained was 36.78 (n = 188; SD = 5.33) with a minimum of 17 and a maximum of 49. UCT's Admissions Rating System was used to calculate the matric points. Points were assigned to each subject passed, the higher the marks the greater the number of points earned. In calculating the total number of matric points for each student, the values of 8 to 2 were assigned to the matric symbols A to G for each subject passed on the higher grade level and the values 6 to 0 for each subject passed on the standard grade level (Huysamen, 2002). The matric points of obtained for all of the subjects passed were summed to obtain an overall total. None of the points earned were doubled.

Most (i.e. 71 or 36%) of the participants were registered in the Faculty of Commerce, 48 (25%) in the Faculty of Humanities, 39 (20%) in the Faculty of Science, 33 (17%) in the Faculty of Engineering and the Built Environment, and 3 (2%) in the Faculty of Law. This distribution is similar to that of the target population of first year financial aid students.

Most (i.e. 159 or 82%) of the participants lived in one of the university's residences and 35 (18%) lived in private housing.

Procedure

All of the students in the target population, that is, the 465 first-year financial aid students selected to participate in the SDP, were invited to participate in the present study. All of the students were contacted via e-mail. It was decided that contacting the students via e-mail was the best method for inviting them to participate in the study as all of the students at UCT are assigned an e-mail address at registration and this is the manner in which university personnel contact students. Students are thus encouraged to check their e-mail accounts regularly. The students' e-mail addresses were obtained from the SDP. The students were sent two e-mails between the 4th and 14th of October 2005, that is, approximately two weeks before the final examinations. The e-mails included a brief description of the study and procedure to be followed in completing the questionnaires (see Appendix A for a copy of the e-mails inviting students to participate in the study). The students interested in participating in the study were asked to complete the questionnaire during one of the four time periods between the 11th and 15th of October 2005 in an easily accessible venue at the university. The students were informed that their participation in the study would be completely voluntary and that confidentiality would be ensured. They were informed that they would receive R40 for completing the questionnaire. A few participants, who were unable to complete the questionnaire during the specified times, met with the researcher to complete the questionnaire individually in the following week.

The questionnaire was completed in a venue that was generally used by UCT's social clubs, societies and organisations for hosting events, and took 20 – 30

minutes to complete. The students were asked to present their student card prior to receiving the questionnaire in order to ensure that only students who formed part of the target population participated in the study. In the present study it was necessary to link the participants' student numbers to their questionnaires in order to match the data obtained from the questionnaires to the participants' end-of-year academic grades. Various researchers, who used participants' actual academic grades as a measure of academic performance, have requested that participants indicate their student numbers on the questionnaire in order to match the data obtained from the questionnaire to the academic performance data (e.g. Baker, 2003, 2004). Instead of requesting that participants indicate their student numbers on the questionnaire, their student numbers together with their demographic details were obtained from the university's Institutional Planning Department (IPD). Random numbers were assigned to each of the participants' student numbers in order to protect their privacy. The only identifying information that appeared on the questionnaire was the assigned random number. In this way the data obtained from the questionnaires were captured and analysed anonymously as the researcher was not able to connect the random numbers with the participants' student numbers when capturing and analysing the data. The data with the corresponding student numbers were accessed by the researcher's supervisor and the SDP's administrator. The students received the monetary incentive (R40) once they had completed the questionnaire.

Ethical Considerations

A major ethical considering in the present study was that absolute anonymity could not be assured, as the participants' student numbers were required in order to match the data obtained from the questionnaires to their end-of-year academic grades. Students' actual average academic grade is a more reliable measure of academic performance than students' subjective reports. The procedure described in the previous section was followed in order to ensure that the data obtained from the questionnaires were captured and analysed anonymously. In this way, the participants' privacy was protected.

Only one student, who accompanied his friend who completed the questionnaire, enquired about the procedure followed and my access to the participants' demographic details and academic grades. This student did not form part of the target population and was thus not allowed to complete the questionnaire. None of the participants of the present study objected to the procedure followed or refused to participate in the study.

The procedure followed by the present study was approved by UCT's Department of Psychology's ethics committee (see Appendix B for a copy of the report). The procedure of assigning random numbers to each participant and matching the random number to the participants' actual end-of-year academic grades was also approved by the IPD. The IPD consulted with the university's deputy registrar before providing the participants' demographic details and academic grades.

All of the participants were informed, prior to completing the questionnaire, that they would participate in the study voluntarily, that confidentiality would be assured and that they would receive R40 for completing and returning their completed questionnaires. Each participant received the R40 on returning the completed questionnaire and was required to sign a receipt form indicating that they had received the monetary incentive.

Research Design

The variables of interest in the present study, and their hypothesised relationship are depicted in Figure 1. The study was designed to test the hypothesis that adjustment mediates the relationship between the various psychosocial factors and academic performance. The independent variables include help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload. Adjustment to university was included as a mediator variable and academic performance as an outcome variable. The path diagram (see Figure 1) included most of the variables predicting academic performance that Robbins et al. (2004) identified in their meta-analysis, which examined the dominant educational and motivational theories and study skill factors. Two factors that did not form part of the nine constructs that

Robbins et al. (2004) identified in their meta-analysis and were included in the path diagram are academic overload and perceived stress. These factors have been identified as important factors influencing the university experiences and outcomes of 'black' students at predominantly 'white' universities (Prillerman et al., 1989; Malefo, 2000).

Robbins et al. (2004) included socio-economic status and high school grades in their analyses and referred to these as traditional predictors of university outcomes. These traditional predictors were not included in the path model for the present study, as the sample for the present study was considered to be fairly homogenous. All of the participants in the present study were considered to be economically and educationally disadvantaged (as they received full financial aid) and most (i.e. 62.8%) of the participants obtained between 30 and 40 matric points. Research investigating the effects of high school grades on the academic performance of university students, who come from educationally and socially disadvantaged backgrounds, show that it is questionable whether high school grades are a reliable or fair reflection of the students' academic potential and predictor of academic performance at university (Fraser & Killen, 2005; Nunns & Ortlepp, 1994; Shochet, 1994).

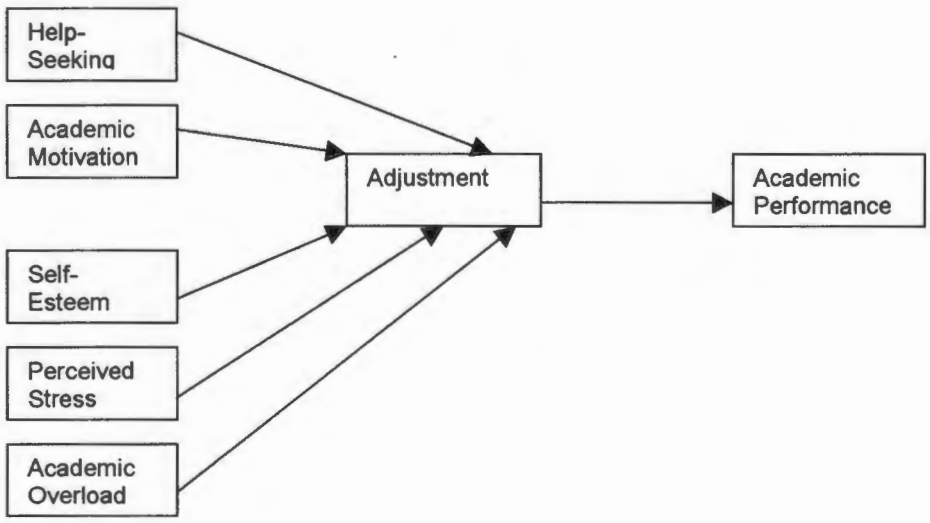

Figure 1: Path diagram based on the dominant educational and motivational theories, and the literature on the academic performance of 'black' students at predominantly 'white' universities.

Self-report measures were used to assess the participants' appraisal of the quality of their adjustment to university and their levels of academic motivation, self-esteem, and stress experienced in the month prior to completing the questionnaire. Adjustment to university was conceptualised as a multi-dimensional process requiring students to adapt to a host of demands including academic, social and personal-emotional demands. The quality of the relationship or bond between the student and the university and the degree of the student's commitment to the university's educational-institutional goals were also assessed. The participants' actual, and not self-reported, (end-of-year) average academic grades were used in measuring academic performance (described in the next section).

Measures

Demographic details

The participants' demographic details were obtained from the university's Institutional Planning Department (IPD): age, gender, population group, first language (i.e. English, African or Other), average matric mark, current year of study, degree for which the student was registered, high school attended, and whether or not the student lived in one of the university's residences. The high school attended was categorised according to the type of school attended, that is, government, private or 'other'. Government schools differ from private schools in that private schools are less 'racially' integrated, and the teacher-learner ratio in low-to-average and high fee private schools tends to be lower than that of government schools (Du Toit, 2003).

The questionnaire

Independent variables

The independent variables included in this study were: help-seeking, academic motivation variables (including intrinsic motivation, extrinsic regulation, introjected regulation, identified regulation and amotivation), self-esteem, perceived stress and academic overload. These variables were measured as described below.

Help-seeking:

One question (see question 5 of questionnaire included in Appendix C), *"If you have encountered difficulties this year, did you consult with any of the following?"*, was used to measure help-seeking behaviour, that is, whether they sought help from the various sources of support available to students at UCT (including academic, social, and personal-emotional support). The participants were required to choose from the options: 'Tutor (academic issues)', 'Mentor (social or emotional issues)', 'Counselor or Psychologist', 'Curriculum Advisor', 'Lecturer' and 'No difficulties'. Help-seeking is a dichotomous variable with 'Yes' (coded as 0) referring to participants who indicated that they sought help with difficulties experienced by ticking one or more of the options, and 'No' (coded as 1) referring to participants who indicated that they did not seek help with difficulties they experienced by not ticking any of the options.

Academic motivation:

Academic motivation was measured via an adaptation of the scale used by Muller and Louw (2004), who investigated the relationship between students' motivation and their learning environment using a sample of students at UCT. The scale includes several items of the Academic Motivation scale (AMS) (Vallerand et al., 1992) based on Deci and Ryan's self-determination theory (SDT). The AMS was designed for use with university students and explores the five aspects of motivation to learn proposed by SDT (Deci et al., 1991; Muller & Louw, 2004; Vallerand et al., 1992). In the present study, items of the scale used by Muller and Louw that were not based on SDT were omitted. Academic motivation was measured on a 5-point Likert scale requiring participants to indicate the extent to which they agree with the statements. The responses range from '*strongly disagree*' to '*agree completely*'. The scale consisted of five sub-scales: Intrinsic Motivation, Extrinsic Regulation, Introjected Regulation, Identified Regulation and Amotivation. Scores on the sub-scales range from 1 to a maximum of 5.

Intrinsic motivation represents the prototype of self-determination theory (Deci et al., 1991). The Intrinsic Motivation sub-scale consists of five items and is scored such that a high score corresponds with a high level of intrinsic motivation. An

example of items included in this sub-scale is, *"I really enjoy learning and working here"*.

Extrinsic regulation is the least self-determined form of extrinsic motivation, which Muller and Louw (2004, p. 171) refer to as 'classical' extrinsic motivation. The Extrinsic Regulation sub-scale consists of three items and is scored such that a high score corresponds with a high level of extrinsic regulation. An example of items included in this sub-scale is, *"Without pressure from outside I would do less"*.

Introjected regulation involves the internalisation of regulations or demands that coerce one to behave a certain way and are not integrated into one's self. Thus the behaviour is controlled by external consequences. The Introjected Regulation sub-scale consists of four items and is scored such that a high score corresponds with a high level of introjected regulation. An example of items include in this sub-scale is, *"I have to give myself an inner push in order to study"*.

Identified regulation represents the most self-determined type of extrinsic motivation. The Identified Regulation sub-scale consists of three items and is scored such that a high score corresponds to a high level of identified regulation. An example of items included in this sub-scale is, *"I really want to become more competent and to develop my skills further"*.

The third motivational construct, amotivation, represents a type of motivation that falls outside of intrinsic and extrinsic motivation. The Amotivation sub-scale consists of three items and is scored such that a high score corresponds to a high level of amotivation. An example of items included in this sub-scale is, *"I really feel I'm wasting my time in university"*.

Muller and Louw (2004) reported reliability coefficients that lie between 0.60 and 0.85, which they suggest are sufficient for group analysis.

Self-esteem:

Rosenberg's Self-esteem scale (Rosenberg, 1979) was utilised in measuring self-esteem. The Rosenberg Self-esteem scale consists of 10 items measuring the participant's global self-esteem. Level of self-esteem is measured on a 4-point Likert scale requiring participants to indicate the extent to which they agree with the statements. Responses range from '*strongly agree*' to '*strongly disagree*'. Scores on the Rosenberg Self-esteem scale range from 1 to a maximum of 4. A high total score indicates (positive) high level of self-esteem, whereas a low total score indicates a low level of self-esteem. An example of items included in this scale is, *"On the whole, I am satisfied with myself"*.

The Rosenberg Self-esteem scale is reported to have reliability coefficients that range from 0.67 to 0.88 (Bornman, 1999; Rosenberg, 1979). The Rosenberg Self-esteem scale is the most widely used measure of global self-esteem and has been used extensively in South Africa (Bornman, 1999; Grobler, Grobler & Esterhuyse, 2001). Robbins et al. (2004) identified this scale (in their meta-analysis) as one of the scales commonly used in measuring general self-concept.

Perceived stress:

The Perceived Stress scale (PSS) developed by Cohen, Kamarck and Mermelstein (1983) was utilised to measure the students' level of perceived stress. The PSS is a self-report questionnaire measuring "the degree to which situations in one's life are appraised as stressful" (Cohen et al., 1983, p. 385). This scale has been recommended as an outcome measure for the experience of stress. Monroe and Kelley (1997) state that the PSS is the only empirically established index for the general appraisal of perceived stress. The 14 items of the PSS were designed to measure the degree to which the respondents "found their lives unpredictable, uncontrollable, and overloading" (Cohen et al., 1983, p. 387). These three issues have been found to be the central components of the experience of stress. The respondent is required to indicate how often s/he felt or thought a certain way during the month prior to completing the questionnaire. Scores on the PSS range from 14 to a maximum of 70. Responses are scored such that a high score corresponds with a high level of perceived stress. An example of items included in

this scale is, *"In the last month, how often have you... felt that difficulties were piling up so high that you could not overcome them?"*

Cohen et al. (1983) reported reliability coefficients that lie between 0.83 and 0.87. Berger (2003), who included UCT students in the sample for his study, reported a reliability coefficient of 0.85. The PSS is an economic, easy to administer questionnaire that has been utilised in numerous studies in South Africa (Berger, 2003).

Academic overload:

Academic overload was measured via the 5-item scale used by Muller and Louw (2004). This scale was used to measure (negatively) the students' perceptions of the fit of requirements between student and the learning environment, and is based on the constructivist learning perspective. The constructivist learning perspective posits that individuals are active in shaping their development, and that knowledge is not passively received but actively constructed (Clarke, 2002). The scale is a 5-point Likert scale that requires respondents to indicate the extent to which the statements apply to them. Responses range from '*does not apply at all*' to '*applies completely*'. Scores on this scale range from 1 to a maximum of 5. Responses are scored such that a high score corresponds with a high level of academic overload, that is, the academic requirements are perceived to be very demanding and the student is unable to cope. An example of items included in this scale is, *"Too much is expected of me in the courses"*.

Muller and Louw (2004), who included UCT students in the sample of their study, report a reliability coefficient of 0.84.

Mediator variable

Adjustment:

The Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1989) was utilised to measure the quality of the students' adjustment to university (questionnaire included in Appendix C). The SACQ is a 67-item self-report questionnaire assessing student adjustment to university. The SACQ is useful as a diagnostic tool in identifying students experiencing difficulty adjusting to university and who may benefit from counselling or other remedial interventions, and as an assessment tool in research. Dahmus and Bernardin (1992) described the SACQ as a useful instrument that seems to be superior to any of the other instruments measuring adjustment to university. The SACQ has also been recommended as an evaluation assessment tool for programme evaluations assessing the impact of student services and programmes aimed at facilitating adjustment to university (Dahmus & Bernardin, 1992).

The underlying rationale of the SACQ is that adjustment to university is multifaceted (Baker & Siryk, 1989). Four different aspects of adjustment are identified: academic, social and personal-emotional adjustment, and institutional attachment. The scale thus consists of four sub-scales with each sub-scale measuring a different aspect of adjustment (see Table 1). The Academic Adjustment sub-scale (24 items) examines the student's ability to cope with the various educational demands that are characteristic of the university experience. The items of this sub-scale may be classified into four item clusters: motivation (6 items), application (4 items), performance (9 items) and academic environment (5 items). Baker and Siryk (1989, p. 15) indicate that low scores on this sub-scale are associated with low GPA in the first year of university, "being on academic probation" and feeling that one lacks control over the outcome of one's academic efforts. The Social Adjustment sub-scale (20 items) measures the student's ability to cope with the interpersonal and societal demands that are inherent in the process of adjustment to university. The items of this sub-scale may be classified into 4 item clusters: general (7 items), other people (7 items), nostalgia (3 items) and social environment (3 items). Baker and Siryk (1989, p. 15) indicate that low scores on this sub-scale are associated with a "greater sense of loneliness", greater social avoidance and distress, "less perceived social support", and "less success in

coping with life changes". The Personal-Emotional Adjustment sub-scale (15 items) was designed to determine the student's psychological and physical well-being, and the degree to which s/he may be experiencing general psychological distress and/or any associated somatic problems. The items of this sub-scale may be classified into two item clusters: psychological (9 items) and physical (6 items). Baker and Siryk (1989, p. 15) indicate that low scores on this sub-scale are associated with a lesser degree of psychological well-being (including anxiety and depression) and "fewer psychological coping resources". The sub-scale, Goal Commitment/Institutional Attachment (15 items), measures the student's feelings about attending university, in general, and the particular university s/he is attending. The items of this sub-scale may be classified into two item clusters: general (3 items) and this university (4 items). Some of the items included in this sub-scale are also included in the Social Adjustment and Academic Adjustment sub-scales. Baker and Siryk indicate that low scores on this sub-scale are associated with greater likelihood of voluntarily dropping out of university and less overall satisfaction with the university experience. The full scale consists of two items that are not included in the sub-scales.

The participant responds to each of the items on a 9-point scale ranging from "*applies very closely to me*" to "*doesn't apply to me at all*". For the sub-scales and the full scale, higher scores indicate greater success in adjustment to university whereas lower scores indicate greater difficulty experienced in adjusting to university. The raw scores for the Academic Adjustment sub-scale range between 23 and 217, for the Social Adjustment sub-scale between 19 and 181, for the Personal-Emotional Adjustment sub-scale between 14 and 136, for the Goal Commitment/Institutional Attachment sub-scale between 14 and 136, and for the full scale between 66 and 604.

Table 1. Examples of Items of the SACQ Sub-Scales

SACQ sub-scale clusters	Examples of items
Academic adjustment	
Motivation	"I am enjoying my academic work at university."
Application	"I have been keeping up to date with my academic work."
Performance	"I am satisfied with the level at which I am performing academically."
Academic environment	"I'm quite satisfied with my academic situation at university."
Social adjustment	
General	"I feel that I fit in well as part of the university environment."
Other people	"I am meeting as many people, and making as many friends as I would like at university."
Nostalgia	"Homesickness or missing home is a source of difficulty for me now."
Social environment	"I am satisfied with the extracurricular activities available at university."
P/Emotional adjustment	
Psychological	"I am experiencing a lot of difficulty coping with the stresses imposed upon me at university."
Physical	"I have been feeling in good health lately."
Attachment	
General	"Lately I have been thinking about dropping out of university altogether and for good."
This university	"I am pleased now about my decision to attend this university in particular."
Full scale	
Two additional items	"I feel I have good control over my life situation at university."
	"I feel confident that I will be able to deal in a satisfactory manner with future challenges here at university."

The SACQ is reported to have substantial internal reliability and criterion-related validity (Baker & Siryk, 1989). The alpha coefficients for the full scale are reported to range from 0.92 to 0.95. The alpha coefficients for the sub-scales reported are: the Academic Adjustment sub-scale ranges from 0.81 to 0.90, the Social Adjustment sub-scale from 0.83 to 0.91, the Personal-Emotional Adjustment sub-scale from 0.77 to 0.86 and the Institutional Attachment from 0.85 to 0.91. Sennett et al. (2003), who conducted the first study using the SACQ in South Africa, reported alpha coefficients for the full scale and the sub-scales that lie between 0.80 and 0.93.

The SACQ has been utilised in numerous cross-cultural contexts, including Belgium, Czechoslovakia, South Korea and South Africa (Beyers & Goossens, 2002; Sennett et al., 2003).

Dependent variable

Academic performance:

According to Huysamen (1999), students' cumulative grade average is the main measure of academic performance used in the United States of America, while the main measures of academic performance in South Africa are the average of the percentage academic marks obtained in the students' first semester or first year of university, and the credit points earned during these periods. Some studies, such as that by Sennett et al. (2003), have used students' subjective estimates of their academic marks. There are inherent limitations in a self-report measure of academic performance. Obtaining the participants' actual average academic marks is a more reliable measure of academic performance than the students' subjective estimate.

This study was fortunate to be able to access the actual average academic marks that the students obtained at the end of their first year, via the records kept by the IPD. IPD does not, however, calculate and record the credit points earned by students. IPD calculated each student's average academic mark by adding the academic marks that the student obtained for each subject to obtain an overall total academic mark. The total mark was then divided by the total number of subjects the student was registered for at the end of the year (i.e. the subjects that the student obtained an academic mark for at the end of the year). This method, that is, using the students' actual average (end-of-year) academic marks, was used as an indicator of academic performance by various other studies, for example, Huysamen (1999) and Shochet (1994).

The following chapter presents the analysis of the data and the results yielded by the present study.

Chapter 3

Results

The main aim of the present study was to test the hypothesised relation between help-seeking, self-esteem, academic motivation (i.e. amotivation, intrinsic motivation, extrinsic regulation, identified regulation and introjected regulation), academic overload, and perceived stress, and academic performance of first-year university students. In particular, the aim was to test whether the quality of the students' adjustment to university mediates the effect of these variables on their academic performance.

In order to test whether adjustment functions as a mediator variable the three conditions proposed by Baron and Kenny (1986) were tested. According to Baron and Kenny (1986), in order for adjustment to function as a mediator the following conditions have to be met:

- Variations in levels of the independent variables should account for variations in adjustment.
- Variations in adjustment should account for variations in academic performance.
- Any previously statistically significant relations between the independent variables and academic performance should no longer be significant when adjustment is included in the path model as a mediator variable with the strongest demonstration of adjustment as a mediator occurring when the direct paths between independent variables and academic performance has a coefficient of zero.

According to Baron and Kenny (1986), there are three ways for testing a mediational hypothesis: an ANOVA; a series of regression models; or structural equation modelling. They indicate that structural equation modelling is the best option considering the limitations of the first two options. Path analysis, which is a form of structural equation modelling, was utilised in order to test the hypotheses of the present study. Path analysis is an extension of multiple regression analysis and

allows for the analyses of more complex models with more than one dependent variable and a number of paths that lead through more variables such as the models proposed for the purposes of the present study (Streiner, 2005).

Path analysis was utilised by various studies aimed at predicting university outcomes such as academic adjustment and/or attrition (e.g. Bean, 1985; Pascarella & Terenzini, 1983; Sandler, 2001). It should be noted that path analysis is not aimed at establishing causality; it may be used to test path models that have theoretical assumptions of causal relations between the independent and dependent variables, but it does not prove that such assumptions are correct (Duncan, 1975).

The hypothesised relations between the independent variables, and adjustment and academic performance were:

- help-seeking will have a positive association with adjustment and academic performance, indicating that participants who sought help with difficulties they experienced during the year were better adjusted to university and achieved a higher level of academic performance.
- amotivation will have a negative association with adjustment and academic performance, indicating that participants who displayed a high level of amotivation showed lower levels of adjustment to university and achieved a lower level of academic performance.
- intrinsic motivation will have a positive association with adjustment and academic performance, indicating that participants who displayed a high level of intrinsic motivation were better adjusted to university and achieved a higher level of academic performance.
- extrinsic regulation will have a negative association with adjustment and academic performance, indicating that participants who displayed a high level of extrinsic regulation showed lower levels of adjustment to university and achieved a lower level academic performance.
- introjected regulation will have a negative association with adjustment and academic performance, indicating that participants who displayed a high level of introjected regulation showed lower levels of adjustment to university and achieved a lower level academic performance.

- identified regulation will have a positive association with adjustment and academic performance, indicating that participants who displayed a high level of identified regulation were better adjusted to university and achieved a higher level of academic performance.
- academic overload will have a negative association with adjustment and academic performance, indicating that participants who displayed a high level of academic overload showed lower levels of adjustment to university and achieved a lower level of academic performance.
- self-esteem will have a positive association with adjustment and academic performance, indicating that participants who displayed a high level of self-esteem were better adjusted to university and achieved a higher level of academic performance.
- perceived stress will have a negative association with adjustment and academic performance, indicating that participants who displayed a high level of perceived stress showed lower levels of adjustment to university and achieved a lower level of academic performance.
- adjustment will have a positive association with academic performance, indicating that participants who displayed a high level of adjustment (i.e. were better adjusted) achieved a higher level of academic performance.

The descriptive statistics will firstly be presented and described, followed by the results of the correlational and path analysis.

Descriptive Statistics

Help-seeking

The frequencies of responses to the question measuring help-seeking behaviours are presented in Table 2. The participants were asked to choose various options (ticking as many options as was appropriate). It was found that 149 (84.7%) participants indicated that they sought help from the various sources of support (including academic, social, and personal-emotional support) available to students at UCT, and 18 of the remaining 45 participants indicated that they did not

experience any difficulties during the year, and the rest indicated that they did not seek help with difficulties they experienced for various reasons (see Table 3).

Table 2. Various Options for Help Sought*

Source of support	No. of responses
Tutor (academic issues)	97
Lecturer	71
Curriculum Advisor	59
Counselor or Psychologist	17
Mentor (social or emotional issues)	30

* The participants were asked to tick as many options as was appropriate.

It can be seen in Table 2 that most of the participants approached their tutor(s) (n = 97), lecturer(s) (n = 71) and curriculum advisor(s) (n = 59) for help. It can thus be assumed that most sought help with academic difficulties experienced. Considerably fewer students indicated that they approached their mentor(s) (n = 30) and a counsellor or psychologist (n = 17) for help with social or emotional issues.

Table 3. Reasons for Not Seeking Help*

Reason	No. of responses
I thought I should solve the problem on my own	55
Limited time	28
I didn't need to seek help	18
I didn't know I could approach anyone	14
Felt embarrassed	14
I was afraid	14
I didn't know that there were these services	9
Other	17

* The participants were asked to tick as many options as was appropriate.

Most of the participants preferred to deal with difficulties they experienced on their own (n = 55). A few of the participants indicated that they did not know that they could approach the various sources of support available (n = 14), and only 9 indicated that they were not aware of the sources of support available to students at UCT.

Academic motivation

Item analysis was conducted in order to assess the psychometric properties of the academic motivation sub-scales, and the scales measuring self-esteem, perceived stress, academic overload, and the sub-scales of the measure of adjustment so that any 'poor' items could be identified and removed from the scales. The results of the item analysis are included in Appendix D. Single sample *t*-tests were conducted in comparing the means of the sub-scales to the midpoints of the sub-scales in interpreting the score obtained, that is, whether the participants achieved a high, average or low score on the particular sub-scale. This was also done for the scales measuring self-esteem, perceived stress, academic overload, and the sub-scales of the measure of adjustment. The results of the *t*-test analyses are included in Appendix D.

The descriptive statistics for the five academic motivation variables, amotivation, intrinsic motivation, extrinsic regulation, introjected regulation and identified regulation are presented in Table 4. Item analysis was conducted in order to assess the psychometric properties of the sub-scales so that any 'poor' items could be identified and removed from the particular scale. An item was considered to be a 'poor' item if it had an inter-item correlation less than 0.2 and it was indicated that the magnitude of the reliability coefficient would be significantly improved if the item were removed. The Cronbach Alpha values for the five sub-scales measuring academic motivation ranged from 0.47 to 0.81. The Cronbach Alpha values for intrinsic motivation ($\alpha = 0.79$) and identified regulation ($\alpha = 0.81$) were quite high. None of the items of these two sub-scales were identified as poor items and thus none were omitted from further analyses. The Cronbach Alpha values for introjected regulation ($\alpha = 0.62$) was relatively low, but still acceptable (Guilford & Fruchter, 1978). Item 3 of the amotivation subscale and item 11 of the extrinsic regulation subscale were identified as 'poor' items and were omitted from further analyses. Thus these two sub-scales consisted of only two items each and had very low reliability coefficients ($\alpha = 0.48$ and $\alpha = 0.47$ respectively). The low reliability coefficients could simply be a result of the sub-scales consisting of such a small number of items. The Spearman-Brown Prophecy formula was thus used to calculate the reliability coefficients if the number of items of each sub-scale were

doubled. The (Spearman-Brown) reliability coefficients for amotivation and extrinsic regulation were 0.65 and 0.64 respectively. These are deemed to be low but acceptable levels of reliability considering the small number of items (4 items each) and it was thus decided to include these sub-scales in further analyses.

Table 4. Descriptive Statistics of the Academic Motivation Variables

	n	Mean	Standard deviation	Minimum	Maximum	Cronbach Alpha	Spearman-Brown
Amotivation	193	2.57	1.15	1.00	5.00	0.48	0.65
Intrinsic motivation	193	3.72	0.82	1.00	5.00	0.79	
Extrinsic regulation	193	2.81	1.13	1.00	5.00	0.47	0.64
Identified regulation	193	4.44	0.80	1.00	5.00	0.81	
Introjected regulation	193	3.57	0.92	1.00	5.00	0.62	

Single sample *t*-tests were conducted comparing the means of all of the subscales to the midpoint of each subscale (i.e. 2.5 for each of the sub-scales). The results show that the participants displayed levels of intrinsic motivation ($M = 3.72$, $SD = 0.82$, $t(192) = 20.64$, $p < 0.001$), extrinsic regulation ($M = 2.81$, $SD = 1.13$, $t(192) = 3.76$, $p < 0.001$), and the more self-determined forms of extrinsic motivation, that is, introjected regulation ($M = 3.57$, $SD = 0.92$, $t(192) = 16.09$, $p < 0.001$) and identified regulation ($M = 4.44$, $SD = 0.80$, $t(192) = 33.92$, $p < 0.001$) that were significantly higher than the midpoint of 2.5. The mean for amotivation ($M = 2.57$, $SD = 1.15$) was not significantly different from the midpoint of the scale ($t(192) = 0.85$; $p > 0.05$).

The participants scored high for both intrinsic motivation and identified regulation, which are the more self-determined motivational orientations. A single sample *t*-test was conducted comparing the means of identified regulation and intrinsic motivation in order to test whether the participants' levels of identified regulation were significantly higher than their levels of intrinsic motivation. The results show that the participants displayed significantly higher levels of identified regulation ($M = 4.44$, $SD = 0.80$) than intrinsic motivation ($M = 3.72$, $SD = 0.82$, $t(384) = 8.82$; $p < 0.001$). The results show that the participants' behaviours, with regard to their

academic work and attending university, were more regulated by that which they perceived as personally relevant and important, than by external contingencies.

Self-esteem

The descriptive statistics for self-esteem are presented in Table 5. Item analysis was conducted. Item 8 was identified as a 'poor' item and was omitted from further analyses. The Cronbach Alpha value for this scale was 0.83, which is a high level of reliability and is similar to that reported by other studies (e.g. Crocker & Luhtanen (2003) who reported a Cronbach Alpha value of 0.87).

A single sample *t*-test was conducted to compare the mean of the scale to the midpoint of scale (i.e. 2). The results indicate that the participants displayed levels of self-esteem that was significantly higher than the midpoint of the scale (M = 3.22, SD = 0.60, $t(193) = 28.11$, $p < 0.001$), which implies that they displayed very high levels of self-esteem.

Perceived stress

The descriptive statistics for the perceived stress scale are presented in Table 5. Item analysis was conducted and Item 12 was identified as a 'poor' item and was omitted from further analyses. The Cronbach Alpha value for this scale was 0.74, which is a high level of reliability, and was slightly lower than that reported by Cohen et al. (1983), who reported reliability coefficients between 0.83 and 0.87.

A single sample *t*-test was conducted to compare the mean of the scale to the midpoint of scale (i.e. 32.5). The results indicate that the participants displayed levels of perceived stress that was significantly higher than the midpoint of the scale (M = 37.41, SD = 7.67, $t(193) = 8.92$, $p < 0.001$), which implies that the participants perceived their lives to have been moderately stressful in the month prior to completing the questionnaire. The mean for this sample is similar to that of the validation sample (Cohen et al., 1983) and other studies including university students, for example, Deckro, Ballinger, Hoyt, Wilcher, Dusek, Myers, Greenberg, Rosenthal and Benson (2002). Cohen et al. (1983) and Deckro et al. (2002) used a 5-point Likert scale ranging from 0 ('*never*') to 4 ('*very often*') whereas in the present study the scale ranged from 1 ('*never*') to 5 ('*very often*'). This difference

has to be taken into account in comparing the results of the present study with other studies. Cohen et al. (1983) found means ranging between 21 and 26, and Deckro et al. (2002) found means between 25 and 31.

Academic overload

The descriptive statistics for academic overload are presented in Table 5. Item analysis was conducted. Item 4 was identified as a 'poor' item and was omitted from further analyses. The Cronbach Alpha value for this reduced scale was 0.75, which is a good level of reliability (Guilford & Fruchter, 1978). The level of reliability is, however, lower than that reported by Muller and Louw (2004), who reported a Cronbach Alpha value of 0.84.

A single sample *t*-test was conducted to compare the mean of the scale to the midpoint of scale (i.e. 2.5). The mean for academic overload was significantly higher than the midpoint of the scale ($M = 2.99$, $SD = 0.87$, $t(193) = 7.82$; $p < 0.001$), indicating moderate scores for academic overload, that is, subjects perceived their academic workload as moderately demanding.

Table 5. Descriptive Statistics of Self-Esteem, Perceived Stress and Academic Overload.

Variable	*n*	Mean	Standard deviation	Minimum	Maximum	Cronbach Alpha
Self-esteem	194	3.22	0.60	1.00	4.00	0.83
Perceived stress	194	37.41	7.67	19.00	58.00	0.74
Academic overload	194	2.99	0.87	1.00	5.00	0.75

Adjustment

The descriptive statistics for the SACQ Full scale and the four sub-scales, Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment and Attachment are presented in Table 8. Following Baker and Siryk (1989), the raw scores on the SACQ were converted to standardised T-scores based on the second-semester norms. The T-scores are "based on the normative sample stratified by sex and semester" (Baker & Siryk, 1989, p. 11). These scores are standard scores with a mean of 50 and a standard deviation of 10. The results presented in Table 8 are relative to the norms, which were based on a sample of students at American

colleges, as there are no norms available that are based on a sample of South Africans. Thus the norms may not represent the sample for this study and caution should be practised in interpreting the results. In this study the SACQ was not used as a diagnostic tool and thus the interpretations of the results are provided to merely give an idea of the participants' overall, academic, social and personal-emotional adjustment, and their attachment the to university.

The Cronbach Alpha values for the full scale and the four subscales ranged from 0.78 to 0.93. These reliability coefficients are similar to that of the normative data (Baker & Siryk, 1989) and that reported by Sennett et al. (2003) who investigated the adjustment of first-year students at UCT (see description of the SACQ in Chapter 2).

The participants scored below the midpoint scores of the full scale and all of the sub-scales except Attachment, which had a mean slightly above the midpoint (relative to the normative sample) ($M = 51.60$, $SD = 10.59$). The means of the Full scale and all of the sub-scales were significantly lower than the midpoint score (i.e. 50): Full scale ($M = 45.09$, $SD = 9.77$, $t(192) = -6.99$, $p < 0.001$), Academic Adjustment ($M = 47.32$, $SD = 10.34$, $t(192) = -3.61$, $p < 0.001$), Social Adjustment ($M = 46.01$, $SD = 10.09$, $t(192) = -5.50$, $p < 0.001$), P/Emotional Adjustment ($M = 41.54$, $SD = 9.06$, $t(192) = -12.97$, $p < 0.001$). The mean for Attachment was significantly higher than the midpoint score ($M = 51.60$, $SD = 10.59$, $t(192) = 2.12$, $p < 0.05$). The participants thus generally showed a relatively poor overall adjustment to university, and relatively poor adjustment to the educational and interpersonal-societal demands characteristic of the experience of attending university. The participants also generally displayed a low sense of psychological and physical well-being, and relatively average attachment to and satisfaction with attending university in general and attending UCT in particular.

Table 6. Descriptive Statistics of the SACQ and Academic Performance

	N	Mean	Standard deviation	Minimum	Maximum	Cronbach Alpha
Raw scores						
Full scale	193	392.03	68.24	195.00	573.11	0.93
Academic	193	138.37	27.55	68.00	213.91	0.84
Social	193	118.14	26.97	36.00	180.00	0.84
P/emotional	193	76.78	20.01	20.00	128.00	0.78
Attachment	193	104.21	20.89	19.00	135.00	0.86
T-scores						
Full scale	193	45.09	9.77	25.00	75.00	
Academic	193	47.32	10.34	25.00	75.00	
Social	193	46.01	10.09	25.00	75.00	
P/emotional	193	41.54	9.06	25.00	68.00	
Attachment	193	51.60	10.59	25.00	75.00	
Academic performance	194	52.82	12.41	0.00	78.63	

Academic performance

The descriptive statistics and frequencies for the average grade percentage for the year are presented in Table 6 and Figure 2 respectively.

The results indicate that the participants obtained a low average percentage for the year ($M = 52.82$, $SD = 12.41$). Thirty-five percent of the participants obtained less than 50%, which is a fail, at the end of the year. Only 6% obtained more than 69%. One participant obtained 0% at the end of the year. According to this participant's academic record obtained from IPD, he was academically excluded from the university the following year and was thus not allowed to register for any course at UCT. He was included in the analyses for the present study.

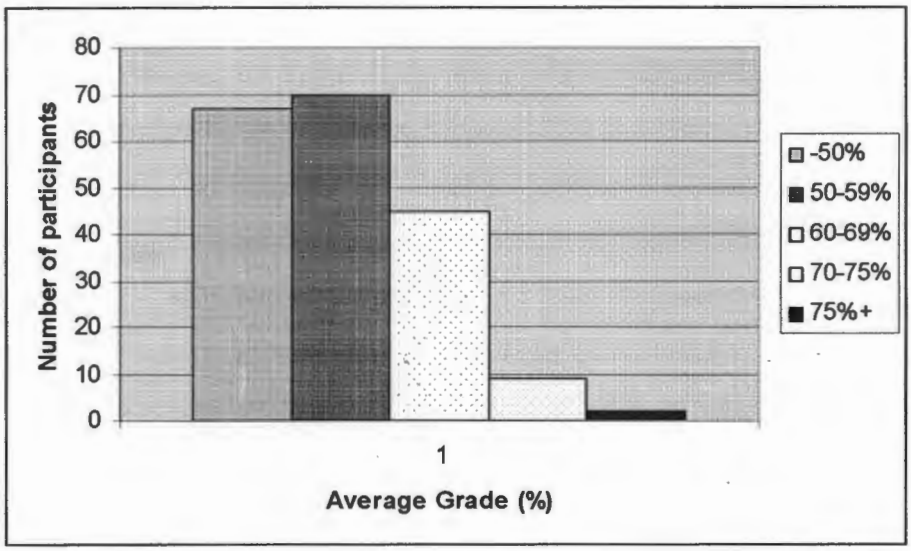

Figure 2. Frequencies for the average grade percentage.

Analyses Testing Adjustment as a Mediator of the Psychosocial Factors and Academic Performance

Pearson product-moment correlations

The first step in the main analysis was to calculate the Pearson product-moment correlations among the independent variables to be included in the path analysis. Calculating the correlation matrix is an essential first step in the analysis as it provides information about the data on which the path analysis was based by presenting the pattern of bivariate relations between the variables to be measured (Hoyle & Panter, 1995). The correlational analysis is also useful in developing more parsimonious and meaningful path models. According to Loehlin (1992, p. 6), path diagrams with the "smallest number of variables connected by the smallest number of arrows...is the path diagram to be sought for, because it represents the most parsimonious explanation of the phenomenon under consideration". In order to obtain a more parsimonious model, it was decided that non-significant correlations between the independent variables were to be excluded from the path analysis. This would free some degrees of freedom and thus result in path models that are over-identified as opposed to just-identified. According to Bentler (1980) and MacCallum (1995), a model has to be over-identified in order for it to be meaningful. A model is over-identified if the number of parameters specified (i.e. the number of correlations and paths or arrows included) is less than the number of

variances/covariances. A model is just-identified if the model fits the data perfectly such that the number of parameters specified (i.e. the number of correlations and paths or arrows included) are equal to the number of variances/covariances (i.e. degrees of freedom = 0) (MacCallum, 1995). Just-identified models are described as meaningless as these models will always fit the data perfectly and can never be rejected, and are thus not disconfirmable (Bentler, 1980; MacCallum, 1995). The chi-square and the probability levels of just-identified models cannot be calculated, and thus the fit of the models cannot be assessed. Thus the first step in the analysis was to calculate the Pearson product-moment correlations among the independent variables to be included in the path analysis, that is, help-seeking, self-esteem, amotivation, intrinsic motivation, extrinsic regulation, identified regulation, introjected regulation, academic overload, and perceived stress. Only correlations that reached significance were included in the path analysis (see Table 7). It is noted that significant correlations found between two variables simply indicate that changes in the one variable significantly corresponds with changes in the other variable and vice versa, and thus do not indicate causal relations.

Table 7. Intercorrelations of Independent Variables.

Variable	Help	Esteem	AMOT	INTR	EXTR	ID	INTROJ	OVERL
Help	-							
Esteem	-0.02	-						
AMOT	0.03	**-0.21****	-					
INTR	-0.02	**0.25*****	**-0.33*****	-				
EXTR	0.01	-0.09	**0.32*****	**-0.27*****	-			
ID	-0.05	**0.17***	**-0.19***	**0.59*****	**-0.17***	-		
INTROJ	0.05	-0.02	**0.17***	0.09	**0.31*****	**0.32*****	-	
OVERL	0.09	**-0.23****	**0.21****	**-0.15***	**0.35*****	-0.08	**0.20****	-
Stress	-0.11	**-0.51*****	**0.29*****	**-0.39*****	**0.24****	**-0.17***	0.10	**0.22****

Notes: Help = help-seeking, Esteem = self-esteem, AMOT = amotivation, INTR = intrinsic motivation, EXTR = extrinsic regulation, ID = identified regulation, INTROJ = introjected regulation, OVERL = academic overload, Stress = perceived stress.
All of the significant correlations are in bold.
* $p < .05$. ** $p < .01$. *** $p < .001$

It can be seen in Table 7 that most of the correlations between the independent variables were significant. All of these correlations were as was hypothesised. The results show that all of the intercorrelations with help were insignificant. Insignificant correlations were found between self-esteem and extrinsic regulation ($r = -0.09$; $p > 0.1$), self-esteem and introjected regulation ($r = -0.02$; $p > 0.1$), intrinsic motivation and introjected regulation ($r = 0.09$; $p > 0.1$), identified

regulation and overload (r = -0.08; $p > 0.1$), and introjected regulation and perceived stress (r = 0.10; $p > 0.1$). These correlations were thus excluded from the path models tested. Only the correlations that were found to be significant were included in the path models tested using path analysis (Structural Equation Modeling, n.d.).

Path analysis

In order to test whether adjustment functions as a mediator variable using the three conditions proposed by Baron and Kenny (1986), three path models were tested. The nested models approach was used in order to compare the fit of the models and determine whether the model only testing adjustment as a mediator variable had the best fit to the data thereby demonstrating that adjustment functions as a mediator variable (Bollen, 1989; Loehlin, 1992). A nested model is a more parsimonious version of a model (i.e. the base model) in that it is identical to the base model except for certain restrictions that are not included in the base model (Bollen, 1989). "Nested model comparisons work by imposing a constraint or set of multiple constraints on a starting or less restricted model to obtain a more restricted final model" (AMOS FAQ #6: Nested Model Comparisons, 2004, para. 3). The software programme, Amos 5, was utilised in conducting the path analysis.

In the present study, Model 1 represents the base model with which Models 2 and 3, as nested models, were compared. Testing nested models allows one to establish whether a more parsimonious model (i.e. the nested model) is significantly different from a base model (Bollen, 1989), and allows for the comparison of the path coefficients and variances of the base and nested models (AMOS FAQ #6: Nested Model Comparisons, 2004).

Model 1 (see Figure 3) included both the direct and mediated (via adjustment) paths between the independent variables and academic performance. This model included the academic motivation variables (i.e. intrinsic motivation, extrinsic regulation, introjected regulation, identified regulation and amotivation), self-esteem, perceived stress and academic overload as the independent variables and academic performance as the dependent variable with adjustment as a mediator. Thus this model was designed to test the direct effects of all of the independent

variables, including adjustment to university, on academic performance; and the effects of all of the independent variables on academic performance via the mediator variable, adjustment to university.

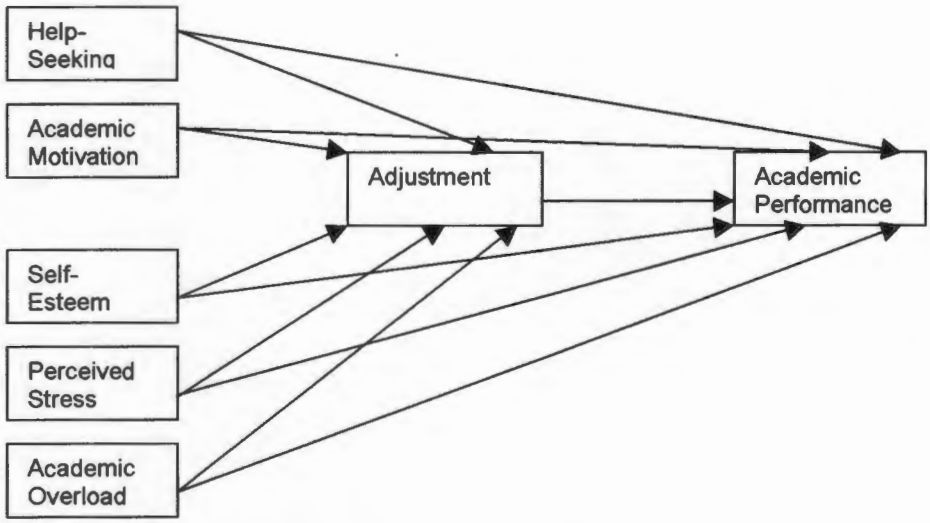

Figure 3. Model 1 with the academic motivation variables, self-esteem, perceived stress and academic overload as the independent variables; adjustment as a mediator; and academic performance as the dependent variable.

Model 2 (see Figure 4) included only the direct paths between the independent variables and academic performance. Adjustment was included as an independent variable. This model included the academic motivation variables (i.e. intrinsic motivation, extrinsic regulation, introjected regulation, identified regulation and amotivation), self-esteem, perceived stress, academic overload and adjustment as the independent variables and academic performance as the dependent variable. Thus this model was designed to test the direct effects of all of the independent variables, including adjustment to university, on academic performance.

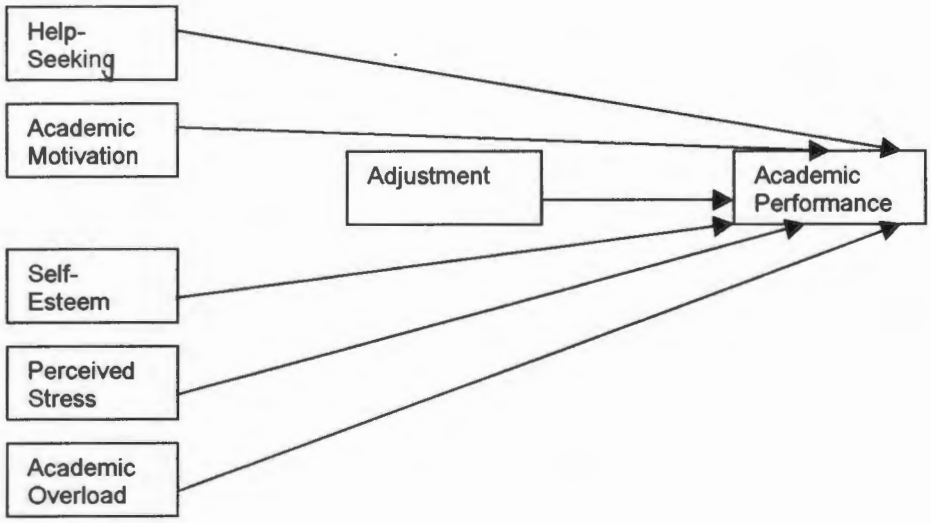

Figure 4. Model 2 including (only) the direct paths between help-seeking, the academic motivation variables, self-esteem, perceived stress, academic overload and adjustment; and academic performance.

Model 3 (see Figure 5) included only the mediated paths between the independent variables and academic performance. Adjustment was included as a mediator variable. This model included the academic motivation variables (i.e. intrinsic motivation, extrinsic regulation, introjected regulation, identified regulation and amotivation), self-esteem, perceived stress and academic overload as the independent variables and academic performance as the dependent variable with adjustment as a mediator variable. Thus this model was designed to test the effects of all of the independent variables on academic performance via the mediator variable, adjustment to university.

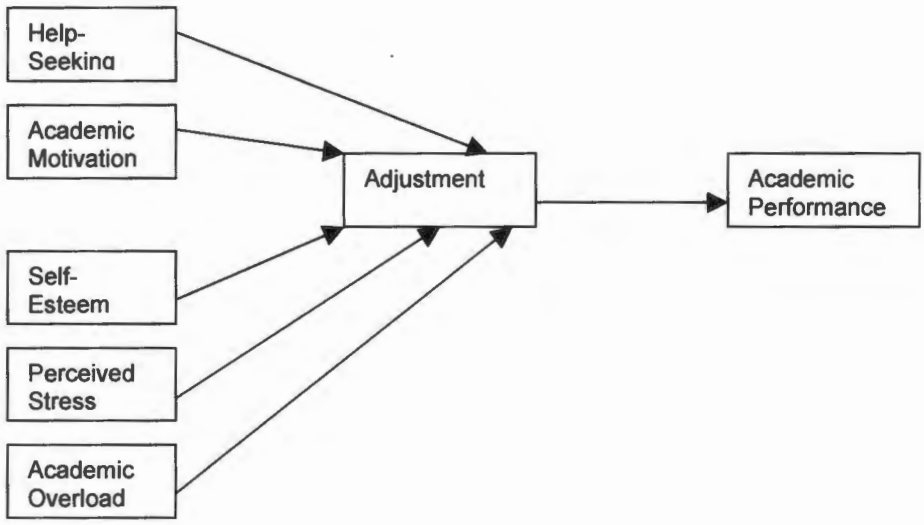

Figure 5. Model 3 including (only) the mediated paths between help-seeking, the academic motivation variables, self-esteem, perceived stress and academic overload; and academic performance.

In the present study it was hypothesised that the more parsimonious (nested) Model 3, which included (only) the effects of all of the independent variables on academic performance mediated via adjustment to university, would have the best fit to the data compared to (the base) Model 1. It was hypothesised that the more parsimonious (nested) Model 2, which included (only) the direct effects of all of the independent variables (including adjustment to university) on academic performance, would have an inadequate fit to the data compared to (the base) Model 1.

Assessment of the fit indices

The fit indices of the three models were firstly assessed in order to determine the goodness of the fit of each of the models to the data. The fit measures of path models determine how well the proposed model explains the data, that is, whether the path model is appropriate in explaining the data (Bollen, 1989; Loehlin, 1992). The fit indices reported in the present study are: the chi-square fit index, the Normed Fit Index (NFI), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA). These are the most commonly reported fit indices. In assessing the fit of a model to the data, a chi-square value that is not statistically significant shows good overall fit to the data. NFI and CFI values that

are close to 1, but not less than 0.98 are considered to show a good overall fit to the data. A RMSEA value that is less than 0.1 is considered to show a good fit to the data.

Examination of the fit indices (see Table 8) revealed that Model 1, which tested the mediated and direct paths between the independent variables and academic performance, displayed a good overall fit to the data with Chi² (13) = 16.681, p = 0.214; NFI = 0.970; CFI = 0.992 and RMSEA = 0.038. Model 1 explained 58% of the variance in adjustment and 18% of the variance in academic performance.

Table 8. Variance, Path Coefficients and Fit Indices for Model 1

	Adjustment	**Academic performance**
Variance	58 %	18 %
Adjustment	-	0.153
Help-seeking	0.053	0.039
Intrinsic motivation	0.177**	-0.063
Extrinsic regulation	-0.072	-0.161*
Introjected regulation	-0.095	0.015
Identified regulation	0.154*	0.051
Amotivation	-0.078	-0.122+
Self-esteem	0.181**	0.080
Perceived stress	-0.409***	0.134
Academic overload	-0.088	-0.226**
Indices: Chi² (13) = 16.681, p = 0.214; NFI = 0.970; CFI = 0.992 and RMSEA = 0.038 (N=194)		

Notes: The table presents the standardised path coefficients (direct effects).
* $p < .05$; ** $p < .01$; *** $p < .001$

Examination of the fit indices revealed that Model 2 displayed an inadequate overall fit to the data according to the sensitive chi-square value, Chi² (22) = 189.599, p = 0.000; NFI = 0.654; CFI = 0.653 and RMSEA = 0.199 and explained 16 % of the variance in academic performance (see Table 9).

Table 9. Variance, Path Coefficients and Fit Indices for Model 2

	Academic performance
Variance	16 %
Adjustment	0.161
Help-seeking	0.039
Intrinsic motivation	-0.063
Extrinsic motivation	-0.162*
Introjected regulation	0.015
Identified regulation	0.051
Amotivation	-0.124
Self-esteem	0.082
Perceived stress	0.138
Academic overload	-0.229**
Indices: Chi² (22) = 189.599, p = 0.000; NFI = 0.654; CFI = 0.653 and RMSEA = 0.199 (N=194)	

Notes: The table presents the standardised path coefficients (direct effects).
* $p < .05$; ** $p < .01$; *** $p < .001$

Examination of the fit indices revealed that Model 3 displayed an inadequate overall fit to the data according to the sensitive chi-square value, Chi^2 (22) = 43.152, p = 0.005; NFI = 0.921; CFI = 0.956 and RMSEA = 0.071. Model 3 explained 58% of the variance in adjustment and only 7% of the variance in academic performance (see Table 10).

Table 10. Variance, Path Coefficients and Fit Indices for Model 3

	Adjustment	Academic performance
Variance	58 %	7 %
Adjustment	-	0.256***
Help-seeking	0.053	-
Intrinsic motivation	0.178**	-
Extrinsic motivation	-0.072	-
Introjected regulation	-0.095	-
Identified regulation	0.153*	-
Amotivation	-0.078	-
Self-esteem	0.182**	-
Perceived stress	-0.409***	-
Academic overload	-0.088	-
Indicies: Chi^2 (22) = 43.152, p = 0.005; NFI = 0.921; CFI = 0.956 and RMSEA = 0.071 (N=194)		

Notes: The table presents the standardised path coefficients (direct effects).
* $p < .05$; ** $p < .01$; *** $p < .001$

The assessment of the fit indices show that only Model 1, that is, the model that included the direct and indirect paths (mediated via adjustment) between the independent variables and academic performance, showed a good overall fit to the data whereas Models 2 and 3 showed an inadequate fit to the data. Thus only Model 1 was found to be an appropriate model explaining the data.

Model comparisons

In order to satisfy the three conditions proposed by Baron and Kenny (1986) and identify adjustment as a pure mediator variable mediating the relation between the independent variables and academic performance, Model 3 should be found to be the best model explaining the data. The fit indices of the nested models were compared to the base model in order to determine the model with the best fit to the data.

The nested model comparisons allow for the assessment of the worsening of the overall fit of the model to the data due to imposing specific restrictions (AMOS FAQ #6: Nested Model Comparisons, 2004). A nested model would be considered

significantly different from the base model if the chi-square value of the comparison is significant (i.e. $p < 0.05$) (AMOS FAQ #6: Nested Model Comparisons, 2004). A nested model that is found to be significantly different from the base model, even if the nested models are found to have an acceptable fit to the data, indicates that imposing the restrictions on the base model to obtain the nested model results in a substantial worsening of the overall fit of the base model to the data. Thus the parsimony achieved by imposing the restrictions (i.e. excluding certain paths by setting them to equal zero) comes at too high a cost indicating that the base model should be kept as the better model and the nested model rejected (AMOS FAQ #6: Nested Model Comparisons, 2004).

The nested Model 2 was first compared to the base model, Model 1, and then the nested Model 3 was compared to the base Model 1. The results are presented in Table 11.

Table 11. Nested Model Comparisons

Model	*df*	Chi^2	*p*	Variance in academic performance
Model 1	-	-	-	18 %
Model 2	9	172.919	0.000	16 %
Model 3	9	26.471	0.002	7 %

The results of the nested model comparisons reveal that Model 2 was found to be significantly different from Model 1 (Chi^2 (9) = 172.919, $p = 0.000$). This indicates that imposing the restrictions on the base model to obtain (nested) Model 2 results in a substantial worsening of the overall fit of the model to the data. Thus (base) Model 1 should be kept as the better model and (nested) Model 2 that tests only the direct paths should be rejected. These results suggest that the model (i.e. Model 1) including the paths between the independent variables and academic performance that are mediated by adjustment in addition to the direct paths showed a better fit to the data.

Model 3 was also found to be significantly different from Model 1 (Chi^2 (9) = 26.471, $p = 0.002$). This indicates that imposing the restrictions on the base model (Model 1) to obtain (nested) Model 3 results in also worsening of the overall fit of

the model to the data. Thus the parsimony achieved by imposing the restrictions (i.e. excluding the direct paths by setting them to equal zero) comes at too high a cost indicating that (base) Model 1 should be kept as the better model and the (nested) Model 3 that tests only the mediated paths rejected.

In both nested model comparison situations, the models differed significantly and therefore the unrestricted base model (i.e. Model 1) should be preferred. The results show that the model that includes both direct and mediated paths between the independent variables and academic performance fits the data better than the more parsimonious models. An examination of the variance in academic performance explained by the models shows that this model explained the most variance in academic performance whereas the model testing only the mediated paths (i.e. Model 3) explained the least variance in academic performance. These results indicate that the effects of all of the independent variables, help-seeking, self-esteem, amotivation, intrinsic motivation, extrinsic regulation, identified regulation, introjected regulation, overload, and perceived stress on academic performance were only partially mediated by adjustment.

Assessment of the path coefficients

The direct and mediated effects of each of the independent variables on academic performance as tested in Model 1 were examined more closely in order to gain a better understanding of the relation between each of the independent variables and academic performance.

Both the standardised and unstandardised path coefficients were provided by the statistics programme used. The standardised path coefficients were considered more appropriate for the purposes of the present study as standardised coefficients are appropriate when comparisons are made across different variables whereas the unstandardised coefficients would be more appropriate when comparisons are made across different populations (Loehlin, 1992). The standardised path coefficients for Model 1 are presented in Table 8 (see previous) and Figure 6 (see below). Only the direct effects could be reported as Amos 5 does not calculate the significance levels of the total and indirect effects.

The results reveal significant positive effects of intrinsic motivation, identified regulation and self-esteem on adjustment whereas perceived stress had a significant negative effect on adjustment. Only extrinsic regulation and academic overload were found to be significant predictors of academic performance. Only the significant predictors of adjustment and academic performance will be discussed. The significant predictors of adjustment will be discussed followed by that of academic performance.

The path coefficients for the effects of intrinsic motivation ($\beta = 0.177$; $p < 0.01$) and identified regulation ($\beta = 0.154$; $p < 0.05$) on adjustment indicate that students whose academic behaviours were more self-determined (i.e. those with high levels of intrinsic motivation and identified regulation) were better adjusted to university. The path coefficient for the effect of self-esteem ($\beta = 0.181$; $p < 0.01$) on adjustment indicate that students who had a high level of self-esteem were well adjusted to university. These results were as expected.

Perceived stress had a significant negative effect on adjustment ($\beta = - 0.409$; $p < 0.001$) indicating that students who perceived their lives to be very stressful in the month prior to completing the questionnaire were poorly adjusted to university. Perceived stress was found to be the strongest predictor of adjustment. This result was as expected.

The significant negative path coefficient of academic overload in relation to academic performance ($\beta = -0.226$; $p < 0.01$) indicates that students who appraised their academic requirements as too demanding achieved lower average academic marks at the end of the year. Academic overload was found to be the strongest predictor of academic performance. The result was as expected.

The significant negative path coefficient for extrinsic regulation in relation to academic performance ($\beta = -0.161$; $p < 0.05$) indicates that students whose academic behaviours were highly regulated by external contingencies (e.g. academic awards) achieved lower average academic marks at the end of the year. The result was as expected.

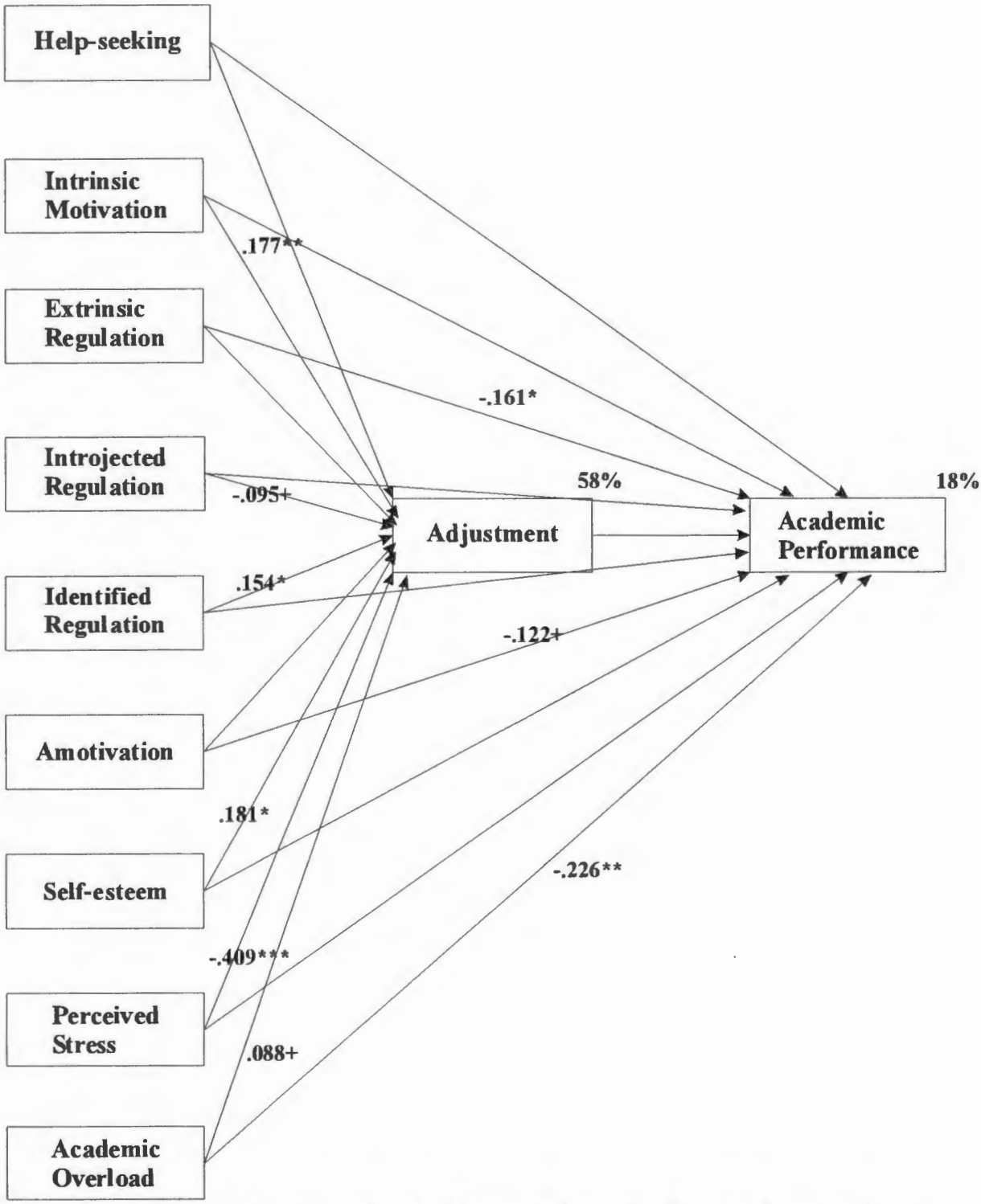

Figure 6. Model 1 including the significant and marginally significant path coefficients. *Note*: The marginally significant path coefficients (+ $p < 0.1$) were indicated for interest-sake. + $p < 0.1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Surprisingly, the impact of adjustment on academic performance did not reach significance ($\beta = 0.153$; $p > 0.1$). There are three possible reasons for this. The first possible reason is the fact that a large number of paths between several variables were tested using a relatively small sample ($N = 194$). The second possible reason is that the result was caused by the particular measure of adjustment (i.e. the SACQ) used in the present study. The SACQ is conceptualised as a multidimensional construct. It was thus recommended that the structure of this particular measure of adjustment be examined more closely by exploring the individual impact of each of the four subscales. The third reason is seen in possible gender differences that may mean that two subsets of the sample were being tested as one (see Baker & Siryk, 1989). Two of the possible reasons could be tested.

Further analyses were conducted in order to explore the individual effects of the four sub-scales that constitute the measure of adjustment used (i.e. SACQ) in order to determine whether the underlying structure of this measure had an effect on the results. The differences between males and females with regard to the effect of their help-seeking behaviours, academic motivation, the experience of not being able to cope with the academic requirements, level of self-esteem and level of perceived stress on their average end of year academic grades were also explored.

Analyses assessing the measure of adjustment

The underlying rationale of the SACQ is that adjustment to university is multifaceted (Baker & Siryk, 1989). Four different aspects of adjustment are identified, namely, academic, social and personal-emotional adjustment, and institutional commitment. The overall score of the full scale of the SACQ was used in the present study, but separate scores can be obtained for each of the sub-scales[6]. The items of the four sub-scales are included in Appendix E.

[6] It should be noted that the overall measure of adjustment used in the present study, that is, the full scale scores for the SACQ, was not simply a composite of all of the items of the four sub-scales as some of the items included in the Institutional Attachment/Commitment sub-scale are also included in the Social Adjustment and Academic Adjustment sub-scales when scoring the sub-scales separately. The full scale also contains two additional items that are not included in any of the sub-scales. The two items enquire whether the respondent felt that in general s/he was able to deal with the challenges presented to him/her in adjusting to university.

The individual effect of the four sub-scales on academic performance was tested using path analysis. Following the scoring procedure described by Baker and Siryk (1989), each of the sub-scales were scored separately. The path model included academic adjustment, social adjustment, personal-emotional adjustment and institutional commitment as the independent variables, and academic performance as the dependent variable (see Figure 7).

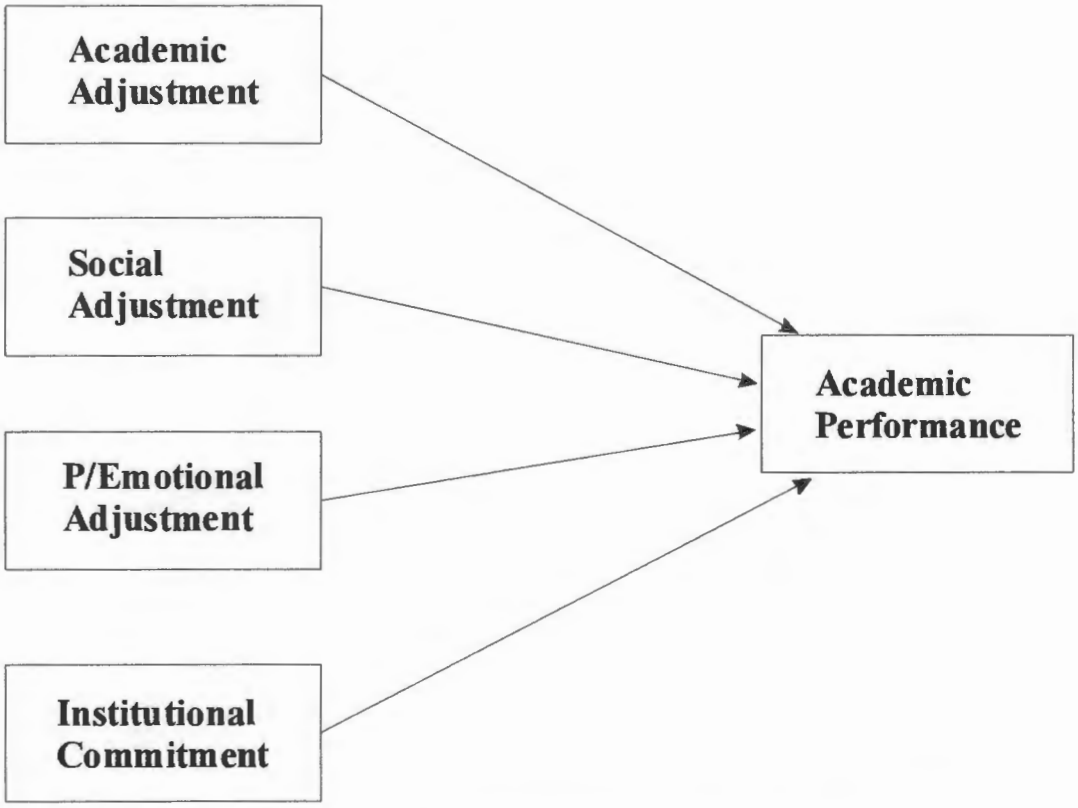

Figure 7. Model including the four sub-scales of the SACQ as the independent variables and academic performance as the dependent variable.

The first step in the analysis was to calculate the Pearson's product-moment correlations for the independent variables to be included in the path analysis as these inform about the data on which the path analysis was based. The correlations among the independent variables are presented in Table 12.

Table 12. Intercorrelations between the SACQ Sub-Scales.

Variable	Academic adjustment	Social adjustment	P/Emotional adjustment
Academic adjustment	-		
Social adjustment	**0.47** ***	-	
P/emotional adjustment	**0.51** ***	0.38 ***	-
Institutional Commitment	**0.56** ***	**0.79** ***	0.38 ***

Notes: All significant correlations with r > 0.45 are in bold.
****p < 0.001*

It can be seen in Table 12 that all of the correlations were positive and significant (i.e. $p < 0.001$) which was expected. Thus, all of the correlations were included in the path model to be tested.

This model was therefore just-identified as the number of parameters specified (i.e. the number of correlations and paths or arrows included) were equal to the number of variances/covariances (i.e. degrees of freedom = 0) (MacCallum, 1995). The fit indices could not be calculated (degrees of freedom = 0) and thus the fit of the model to the data could not be assessed. This is not problematic as the purpose of this analysis was to determine the effect of each of the subscales on academic performance, and not to ascertain whether the model showed an adequate fit to the data and adequately explained academic performance. The results of the path analysis, including the path coefficients and variance are presented in Figure 10.

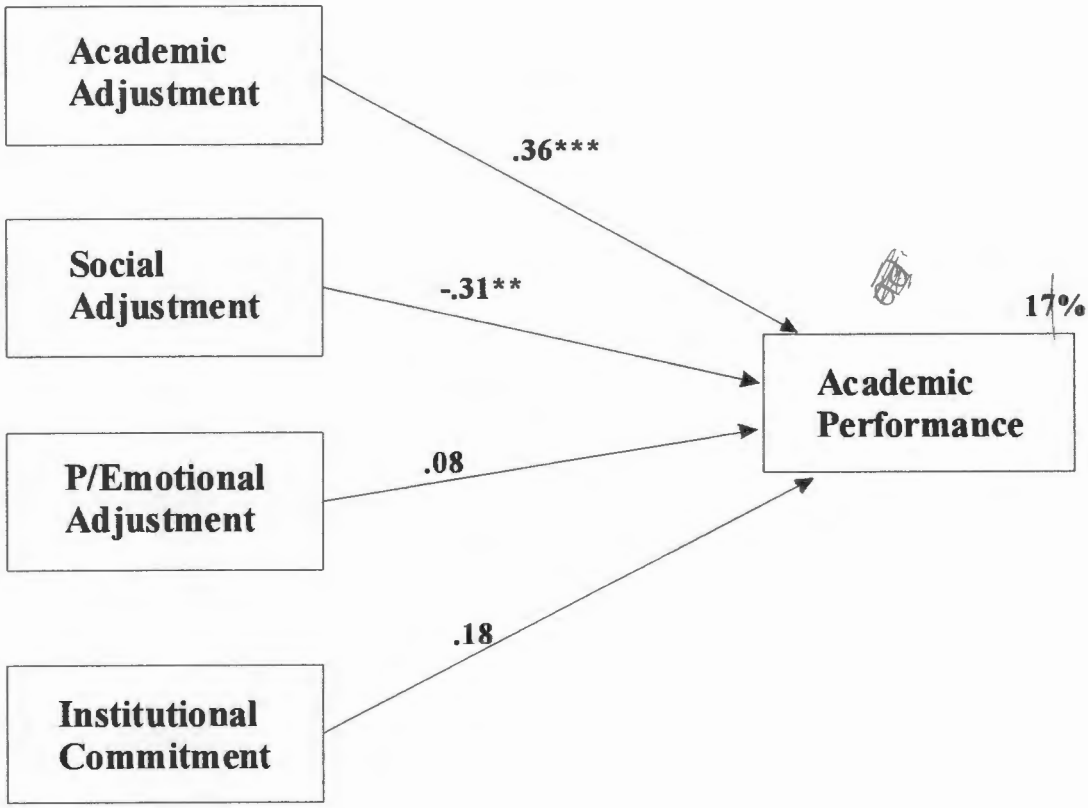

Figure 8. Model including the four sub-scales of the SACQ as the independent variables and academic performance as the dependent variable. The path coefficients and variance are reported. *Note*: ** $p < 0.01$; *** $p < 0.001$

The results show that the four sub-scales explained 17% of the variance in academic performance. It can be seen in Figure 8 that only academic adjustment ($\beta = 0.36$; $p < 0.001$) and social adjustment ($\beta = -0.31$; $p < 0.001$) were found to be significant predictors of academic performance. The positive path coefficient for academic adjustment indicates that students who were well adjusted academically were likely to achieve high average academic marks at the end of the academic year. The negative path coefficient for social adjustment indicates that students, who were well adjusted socially, were likely to achieve low average academic marks at the end of the academic year. This result could mean that students who were active in the social sphere of the university may have shifted their focus from their academic work and thus achieved lower academic grades. The path coefficients of *p*/emotional adjustment ($\beta = 0.08$; $p > 0.1$) and institutional commitment ($\beta = 0.18$; $p > 0.1$) did not reach significance.

The negative path coefficient for social adjustment is surprising. According to Baker and Siryk (1989, p. 15), the low scores on this subscale are associated with a "greater sense of loneliness", greater social avoidance and distress, "less perceived social support", and "less success in coping with life changes". Research shows that feelings of loneliness, of not being able to cope with life changes, and of not having adequate social support available are associated with lower academic grades (e.g. Prillerman et al., 1989; Sennett et al., 2003). Thus students who are well adjusted socially should achieve high academic grades and not the opposite, which was found in the present study. The significant negative effect of the students' scores of the items of social adjustment included in the measure of overall adjustment could have influenced the measure in such a way that the positive significant effects of academic adjustment and the insignificant effects of p/emotional adjustment and institutional commitment on academic performance were weakened. This is a possible reason for the effect of adjustment on academic performance not reaching significance when the direct and mediated paths between the independent variables and academic performance were tested simultaneously.

In order to test whether the significant negative effect of the Social Adjustment sub-scale negatively influenced the effect of adjustment on academic performance, the model was tested excluding all of the items of the Social Adjustment sub-scale. The results of the path analysis, including the path coefficients and variance are presented in Table 13.

Table 13. Variance, Path Coefficients and Fit Indices for Model 1 (Adjustment without Social Adjustment)

	Adjustment	**Academic performance**
Variance	59%	20%
Adjustment	-	0,246*
Help-seeking	0,006	0,045
Intrinsic motivation	0,206**	-0,086
Extrinsic regulation	-0,045	-0,161*
Introjected regulation	-0,096	0,024
Identified regulation	0,172**	0,032
Amotivation	-0,099	-0,110
Self-esteem	0,177**	0,064
Perceived stress	-0,383***	0,166
Academic overload	-0,111*	-0,212**
Indices: Chi^2 (13) = 16,691, p = 0,214; NFI = 0,997; CFI = 0,999 and RMSEA = 0.038 (N=194)		

Notes: The table presents the standardised path coefficients (direct effects).
* $p < .05$; ** $p < .01$; *** $p < .001$

Examination of the fit indices revealed that this model displayed a good overall fit to the data according to the sensitive chi-square and the other fit indices, Chi^2 (13) = 16.691, p = 0.214; NFI = 0.997; CFI = 0.999 and RMSEA = 0.038. This model explained 59% of the variance in adjustment and 20% of the variance in academic performance. It can be seen in Table 16 that the effect of adjustment on academic performance ($\beta = 0.246$; $p < 0.05$) reached significance when the items of the social adjustment sub-scale were excluded from the analysis. The results show that the significant negative effect of the students' scores of the items of social adjustment included in the measure of overall adjustment had influenced the measure in such a way that the positive significant effects of academic adjustment and the insignificant effects of *p*/emotional adjustment and institutional commitment on academic performance were weakened. The effect of academic overload on adjustment ($\beta = -0.111$; $p < 0.05$) also reached significance when the items of the social adjustment sub-scale were excluded from the analyses. It is recommended that further investigation of the different components of the full scale of the SACQ be conducted when testing models such as the ones proposed in the present study.

Analyses assessing gender differences

The third possible reason for the insignificant effect of adjustment could be gender differences with regard to the effect of their help-seeking behaviours, academic motivation, the perception of not being able to cope with the academic requirements, level of self-esteem, and level of perceived stress on the quality of their adjustment and their average end of year academic grades. Path analysis was conducted in order to examine differences between males and females.

The sample for the present study included slightly more males than females, that is, 109 (56 %) males and 85 (44 %) females. Conducting the analyses using a sample including both males and females without taking into account possible differences between the two groups could result in the results yielded being skewed by the effect of testing heterogeneous sub-samples as if they were a homogeneous sample (Howell, 1999). Howell cautions against ignoring the possible effects of heterogeneous sub-samples as this may result in the relations between certain variables being obscured or enhanced. Other than difference in the number of males and females included in the sample, the sample for the present study was

considered to be fairly homogenous. All of the participants in the present study were considered to be economically and educationally disadvantaged, were between 17 and 28 years old, mostly 'black' participants, and mainly spoke an African language as their first language. Most of the participants attended government schools in South Africa and 62.8% obtained between 30 and 40 matric points. Most of the participants lived in the university's residences. It was thus essential to investigate the differences between males and females with regard to the effect of their help-seeking behaviours, academic motivation, their experiences of not being able to cope with the academic requirements, their levels of self-esteem and their levels perceived stress on the quality of their adjustment to university and their average end of year academic grades. The base Model 1 was therefore calculated for the gender independently and compared.

Nested model comparisons were conducted to determine the differences between males and females for each of the paths (i.e. mediated and direct paths) included in Model 1, which was found to be the best of the three models proposed in the present study (see Figure 3). The probability levels of the differences between males and females for each of the paths were calculated. The results of the models are presented in Table 14 for females and males separately. The paths with path coefficients that differed significantly for females and males are in bold.

Table 14. Variance and Path Coefficients for Model 1 for Males and Females

	Adjustment		**Academic performance**	
	Females	Males	Females	Males
Variance	62%	59%	28%	31%
Adjustment	-	-	**-0.070**	**0.358****
Help-seeking	0.045	0.024	0.063	0.105
Intrinsic motivation	0.223*	0.134	0.097	-0.162
Extrinsic regulation	-0.081	-0.044	-0.144	-0.164
Introjected regulation	**0.048**	**-0.184***	-0.036	0.016
Identified regulation	0.106	0.240**	0.111	-0.022
Amotivation	-0.100	-0.063	**-0.399*****	**0.059**
Self-esteem	**0.376*****	**0.063**	**0.039**	**0.197***
Perceived stress	**-0.216****	**-0.531*****	0.130	0.199
Academic overload	-0.150	-0.055	**-0.048**	**-0.330*****

Notes: The table presents the standardised path coefficients (direct effects).
Statistically significant differences between the female and male sub-samples are in bold.
* $p < .05$; ** $p < .01$; *** $p < .001$

It can be seen in Table 17 that significant differences between females and males ($p < 0.05$) were found for the effects of introjected regulation, self-esteem, and perceived stress on adjustment. Significant differences between females and males ($p < 0.05$) were found for the effects of adjustment, amotivation, self-esteem and academic overload on academic performance.

The results for adjustment indicate that introjected regulation was an important predictor of adjustment for males ($\beta = -0.184$; $p < 0.05$) but not for females ($\beta = 0.048$; $p > 0.1$). Self-esteem was an important significant predictor of adjustment for females ($\beta = 0.376$; $p < 0.001$) and not for males ($\beta = 0.063$; $p > 0.1$). Perceived stress was a significant predictor of adjustment for both females and males, but it had a greater impact for males ($\beta = -0.531$; $p < 0.001$) than for females ($\beta = -0.216$; $p < 0.01$).

The results for academic performance indicate that the significant difference between females and males for adjustment indicates that adjustment was an important predictor of academic performance for males ($\beta = 0.358$; $p < 0.01$) and not for females ($\beta = -0.070$; $p > 0.1$). This result suggests that a model including adjustment as a mediator, such as the model proposed in the present study, would be more appropriate in explaining academic performance for males than for females. The significant difference between females and males for amotivation indicates that amotivation was an important significant predictor of academic performance for females ($\beta = -0.399$; $p < 0.001$) and not for males ($\beta = 0.059$; $p > 0.1$). The difference between females and males for self-esteem indicates that self-esteem was an important predictor of academic performance for males ($\beta = 0.197$; $p < 0.05$) and not for females ($\beta = 0.039$; $p > 0.1$). The comparison between males and females shows that self-esteem was an important predictor of adjustment for females and not males whereas self-esteem was an important predictor of academic performance for males and not females. The significant difference between females and males for academic overload indicates that academic overload was an important significant predictor of academic performance for males ($\beta = -0.330$; $p < 0.001$) and not for females ($\beta = -0.048$; $p > 0.1$).

Summary of Results

Descriptive statistics showed that:

- The majority (i.e. 84.7%) of the participants reported having sought help from the various sources of support (including academic, social, and personal-emotional support) available to students at UCT. Most of them approached their lecturers, tutors and curriculum advisors for assistance with the academic difficulties they experienced.
- Overall, the participants displayed high levels of intrinsic motivation and identified regulation, and that they scored significantly higher on the identified regulation sub-scale than the intrinsic motivation sub-scale indicating that their behaviours, with regard to their academic work and attending university, were more regulated by that which they perceived as personally relevant and important, than by external contingencies.
- The participants displayed high levels of self-esteem.
- They appraised their lives in the two months prior to completing the questionnaire as moderately stressful.
- They appraised their academic workload as moderately demanding.
- The participants generally showed a relatively poor overall adjustment to university, and relatively poor adjustment to the educational and interpersonal-societal demands characteristic of the experience of attending university. The participants also generally displayed a low sense of psychological and physical well-being, and relatively average attachment to and satisfaction with attending university in general and attending UCT in particular.
- The participants obtained a low average percentage for the year (M = 52.82, SD = 12.41). A large percentage of the participants (i.e. 35%) obtained less than 50%, which is a fail, at the end of the year and only 6% obtained more than 69%.

Path analysis was utilised in order to test the hypotheses of the present study. The main hypothesis of the present study was that the quality of the students' adjustment to university mediates the effect of help-seeking behaviours, self-

esteem, academic motivation (i.e. amotivation, intrinsic motivation, extrinsic regulation, identified regulation and introjected regulation), experience of the academic workload, and perceived stress on their end-of-year academic performance.

Considering the conditions that Baron and Kenny (1986) suggest have to be met in order for adjustment to function as a mediator, only the first two conditions were met. The model testing only the (indirect) effects of the independent variables on academic performance that were mediated via adjustment was shown to have an inadequate fit to the data, and thus was not an appropriate model for explaining the relationship between the independent variables and academic performance. Thus, according Baron and Kenny's (1986) criteria, the quality of adjustment to university does not function as pure mediator of the relationship between the independent variables and academic performance in this study. It was, however, found that even though adjustment was not found to function as a pure mediator, some of the effects of the independent variables on academic performance were mediated via adjustment. Thus academic performance was best explained by the direct and indirect effects (mediated via adjustment) of help-seeking, self-esteem, amotivation, intrinsic motivation, extrinsic regulation, identified regulation, introjected regulation, academic overload, and perceived stress on academic performance. The direct and indirect effects of the independent variables explained 58% of the variance in adjustment and only 18% of the variance in academic performance. This indicates that the psychosocial variables included in the present study did not explain much of the variance in academic performance. It is important to note that the model including the direct and indirect effects was found to explain the data better than the model including only the direct effects of the independent variables on academic performance. The model including only the direct effects (i.e. excluding adjustment as a mediator variable) was also shown to have an inadequate fit to the data, and thus was not an appropriate model for explaining the relationship between the independent variables and academic performance.

In the present study intrinsic motivation, identified regulation, self-esteem and perceived stress were found to be significant predictors of adjustment. Only

extrinsic regulation and academic overload were found to be significant predictors of academic performance.

Surprisingly, the effect of adjustment on academic performance did not reach significance. Three reasons were proposed:

- The effect of testing a large number of paths between several variables using a relatively small sample ($N = 194$).
- The effect of the particular measure of adjustment (i.e. the SACQ) used in the present study.
- The effect of possible gender differences that may mean that two subsets of the sample were being tested as one.

The individual effects of the measure of adjustment (i.e. SACQ) on academic performance, and the differences between males and females were explored.

The results of the analyses testing the individual effects of each of the sub-scales of the SACQ, that is, the academic adjustment, social adjustment, p/emotional adjustment and institutional commitment, showed that the four sub-scales explained 17% of the variance in academic performance. Only academic adjustment and social adjustment were found to be significant predictors of academic performance. Social adjustment had a significant negative effect on academic performance, which was unexpected. In order to test whether the significant negative effect of the social adjustment sub-scale negatively influenced the effect of adjustment on academic performance, the model including both the direct and indirect effects of the independent variables on academic performance was tested excluding all of the items of the social adjustment sub-scale. The results showed that the significant negative effect of the students' scores of the items of social adjustment included in the measure of overall adjustment had influenced the measure in such a way that the effects of academic adjustment, p/emotional adjustment and institutional commitment on academic performance were weakened. It was recommended that further investigation of the different components of the full scale of the SACQ be conducted when testing models such as the ones proposed in the present study.

The results of the gender comparisons revealed significant differences between the male and female sub-samples in predicting adjustment and academic performance. The results suggest that a model including the various psychosocial factors included in the present study and including adjustment as a mediator variable was a more appropriate model explaining academic performance for males than for females in the present study. Only amotivation was found to be a significant predictor of academic performance for females in the present study. Adjustment and academic overload were the strongest predictors of academic performance for males. The results of the exploration of gender differences for Model 1 raise the concern of the heterogeneity of sub-samples, which could have caused the results yielded in the present study being skewed. It is thus recommended that gender differences be taken into account in attempting to explain academic performance for first-year students.

The following chapter presents the discussion of the results yielded by the present study.

Chapter 4
Discussion

Adjustment as a Mediator Variable

The main aim of the present study was to test whether the quality of adjustment to university mediates the relationship between help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload, and academic performance among first-year financial aid university students. This premise has not been tested previously.

The premise that adjustment mediates the relationship between the various psychosocial variables and academic performance is supported by the most dominant educational theories predicting university outcomes (i.e. Tinto and Bean's theories) that form the conceptual framework for numerous studies on academic success, and the literature on the academic performance of 'black' students at predominantly 'white' universities (with particular focus on the problem of person-environment fit). Tinto and Bean's theories, and the literature on the academic performance of 'black' students at predominantly 'white' universities indicate the key role played by students' social and academic integration into the university, and adjustment to the social and academic demands of the university in determining university outcomes, particularly among disadvantaged students.

Further support for the suggestion that the quality of the students' adjustment to university mediates the effect of the various psychosocial variables on academic performance is provided by numerous empirical studies demonstrating that the psychosocial variables included in the present study have a significant impact on adjustment and academic performance (e.g. Baker, 2003, 2004; Boulter, 2002; Chambel & Curral, 2005; Crocker & Luhtanen, 2003; DeStefano et al., 2001; Du Rand, 1998; Grant-Vallone et al., 2003-2004). There is much evidence indicating that adjustment is a key determinant of academic performance, particularly among

disadvantaged students (see Baker & Siryk, 1989; Dahmus & Bernardin, 1992; Prillerman et al., 1989; Sennett et al., 2003; Strahan, 2003). Disadvantaged students have been shown to face various challenges that traditional students do not face in making the transition from high school to university. The late blooming hypothesis, which postulates that as disadvantaged students become integrated into the academic and social environment and adjust to the demands of university life, their academic performance will increasingly overlap with the academic performance of non-disadvantaged students, also supports the premise.

There is thus strong theoretical and empirical evidence supporting the suggestion that the quality of adjustment to university mediates the effect of students' help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload on academic performance among disadvantaged students.

Baron and Kenny's (1986) definition of a mediator variable was utilised in order to test whether adjustment functions as a mediator variable in the present study. The results of the present study only satisfied two of these conditions. Variations in levels of the independent variables accounted for variations in adjustment, and variations in adjustment accounted for variations in academic performance. The third condition was not met, as the model testing only the mediating effects (Model 3) was not found to be an adequate model accounting for the effects of the independent variables on academic performance. Thus adjustment could not be deemed to function as a pure mediator.

It was however found that adjustment mediated some of the effects of the independent variables on academic performance. The significance levels of the indirect effects could not be determined because the statistical programme utilised in conducting the path analysis, Amos 5, does not calculate the significance levels of the indirect effects. It is important to note that the model including the direct and indirect effects explained academic performance better than the model including only the direct effects of the independent variables on academic performance. The model including only the direct effects (i.e. excluding adjustment as a mediator variable) also showed an inadequate fit to the data, and thus was not an appropriate

model for explaining the relationship between the independent variables and academic performance in the present study.

Hence, academic performance was best explained by the direct effects and indirect effects (mediated via adjustment) of students' help-seeking behaviours, academic motivation, self-esteem, perceived stress, and academic overload on their academic performance. This model only explained 18% of the variance in academic performance for the total group of students in the sample, and 31% of the variance in academic performance among the male students and 28% among the female students. These modest findings are similar to that of other studies based on Tinto and Bean's theories, for example, Bean (1985), Cabrera et al. (1992), Pascarella and Terenzini (1983), and Stoecker et al. (1988), which used forms of structural equation modelling (including path analysis). Cabrera et al., Pascarella and Terenzini, and Stoecker et al. empirically tested models based on Tinto's student integration model and found that the models explained between 13% and 39% of the variance in academic success. Bean and Cabrera et al. empirically tested models based on Bean's student attrition model and found that the models explained between 27% and 47% of the variance in academic success. Bean found that his model explained 47% of the variance in academic success among first-year students. Bean's student attrition model was shown to explain more of the variance in academic success than Tinto's student integration model. Bean, Cabrera et al., Pascarella and Terenzini, and Stoecker et al. stated that even though their findings were modest, the models had reasonable power for explaining the academic success of students.

Hence, the results of the present study and that of previous studies using similar models to explain academic success suggest that models including mainly psychosocial factors do not explain much of the variance in academic performance. The present study does however differ from these studies in that academic success was defined as first-year academic performance whereas Tinto and Bean defined academic success as persistence. Tinto and Bean's models are longitudinal models predicting attrition whereas the present study only looked at academic success at the end of the first year of university, which has been described as a particularly stressful period for many students making the transition from high school to

university. Bean's model has however been used to predict attrition at the end of the first year of university.

Determinants of adjustment and academic performance

Intrinsic motivation, identified regulation, self-esteem and perceived stress were found to be significant predictors of the students' adjustment to university. Only academic overload and extrinsic regulation were significant predictors of academic performance. These results will now be discussed.

Academic motivation

Motivation has been referred to as one "of the most important psychological concepts in education" (Vallerand et al., 1992, p. 1004). Much of the literature on the effects of academic motivation on educational outcomes shows that academic motivation is linked to adjustment and academic performance at university (Aspinwall & Taylor, 1992; Baker, 2003, 2004; Beyers & Goossens, 2002; Deci, Vallerand, Pelletier & Ryan, 1991; Struthers et al., 2000; Tinto, 1985). Graham (1989) indicates that academic motivation is a particularly important predictor of educational outcomes for minority youth, particularly 'black' (African American) youth.

Intrinsic motivation and identified regulation had a positive effect on adjustment in the present study, indicating that the more self-determined motivational orientations were associated with better adjustment to university. Intrinsically motivated behaviours are behaviours that are engaged in because they are valued and intrinsically important (Deci, 1975; Deci et al., 1991; Vallerand et al., 1992). Identified regulation occurs when the individual values and identifies with the behaviour and perceives it as personally relevant, but the motivation for engaging in the behaviours is not completely self-determined. The results are in accordance with Deci and Ryan's self-determination theory (SDT), which postulates that students' who engage in academic-related behaviours because these behaviours are valued and considered intrinsically important and personally relevant rather than for the attainment of extrinsic rewards, were better adjusted to the university (Baker, 2004; Deci et al., 1991).

Only one study that examined the relations between motivational orientations and adjustment to university could be found. The results of Baker's (2004) study yielded very different results to that of the present study. In Baker's study only amotivation was found to be a significant predictor of adjustment. Amotivated behaviours, that is, academic-related behaviours that are not a result of intentional regulations, were associated with poor adjustment to university. This finding is in accordance with SDT, which postulates that amotivated behaviours are associated with negative consequences. Baker states that a possible reason for her finding is that the students' levels of amotivation were higher in the sample for her study than previous studies on motivational orientations, and the levels of intrinsic motivation were lower than that reported by previous studies on motivational orientations. Students in the present study had higher levels of the more self-determined motivational orientations (i.e. intrinsic motivation and identified regulation) in comparison to their levels of the more extrinsic motivational orientations. Students in the present study reported very low levels of amotivation. These results are in accordance with previous studies (e.g. Muller & Louw, 2004; Vallerand et al., 1992).

The negative impact of extrinsic regulation on academic performance indicates that high levels of extrinsic regulation are associated with low levels of academic performance. Extrinsic regulation is the least self-determined form of extrinsic motivation. Extrinsically motivated behaviours are engaged in not out of interest, but as a means to an end (Deci et al., 1991; Muller & Louw, 2004; Vallerand et al., 1992). Thus students engaged in academic-related activities (e.g. studying for tests or examinations) mainly in order to achieve extrinsic rewards (e.g. high academic grades) tended to achieve lower academic grades. In accordance with SDT that postulates that higher levels of extrinsic motivational orientations are associated with negative consequences. This finding differs from that found by previous studies (Baker, 2003). In Baker's study intrinsic motivation was the only motivational orientation that was found to be a significant predictor of academic performance.

Students in the present study displayed higher levels of intrinsic motivation and the more self-determined forms of extrinsic regulation, and low levels of amotivation.

These findings were similar to that of students in Muller and Louw's (2004) study, which included students at the University of Cape Town (UCT).

Self-esteem

The students in the present study displayed high levels of self-esteem. Self-esteem was found to have a significant positive effect on adjustment, indicating that high levels of self-esteem were associated with better adjustment to university. This result is in according with previous studies (Crocker & Luhtanen, 2003; Grant-Vallone et al., 2003-2004). The positive effect of self-esteem on adjustment is in accordance with research suggesting that self-esteem is a personal resource necessary for positive psychological adjustment to stressful life transitions, and that individuals with high levels of self-esteem may be more resilient during stressful life transitions (Aspinwall & Taylor, 1992; Coffman & Gilligan, 2002-2003). Individuals with high levels of self-esteem would perceive themselves to have the ability to adequately complete certain tasks, and would thus employ effective coping strategies and management of their resources in successfully completing those tasks (see Aspinwall & Taylor, 1992; Chemers et al., 2001; Ochse, 2001).

Perceived stress

Perceived stress was found to have a significant negative impact on adjustment, which implies that the more stressful the students' appraised their lives, the poorer their adjustment to university. This finding is in accordance with previous studies (e.g. Coffman & Gilligan, 2002-2003). This finding implies that students' appraisal of how stressful their lives are, is associated with their ability to cope with and adjust to the personal-emotional, social and academic demands of the university, and their attachment to the university. The negative impact of perceived stress on adjustment is in accordance with the literature on the experiences of 'black' students at predominantly 'white' universities. Prillerman et al. (1989) states that the experience of stress is one of the central concepts that emerges from the literature on 'black' students attending historically 'white' universities. The students in the present study perceived their lives to have been moderately stressful in the month prior to completing the questionnaire. In the present study perceived stress was the strongest predictor of adjustment, which was expected considering that they completed the questionnaire about two weeks before the end-of-year

examinations, and students' academic workload generally increases in the month prior to the examinations as students are expected to prepare for tests, submitting final assignments and the examinations.

Academic overload

Academic overload was the strongest predictor of academic performance. Academic overload was negatively associated with academic performance, thus high levels of academic overload were associated with low levels of academic performance. This finding implies that students, who perceived the academic requirements to be very demanding such that they were unable to cope with the academic workload, achieved low levels of academic performance. This finding is in accordance with the constructivist learning perspective. The constructivist learning perspective posits that individuals are active in shaping their development, and that knowledge is not passively received but actively constructed (Clarke, 2002). Bitzer and Troskie-De Bruin (2004) and Doyle (2002) state that students' perception of the demands of academic tasks and their perception of their ability to succeed in completing the tasks influences the amount of effort they put into their academic work, and an insufficient amount of effort put into the academic work may lead to academic failure.

The finding that students' who report an inability to cope with the academic workload achieved lower end-of-year academic grades is in accordance with the literature on the experiences of first-year students at university (Agar, 1990; Bitzer & Troskie-De Bruin, 2004; Doyle, 2002). Troskie-De Bruin state that the danger with the steep increase in out-of-class time required in the first year of university is that students may not be able to adequately adapt and cope with the new academic demands. In the South African context, disadvantaged students are likely to be under-prepared for university. These students' educational backgrounds may not have prepared them for managing and coping with the academic demands of the university (Agar, 1990; Huysamen & Raubenheimer, 1999). They may lack adequate time management and planning skills for managing their workload, which may further be exacerbated by difficulties experienced in reading and studying academic material in their second or third language (Agar, 1990).

Surprisingly, whether or not students sought assistance from faculty members, a curriculum advisor, a counselor/psychologist and/or a peer mentor did not have a significant impact on their adjustment to university and academic performance. This result is surprising as the literature provides much evidence demonstrating that out-of-class student-faculty contact, the receipt of counseling, and the utilization of student support services (including peer mentor programmes) positively impacts adjustment to university and academic performance (Boulter, 2002; DeStefano et al., 2001; Du Rand, 1998; Nienaber, 1992; Pascarella & Terenzini, 1979, 1980, 1983; Rickinson, 1998; Schreiber, 1998; Tinto, 1975, 1985). Some previous studies have however found that help-seeking had no significant effect on adjustment and academic performance. Sharf and Bishop (1973) found no difference in personal and emotional adjustment between students who sought help with vocational and educational problems and those who did not. Bean (1985) found that student-faculty contact did not have a significant impact on institutional commitment and that student-peer interaction had a greater influence on students' social integration than student-faculty contact. Wassenaar (1997) found that the students who participated in the student support programme did not achieve academic grades that were higher than those who did not participate in the programme.

A possible reason for help-seeking having an insignificant impact on adjustment and academic performance is that the measure of help-seeking was unsuitable. The measure used in the present study only measures whether or not students sought help with the difficulties that they experienced. The quality of the assistance they received and the frequency of their contact with the various sources of support were not measured. Thus it is unknown whether the students', who sought help with difficulties they experienced, were satisfied with the assistance they received and whether they were actually helped to deal with the difficulties they experienced. The fact that the majority (i.e. 84.7%) of the students in the sample of the present study indicated that they sought help from the various sources of support available at UCT may also have influenced the results. Another possible reason for the insignificant effect of help-seeking on adjustment and academic performance is that students approaching the various sources of support available could be considered to be at risk of experiencing greater difficulty in adjustment and poor academic

performance. These students would thus display poor adjustment to university and academic performance. Baker and Siryk (1989) indicate that low levels of personal-emotional adjustment are expected to be associated with seeking counseling for assistance in dealing with difficulties experienced.

Another unexpected finding was that adjustment did not have a significant impact on academic performance. This finding was unexpected as there is strong theoretical and empirical evidence indicating that adjustment is a key determinant of academic performance, particularly among disadvantaged students (see Baker, 2003; Baker & Siryk, 1989; Dahmus & Bernardin, 1992; Prillerman et al., 1989; Sennett et al., 2003; Strahan, 2003). Some studies have, however, found that academic adjustment did not significantly correlate with academic performance (see Beyers & Goossens, 2002; Mouton, 1988).

There are three possible reasons for the insignificant effect of adjustment on academic performance. The first possible reason is the fact that a large number of paths between several variables were tested using a relatively small sample (N = 194). The second possible reason is that the result was caused by the particular measure of adjustment (i.e. the SACQ) used in the present study. Beyers and Goossens (2002), who examined the validity of the Student Adaptation to College Questionnaire (SACQ) in a sample of European students, indicate that the insignificant impact of adjustment on academic performance could be a result of measuring the relation between two different types of constructs. The measure of adjustment used in the present study, that is, the SACQ, is a subjective measure of students' perception of their ability to cope with the academic, social and personal-emotional demands of the university, and their attachment to the university. The students' actual academic performance on the other hand, is an objective measure of students' academic performance (Beyers & Goossens, 2002). The SACQ is conceptualised as a multidimensional construct. It was thus recommended that the structure of this particular measure of adjustment be examined more closely by exploring the individual impact of each of the four sub-scales. The third reason is seen in gender differences that may mean that two subsets of the sample were being tested as one (see Baker & Siryk, 1989). Two of the possible reasons could be tested.

The individual effects of the measure of adjustment (i.e. SACQ) on academic performance, and the differences between males and females were examined more closely.

Individual Effects of the SACQ Sub-scales on Academic Performance

The numerous studies that utilised the SACQ as a measure of adjustment have found different results with regard to the relation between the different SACQ sub-scales and academic performance (e.g. Baker & Siryk, 1989; Dahmus & Bernardin, 1992; Sennett et al., 2003). The individual effect of the four sub-scales on academic performance was tested using path analysis. The results showed that the four sub-scales explained 17% of the variance in academic performance. Only academic adjustment and social adjustment were found to be significant predictors of academic performance. Academic adjustment had a positive effect on academic performance, implying that better adjustment to the academic demands of the university were associated with higher end-of-year academic grades. Social adjustment was found to have a negative effect on academic performance, which was unexpected. This finding implies that better adjustment to the social demands of the university were associated with lower end-of-year academic grades. Research on the relation between social adjustment and academic performance shows that students, who are socially well adjusted, should achieve higher academic grades (e.g. Sennett et al., 2003) whereas in the present study students who were socially well-adjusted tended to achieve lower academic grades.

The Social Adjustment sub-scale measures the student's ability to cope with the interpersonal and societal demands that are inherent in the process of adjustment to university. This sub-scale includes items on informal student-faculty contact, student-peer contact, nostalgia and satisfaction with extracurricular activities available at the universities. These factors have been shown to have a positive association with academic performance (see Bean, 1985; Boulter, 2002; Pascarella & Terenzini, 1979, 1980, 1983). There are, however, studies that have found that social adjustment had an insignificant (e.g. Dahmus & Bernardin, 1992; Sennett et al., 2003) or significant negative effect on academic performance (see Baker &

Siryk, 1984, 1989). Grayson (1997) found that higher classroom involvement and hours spent at university contributed to higher academic performance, and lower levels of involvement in the university's social clubs contributed to lower academic performance. Thus some forms of involvement in the university environment were associated with relatively high marks (such as classroom involvement and hours spent on campus) whereas involvement in social club and activities have been shown to have a negative association with academic performance. Students receiving need-based financial aid may also perceive high levels of involvement in extracurricular activities and greater student-peer interaction as distractions from their efforts to achieve well academically. These students may spend much time completing their academic work considering that they would lose their financial aid if they did not achieve a certain level of academic performance.

The assumption that the significant negative effect of social adjustment on academic performance may have adversely influenced the effect of overall adjustment to university on academic performance was tested. In order to test whether the significant negative effect of the items of the SACQ measuring social adjustment negatively influenced the effect of overall adjustment on academic performance, the model was tested excluding all of the items of the Social Adjustment sub-scale. The results showed that the significant negative effect of the scores on the Social Adjustment sub-scale included in the measure of overall adjustment had influenced the measure in such a way that the effects of academic adjustment, personal-emotional adjustment and institutional commitment on academic performance were weakened. It is recommended that further investigation of the different components of the full scale of the SACQ be conducted when testing models such as the ones proposed in the present study.

Gender Differences in the Effects of the Psychosocial Factors on Academic Performance

In the present study, the third possible reason for the insignificant effect of adjustment on academic performance was seen in gender differences with regard to the effect of help-seeking behaviours, academic motivation, the experience of not being able to cope with the academic requirements, level of self-esteem, and level

of perceived stress on the quality of their adjustment and their average end of year academic grades. Path analysis was conducted in order to examine these differences between males and females for Model 1.

In the present study, the results of the gender comparisons revealed significant differences between the male and female sub-samples in predicting adjustment and academic performance. The results suggest that a model including the direct and indirect effects (mediated via adjustment) of the various psychosocial factors on academic performance was a more appropriate model explaining academic performance for males than for females in the present study. This model explained more of the variance in academic performance among males (i.e. 31%) than that among females (i.e. 28%).

Gender differences on adjustment

Significant gender differences in the determinants of adjustment were found for self-esteem, introjected regulation and perceived stress.

Determinants of adjustment among females

Self-esteem was an important significant predictor of adjustment for females but not for males. High levels of self-esteem were associated with better adjustment to university in the female sub-sample. Thus female students' positive attitude toward themselves and their belief in their ability to successfully cope with and adjust to the (academic, social and personal-emotional) demands of the university were associated with better adjustment to university. This finding is in accordance with previous studies that found that high levels of self-esteem were associated with better adjustment to university (e.g. Crocker & Luhtanen, 2003; Grant-Vallone et al., 2003-2004). This result indicates the importance of female students' attitude toward themselves and their belief in their ability to adjust to the demands of the university. This is particularly important considering that research shows that males consistently display higher levels of self-esteem in comparison to females (Kling et al., 1999). Kling et al. (1999) indicate that the results of their meta-analysis show that 83% of the studies found gender differences in self-esteem in favour of males.

Determinants of adjustment among males

Introjected regulation and perceived stress were found to be significant predictors of adjustment to university among male students in the present study.

Introjected regulation was found to be an important predictor of adjustment for males but not for females. Introjected regulation had a negative association with adjustment in the male sub-sample, indicating that higher levels of introjected regulation were associated with poorer adjustment to university for males. This implies that students' whose academic-related behaviours are regulated by contingencies related to their self-concept (i.e. internalised reasons for their actions) showed poorer adjustment to the university. This finding is in accordance with SDT, which postulates that the more extrinsic motivational orientations are associated with negative consequences (Deci et al., 1991). This finding is also in accordance with the literature demonstrating that female students display more self-determined motivation than the male students (Baker, 2003; Vallerand et al., 1992).

Perceived stress was a significant predictor of adjustment for females and males, but it had a greater impact on the adjustment of males than for females. Perceived stress had a negative impact on adjustment, indicating that higher levels of perceived stress were associated with poorer adjustment. This finding is in accordance with previous studies that found that higher levels of stress are associated with various negative outcomes, including poor adjustment (e.g. Coffman and Gilligan, 2002-2003). The finding of significant gender differences in the effect of stress on adjustment is in accordance with previous studies (Lafreniere & Ledgerwood, 1997; Shaikh et al., 2004). Lafreniere and Ledgerwood investigated the determinants of perceived stress and adjustment to university among Canadian students. They found that female students, who lived at home, displayed higher levels of perceived stress and lower levels of adjustment to university whereas the opposite pattern was found for male students. Male students who lived at home displayed lower levels of perceived stress and higher levels of adjustment in comparison to female students who lived at home. Lafreniere and Ledgerwood indicate that students living at home receive higher levels of social support from their families, which has been shown to have a positive influence on adjustment. These authors suggest that an explanation for female students living at

home displaying higher levels of stress is that females generally have greater household responsibilities (e.g. chores) than males do, which may result in an increase in their levels of stress as they would have less time for completing required academic tasks. Lafreniere and Ledgerwood's findings have important implications for the present study considering that the majority (i.e. 82%) of the students in the present study lived in one of the university's residences.

Gender differences on academic performance

Significant gender differences in the determinants of academic performance were found for adjustment, amotivation, self-esteem and academic overload. Adjustment was an important predictor of academic performance for males and not for females. This result explains why the model including adjustment as a mediator was found to be more appropriate in explaining academic performance among males than among females in the present study.

Determinants of academic performance among females

The present study found significant gender differences in the saliency of amotivation in predicting academic performance, as amotivation was an important predictor of academic performance for females but not for males. Amotivation was the only significant predictor of academic performance for the female sub-sample. It was found that higher levels of amotivation were associated with lower levels of academic performance. This finding is in accordance with SDT, which postulates that amotivated behaviours are associated with negative consequences (Deci et al., 1991). This finding is incongruous with previous studies demonstrating that female students generally display higher levels of self-determined motivation than the male students (Baker, 2003; Vallerand et al., 1992).

Amotivation had a significant negative impact on academic performance among females. This implies that female students, who indicated that their academic-related behaviours were not regulated by their intentional processes and who thus often wondered why they attend university at all, tended to achieve lower end-of-year academic grades. This finding can be attributed to the effects of gender stereotyping. Female students', particularly 'black' African female students', decisions to pursue further education and their academic performance may be

adversely affected by gender stereotyping with regard to family or household responsibilities (e.g. chores) and parental expectations regarding educational attainment (De Villiers, 1999; Lafreniere & Ledgerwood, 1997). Since household responsibilities are mainly shouldered by women in society and adolescent identity is mainly acquired through identification with role models in the adolescents' social environment (Toni & Olivier, 2004), female students may thus identify more with the traditional female roles. This traditional female identity is in contrast with the identity of the autonomous student at university.

Research shows that 'black' African females, in particular, tend to achieve lower academic grades in comparison to males (Chisholm, 2004; De Villiers, 1999). According to Lafreniere and Ledgerwood (1997), the literature on gender differences in adolescent identity formation suggests that separating from one's parents to form an autonomous identity is associated with the expression of stereotypically masculine traits, such as assertiveness and self-reliance. Female students moving away from home to attend university and form an autonomous identity may thus be met with resistance and less social support from their families and their parents in particular. Social support provided by families has been shown to have a positive impact on the experiences of students at university (Cabrera & La Nasa, 2001; Lafreniere & Ledgerwood, 1997). Cabrera and La Nasa state the acquisition of university qualifications is a by-product of a student's ability and early development of education plans to attend university, and parental encouragement and involvement. This is a particularly pertinent issue for the female students in the sample for the present study, considering that most of the participants in the present study (i.e. 82%) lived in one of the university's residences and thus away from home.

Determinants of academic performance among males

Adjustment, academic overload and self-esteem were the only significant predictors of academic performance among male students in the present study. Adjustment and academic overload were the strongest predictors of academic performance among the male students.

Adjustment:

The positive association of adjustment with academic performance indicates that better adjustment to university were associated with higher end-of-year academic grades. Adjustment was found to be a significant predictor of academic performance for males but not for females. This finding is in accordance with the literature on the adjustment of first-year students to university, which suggests differences between the adjustment of males and females (Baker, 1989; Bojuwoye, 2002; Jansen, 2004; Leong & Bonz, 1997; Phillips, 2000). It has been shown that female students tend to show better adjustment to university in comparison to male students (Leong & Bonz, 1997; Phillips, 2000). The measure of adjustment utilised in the present study, that is, the SACQ, includes academic, social and personal-emotional adjustment as well as institutional attachment. Phillips (2000) utilised the SACQ in measuring adjustment to university and found that females displayed better attachment to the university compared to males. Leong and Bonz investigated the impact of students' differential coping styles on adjustment among first-year students at an American university. They used the SACQ in measuring adjustment and found that females tended to display better social and academic adjustment compared to males, these gender differences were not however statistically significant.

Academic overload:

A negative association was found between academic overload and academic performance, which indicates that the male students' perception of the academic requirements as too demanding was associated with lower end-of-year academic grades. Academic overload was found to have a significant predictor of academic performance for males but not for females. The negative relation between the perception of the academic workload and academic performance are in accordance with previous research indicating that first-year students, especially under-prepared students, experience difficulty in coping with the steep increase in the academic workload from high school to university, which adversely affects their academic performance (see Agar 1990; Bitzer & Troskie-De Bruin, 2004; Chambel & Curral, 2005; Doyle, 2002; Huysamen & Raubenheimer, 1999). Chambel and Curral investigated the relationship between work characteristics, well-being and academic performance among Portuguese students. Work characteristics included academic

demands, control and social support. They found a significant negative correlation between the perception of academic demands and academic performance.

Self-esteem:

Self-esteem had a positive association indicating that high levels of self-esteem were associated with better academic performance. Self-esteem was a significant predictor of academic performance for males but not for females. This finding is in accordance with the literature investigating gender differences in levels of self-esteem. Kling et al. (1999) found significant difference in self-esteem between males and females with males consistently displaying higher levels of self-esteem.

The results of the gender differences in self-esteem found in the present study indicates that ability to cope with the various demands presented by the university, their perceptions of their ability to cope with the academic workload and their belief in their ability to cope with the academic demands were the important determinants of academic performance among male students and not female students. Research shows that female students tend to experience less difficulty in making the transition from high school to university in comparison to their male counterparts. An explanation for the saliency of coping in predicting the academic performance of males is the gender differences in seeking and utilising social support in dealing with difficulties experienced (Lafreniere & Ledgerwood, 1997). Lafreniere and Ledgerwood state that males are less likely than females to seek assistance and support in dealing with problems they experience in making the transition from high school to university. Female students tend to discuss difficulties they experience with their peers and approach the various sources of support available at university, including faculty, mentors and conselors/psychologists, more so than males. Females also tend to utilise emotion-focused coping, which allows them to express their emotions with regard to difficulties experienced, whereas males (conforming to the stereotype of masculinity) tend to not express their emotions, which may lead to anxiety and increased levels of stress (Matud, 2004).

Thus the results of the investigation of gender differences in the determinants of academic performance indicate that the perception of difficulty in coping with the demands presented by the university (as measured by the SACQ) and the belief in

ability to cope were important in predicting academic performance among male students, whereas amotivation was important in predicting academic performance among female students. Males' motivation for engaging in academic-related activities was also related to their self-concept. Introjected regulation had a negative association with adjustment in the male sub-sample, indicating that male students' whose academic-related behaviours were regulated by contingencies related to their self-concept (i.e. internalised reasons for their actions) showed poorer adjustment to the university. Their levels of self-esteem, as measured by the Rosenberg Self-esteem scale, was not however a significant predictor of adjustment to university. Self-esteem was however a significant predictor of adjustment among females. Perceived stress and introjected regulation were significant predictors of adjustment among females.

Chapter 5
Conclusion

Students receiving need-based financial aid represent a group of students that are of particular concern for universities in post-apartheid South Africa as these students are considered to be economically and educationally disadvantaged. They may face challenges that are unique to them, including alienation, loneliness, social anxiety, homesickness, a lack of support (from their parents, peers and university staff), lack of attachment or commitment to the university, financial difficulties, language difficulties, and difficulties coping with the various educational demands that are characteristic of the university experience. The academic success of disadvantaged students is a particular concern for universities considering the high failure and attrition rates among these students, which represent a huge waste of financial resources for universities. There is however a paucity of empirical research on the possible determinants of academic success among disadvantaged students in the South African context. The present study attempted to address the gap in the existing literature by investigating the effect of various psychosocial factors on the academic success of first-year university students receiving need-based financial aid at a historically 'white' South African university.

In the present study academic success was defined as first-year academic performance measured by the students' actual average (end-of-year) academic marks. It tested adjustment as a mediator variable mediating the effects of the students' help-seeking behaviours, academic motivation, self-esteem, perceived stress and academic overload on their academic performance. The results show that academic performance was best explained by both the direct effects of the psychosocial factors and the effects mediated by adjustment. The direct and mediated effects of the psychosocial factors (together) only explained 18% of the variance in academic performance.

Other similar models predicting university outcomes, on which the model tested in the present study was based, are that of Tinto (1975, 1982, 1985) and Bean (1985).

Tinto and Bean's theories are central to research in this area and form the foundation of various empirical studies investigating the determinants of academic success. Examples of studies that empirically tested Tinto and Bean's models that used forms of structural equation modelling (including path analysis) are Bean (1985), Cabrera et al. (1992), Pascarella and Terenzini (1983), and Stoecker et al. (1988). These studies found that the models explained between 13% and 47% of the variance in academic success. The modest findings of the present study are thus in accordance with these previous studies. Bean's student attrition model was however shown to explain more of the variance in academic success than Tinto's student integration model. Bean found that his model explained 47% of the variance in academic success among first-year students, which is considerably more than that found in the longitudinal studies (measuring academic success over more than one year). Thus the findings of the present study and that of empirical studies testing similar models to that tested in the present study show that the psychosocial variables did not explain much of the variance in academic success. Bean, Cabrera et al., Pascarella and Terenzini, and Stoecker et al. stated that even though their findings were modest, the models had reasonable power for explaining the academic success of students. The present study does however differ from these studies in that academic success was defined as first-year academic performance whereas Tinto and Bean defined academic success as persistence over more than one year. Tinto and Bean's models are longitudinal models predicting attrition whereas the present study only looked at academic success at the end of the first year of university, which has been described as a particularly stressful period for many students making the transition from high school to university.

The results of the present study showed that the psychosocial factors did however explain much (i.e. 58%) of the variance in the quality of the students' adjustment to the university. This suggests that the model, which only included non-cognitive variables, was more adequate in explaining the students' adjustment than their academic performance.

In the present study the more self-determined motivational orientations (i.e. intrinsic motivation and identified regulation), self-esteem and perceived stress were found to be significant predictors of adjustment. Only extrinsic regulation

(i.e. the most extrinsic motivational orientation) and academic overload were found to be significant predictors of academic performance in the present study. Adjustment was not a significant predictor of academic performance. Further analyses were conducted exploring possible reasons for the insignificant effect of adjustment on academic performance.

The results of the further analyses show that the quality of the students' adjustment to university was more important in predicting academic performance among male students in comparison to female students, which may have influenced the results for the total group of students. Male students' perceptions of their ability to cope and their actual coping behaviours with regard to the academic, social and personal-emotional demands of the university were most important in influencing their academic performance. Coping with the various demands presented by the university was not a major concern for the female students in the present study. Research on the experiences of students making the transition from high school to university suggests that female students experience less difficulty in adjusting to the new demands presented by the university in comparison to male students. Female students' motivation for engaging in academic-related tasks had the strongest effect on their academic performance. Their academic-related behaviours that were amotivated could be attributed to the effects of gender stereotyping. The female students' may have identified more with the traditional female roles, which are contradictory to that of the roles of the autonomous university student.

Female students' self-esteem was most important in predicting their adjustment to university. Thus their attitudes toward themselves were important for their coping with the academic, social and personal-emotional demands of the university and their attachment to the university, whereas male students' academic motivation related to their self-esteem was important in predicting their academic performance. Perceived level of stress had a significant impact on the quality of the adjustment of both males and females, but was significantly more important for adjustment among males.

Further analyses also revealed that social adjustment had a negative impact on academic performance, which is contrary to that hypothesised. Thus better

adjustment to university was associated with lower academic grades. Better overall adjustment, including adjustment to the academic and personal-emotional demands of the university (excluding the social demands) and students' attachment to the university was associated with higher academic grades. This indicates that the students' may have perceived their participation in social activities and interacting with their peers as a distraction from their efforts to perform better academically, which is important in order to fulfil the requirements of the financial aid package they received.

The results of the present study showed the psychosocial factors did not play a major role in determining the student's end-of-year academic performance, but explained much of the variance in the quality of the students' adjustment to the university. The results indicate that factors other than the psychosocial factors included in the present study influence students' academic performance. There is thus a need for further empirical research investigating possible determinants of academic performance among disadvantaged students.

Strengths and Limitations

A major limitation of the present study is that a group of non-disadvantaged students was not tested. However, the aim of this study was to identify determinants of academic performance among disadvantaged students, with the main purpose of testing whether a model including adjustment as a mediator variable would be appropriate for predicting academic performance for this group of students. It was thus not absolutely necessary to have a comparison group for the purposes of this study.

The results of the present study demonstrate that although adjustment to university was not a pure mediator between the independent variables and academic performance, some of the effects of the independent variables on academic performance were mediated via adjustment. A limitation in the analysis of the data is that the significance levels of the indirect effects of the independent variables on academic performance could not be calculated and were thus not reported, as the

statistical programme used to analyse the data does not provide these calculations. The significance levels of the indirect effects would be useful in identifying the psychosocial factors for which adjustment was a mediator.

Baker and Siryk (1989) report that a major limitation of the SACQ, the measure of adjustment used in the present study, is that its purpose is transparent. The participants may thus have answered in a way that made them appear either more or less well adapted than they really are, they may have answered in a way that they thought was more socially desirable (Baker & Siryk, 1989). Another limitation of the questionnaire is that the norms were based exclusively on data from one university in North America and no norms are available for South Africa. The SACQ however has been utilised in studies on diverse populations, including South Africa.

Other possible limitations of this study are the small sample size (N=194), and that the data was collected from only one university. The participants were students at a historically 'white' university and may thus differ from students attending historically 'black' universities. Thus the results cannot be generalised to students attending historically 'black' universities.

The present study also has some strengths. One strength is that the participants' actual average end-of-year academic marks were used as a measure of academic performance and their demographic details, including their average matric grades, were obtained via the Institutional Planning Department (IPD) of the university. The actual average end-of-year academic marks and the records held by IPD are considered to be more reliable measures than participants' subjective reports.

Another strength is that the present study provides some insight into the experiences of a group of students that is of particular concern for universities, that is, first-year students receiving need-based financial aid. There is a paucity of empirical research on the academic success of these students. The present study thus attempted to address the gap in the existing literature.

Other strengths of the present study are that the model proposed was theoretically informed and path analysis was used to test the hypotheses. Path analysis is a form

of structural equation modelling, which has been found to be the best statistical method for testing a mediational hypothesis, such as that tested in the present study (Baron & Kenny, 1986).

Recommendations

The specific path model predicting academic performance in the present study was not tested previously. An important step in specifying and testing a path model with path analysis is cross-validating or replicating the model using an independent sample (Bollen, 1989). According to Bollen, simply finding an acceptable fit between model and data is insufficient in proposing a path model. Thus the model proposed by the present study has to be replicated using an independent sample before it can be confirmed as an appropriate model predicting the academic performance of disadvantaged first-year students at historically 'white' universities.

Replication is also necessary to safeguard against research biases as the results of studies are always subject to sampling or selection bias (Chambel & Curral, 2005). Replication using different samples in different contexts would also increase generalisability (Chambel & Curral, 2005). The present study explored the experiences of first-year students receiving need-based financial aid. It is recommended that the study be replicated comparing first-year students receiving different types of financial aid, such as merit-based financial aid and loans, and comparing recipients of financial aid to non-recipients of financial aid. The study was conducted in the context of a historically 'white' university. Research shows that disadvantaged, particularly 'black' African students, at historically 'white' universities face different challenges in making the transition from high school to university in comparison to 'black' students at historically 'black' universities (e.g. Adan & Felner, 1995); and 'black' African students at historically 'white' universities have different experiences in adjusting to university in comparison to their 'white' counterparts (e.g. Sennett et al., 2003). McKinney and Chisholm (2003) reported on the proceedings of a colloquium on racial integration in South African schools. They report that there are only "small pockets" of racial integration in schools in South Africa and that the large majority of South African

schools are still uni- or mono racial. Considering that many students considered eligible to receive need-based financial aid come from schools that had previously formed part of the 'black' education system, they may find it difficult to integrate into a historically 'white' university. It is thus recommended that the study be replicated in the context of a historically 'black' university and the results compared.

In the present study, further analyses were conducted to explore possible reasons for the insignificant effect of adjustment on academic performance. The effect of using a multidimensional measure of adjustment and gender differences were explored. The further analyses yielded interesting results providing further explanation with regard to the determinants of academic performance among disadvantaged students at a historically 'white' university. It is thus recommended that further research be conducted to explore these.

The insignificant correlations of help-seeking behaviours with any of the variables included in the study, and the insignificant effect of help-seeking on adjustment and academic performance suggests that the measure utilised in the present study may be unsuitable. The measure used in the present study only measures whether or not students sought help with the difficulties that they experienced. The quality of the assistance they received and the frequency of their contact with the various sources of support were not measured. Thus it is unknown whether the students', who sought help with difficulties they experienced, were satisfied with the assistance they received and whether they were actually helped to deal with the difficulties they experienced. This should be taken into account in conducting further research or replicating this study. Pascarella and Terenzini (1979; 1980) indicated the important role of the frequency of student-peer and student-faculty contact and students' satisfaction with these interactions in students' social and academic integration into the university environment. Pascarella and Terenzini developed and tested a multidimensional measure of student-peer and student-faculty contact, which they found to be a useful measure of the frequency and quality of student-peer and student-faculty contact.

The sample for the present study represents a group of students that are likely to be both economically and educationally disadvantaged. The literature on the

experiences of such students in the context of post-apartheid South Africa indicate that their experiences at university are greatly influenced by political, cultural and socio-economic factors (see De Villiers, 1999; Hendry, 1998; Sennett et al., 2003). It is thus recommended that qualitative studies should be conducted in order to explore the experiences of these students in greater depth. The results of qualitative studies would provide greater insight and thus a better understanding of the experiences of these students. Vygotsky's socio-cultural theory may provide a useful framework for conducting such studies.

Vygotsky's socio-cultural approach to learning and development are based on "the concept that human activities take place in cultural contexts, are mediated by language and other symbol systems, and can be best understood when investigated in their historical development" (John-Steiner & Mahn, 1996, p. 191). Thus the socio-cultural approach to understanding learning and development posits that learning and development is not context-free as it is always filtered through one's culture and cultural identities (Alfred, 2002). Context is central to the understanding learning and development. Alfred (2002, p.5) suggests that the socio-cultural perspective on adult education may expand the existing literature on students' experiences of attending university by "giving voice to the rich perspectives that learners and instructors bring to the learning environment". The socio-cultural perspective also takes into consideration the values, practices and resources available in communities and how these may validate some individuals and marginalise others (Alfred, 2002). The socio-cultural approach would thus provide a useful framework for exploring the experiences of first-year disadvantaged students in post-apartheid South Africa as it highlights the importance of the interaction between student and environment and considers the effects of the broader socio-political context in shaping students' learning experiences.

Implications

Universities in South Africa are expected to increase the enrollment and retention rates of disadvantaged students in order to meet the requirements of the National Plan (2001). Disadvantaged students face unique challenges in making the transition from high school to university. The long-term plan for the transformation of higher education, as communicated in the National Plan, highlights the need for universities to re-examine the factors that determine students' academic success and failure (Fraser & Killen, 2005). The results of the present study may provide useful information for the development of interventions assisting students in the transition from high school to university as well as existing student support services (e.g. student counselling services and mentor programmes) to meet students' needs.

The results show that the more self-determined motivational orientations were associated with better adjustment to university for the group of disadvantaged students and higher levels of extrinsic motivation were associated with lower academic grades. These findings indicate the importance of encouraging students to develop more self-determined academic motivation in improving the quality of their adjustment to university and their academic performance. Deci et al. (1991) state that various aspects of an individual's social context influence his/her motivation. According to Deci et al., social contexts that promote and support students' competence, relatedness and autonomy facilitates the development of more self-determined academic motivation. Student support services could promote and support students' competence by providing feedback of students' academic performance and providing them with optimal challenges, and their relatedness could be supported by increasing parental involvement and student-peer interaction (Deci et al., 1991). The promotion of autonomous self-regulation is important for the development of more self-determined academic motivation (Deci et al., 1991). Deci et al. provide a detailed description of how various factors in the social context could facilitate the development of more self-determined academic motivation. The promotion of autonomous self-regulation seems to be particularly important among disadvantaged female students as amotivation among the female students in the present study was the most important factor influencing their

academic performance and was associated with lower academic grades. The role of gender stereotypes in females' motivation for engaging in academic-related behaviours should be taken into consideration in promoting self-determined academic motivation among disadvantaged female students.

The students' perception of the demands of their academic workload from high school to university was associated with academic grades, such that students who perceived their academic workload to be too demanding tended to score lower academic grades. The results of the present study also indicates gender differences in the saliency of students' perceptions of the demands of the academic workload and their perceptions of their ability cope with the demands, in predicting their academic performance. Male students' perceptions of their ability to cope with the various demands of the university (as measured by the SACQ) had a significant impact on their academic performance. Thus promoting and encouraging the perception that they are able to cope, and assisting them in developing various methods (e.g. effective time-management and planning skills) for coping with the demands of the university may improve their academic performance.

The results of the present study demonstrate the importance of students' perceived levels of stress for their coping with the academic, social and personal-emotional demands of the university and their attachment to the university. There is thus a need for student support services to assist students in managing their stress levels in facilitating their adjustment to university. It should be taken into consideration that although perceived stress was significant for the adjustment of both female and male students, it was found to have a greater impact on the adjustment of male students. Anderson and Cole (2001), and Iglesias, Azzara, Squillace, Jeifetz, Arnais, Desimone and Diaz (2005) have empirically demonstrated the importance of making stress management programmes available to students in order to reduce their stress levels. Stress programmes would be most useful during the examination periods, which have been identified as the most stressful periods for students (see Anderson & Cole, 2001; Shaikh et al., 2004).

Administrators of university student support services should also take into consideration the unique challenges that disadvantaged students in the South

African context face in making the transition to university. The challenges faced by these students include adjusting to an environment that is very different to that which they are accustomed to, with regard to physical, social, academic and cultural aspects. Many of the disadvantaged students attending historically 'white' universities may come into close contact with students of different 'race' groups, cultures, religions and economic backgrounds for the first time. They are likely to be under-prepared for university and likely to speak English as a second or third language, which may cause difficulty in reading academic texts and communicating with and understanding their lecturers and tutors. Disadvantaged students are also likely to be first generation students and may thus lack adequate social support from their peers and families. Assisting disadvantaged students in effectively dealing with the challenges they face is important for their successful adjustment and academic performance.

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Appendix A

E-mails sent to students inviting them to participate in the present study referred to in Chapter 2.

Dear Student

I am conducting research about the experiences of first-year students at UCT, as part of my Master's Degree studies. To do this, I am conducting a survey among first-year students, using a questionnaire developed for this purpose. I would appreciate your assistance with the study a GREAT DEAL. We hope that the results of the project, amongst other things, will help UCT to better assist students in their adjustment to university. The information you provide will be kept strictly confidential.

All you have to do is complete the questionnaire (it takes ONLY about 1 hour), for which we will give you R40. If you are willing to participate (and we strongly encourage you to do so), PLEASE come to the Sir Richard Luyt Room on ONE of the following days.

11 October 2004 (Monday)	11:00 AM – 13:00 PM
12 October 2004 (Tuesday)	14:00 PM - 15:00 PM
15 October 2004 (Friday)	11:00 AM – 12:30 PM

Sir Richard Luyt Room is on the 2nd floor of the Otto Beit Student Union (same floor as Nescafe).

We look forward to seeing you there!

Contact person:
Il-haam Petersen
E-mail: res.study@magicmail.co.za

Dear Student

Due to the great response received from students, we are going to have another session in which you could come and complete a questionnaire. If you're willing to participate, please come to the Richard Luyt Room TOMMORROW (Thursday, 14 October 2004) between 11AM and 1PM or Friday (15 October 2004) between 11AM and 12:30PM. Students, who are unable to make these times are welcome to e-mail me and I'll arrange to meet with you at a more suitable time. Most students took 20min to complete the questionnaire. So you get R40 for 20min of your time and you'll be assisting with research that could benefit other first-year students at UCT. Your assistance would be MUCH APPRECIATED.

More about the research:

I am conducting the research about experiences of first-year students at UCT, as part of my Master's Degree studies. To do this, I am conducting a survey among first year students, using a questionnaire developed for this purpose. I would GREATLY appreciate your assistance with the study. We hope that the results of the project, amongst other things, will help UCT to better assist students in their adjustment to university. The information you provide will be kept strictly confidential.

All you have to do is complete the questionnaire (it takes ONLY about 30 minutes), for which we will give you R40. If you are willing to participate (and we strongly encourage you to do so), PLEASE come to the Sir Richard Luyt Room on ONE of the following days.

14 October 2004 (Thursday)	11:00 AM – 13:00 PM
15 October 2004 (Friday)	11:00 AM – 12:30 PM

Sir Richard Luyt Room is on the 2nd floor of the Otto Beit Student Union (same floor as Nescafe).

We look forward to seeing you there!

Contact person:
Il-haam Petersen
E-mail: res.study@magicmail.co.za

Appendix B

University of Cape Town's Department of Psychology's report of the thesis committee referred to in Chapter 2.

DEPARTMENT OF PSYCHOLOGY

TERMS OF REFERENCE OF DEPARTMENTAL

THESIS COMMITTEES

Students doing the research degrees in psychology (M.A. and M. Soc. Sc.) are required to present a research proposal to a departmental thesis committee before the end of October of the first year of registration for the degree.

The committee will be constituted by the supervisor in consultation with the course convenor, and will consist of at least the Head of Department (ex officio), supervisor and three Department of Psychology staff members.

Students submit their proposals in written format to individual members at least one week before the scheduled presentation. The supervisor will act as chairperson at the presentation of the research proposal.

The committee is not an examination body, but it acts to approve a student's research proposal, and hence continued registration as a Master's student. It may make recommendations at the following levels:

- Approve the proposal, and that the student may continue with the research. The committee also acts in an advisory capacity, and may recommend changes to the research. Under normal circumstances it will be left to the discretion of the supervisor and student whether to incorporate such changes or not, unless the committee specifies that a particular recommendation has to be incorporated in the research. In such cases the committee is requested to submit a brief statement, containing the relevant details, to the course convenor. (The committee may elect a reporting member to do this).

- Refer the proposal back to the student, and request re-presentation within a specified period. Again the course convenor has to be informed of this in writing. If, at the second presentation, the committee still regards the proposal as unsatisfactory, it may recommend that the student de-registers due to lack of progress. Should this happen, the committee's decision will be conveyed via the course convenor to the Head of the Department, to whom both the student and the supervisor have the right to appeal. Students have a further right of appeal to the Dean.

The committee also considers the ethical implications of the study, and act as the departmental body that approves it in this regard.

DEPARTMENT OF PSYCHOLOGY

REPORT OF THESIS COMMITTEE

Student: Il-haam Petersen

Degree: MA (Research)

Title (as proposed) An evaluation of a skills development programme at UCT

Supervisor: J. Louw

Committee members: S Swartz, H. Schomer, F. Bokhorst, T. Dowdall, B. Schreiber, A. Africa

WE:

1. ✓ Approve the proposal, and recommend that the student continue with the research.

2. Approve the proposal, and recommend that the student may continue with the research. However, we recommend that change(s), as noted below, be incorporated in the research, to the satisfaction of the supervisor.

3. ✓ Approve the proposal in terms of its ethical implications. If necessary, explanatory notes appear below.

4. Find the proposal unsatisfactory, for the reason(s) listed below. The student is hereby requested to re-present the proposal to a departmental thesis committee by _____.

NOTES:

(If space is insufficient, please continue on back of page)

Appendix C

Questionnaire

Questionnaire on Your Experiences at University

Dear Student

Thank you for completing this questionnaire.

The information you provide forms part of a research project into the experiences of first-year students at UCT.

We hope that the results of the project will help UCT to better assist students in their adjustment to university.

The questionnaire consists of 6 sections. Please answer each section completely.

We stress that EVERYTHING you write here will be kept confidential.

---

1. Questionnaire Concerning the Student Development Programme

1. Have you attended any of the meetings provided by the Student Development Programme? | Yes | No |

If 'No', please go to question 12. If 'Yes', please go to question 2.

Questions for participants who attended meetings provided by the Student Development Programme

2. How many meetings have you attended? Please tick the appropriate box.

   1□ 2□ 3□ 4□ 5□ 6□ 7□ 8□

3. How often have you had e-mail contact with the programme coordinator or your facilitator? Please tick the appropriate box.

   1□ 2□ 3□ 4□ 5□ 6□ 7□ 8□ 9 + □

4. Please indicate which topic(s) you discussed: (Please tick the appropriate boxes)

   □ Adjustment □ Communication □ Time Management
   □ Assertiveness □ Group Work □ Exam Competence
   □ Planning □ Coping

5. What would you say were the best and worst topics discussed? Why do you think so?

BEST_____

_____

WORST_____

_____

6. What are the three things that you enjoyed most about attending the meetings?

(i)_____

(ii)_____

(iii)_____

7. What are the three things you liked least about attending the meetings?

(i)_____

(ii)_____

(iii)_____

8. In which ways, if any, have the meetings assisted you in your daily life as a student at UCT?

_____

_____

9. What are your comments about the group facilitator(s)?

_____

_____

10. What do you think could be improved or done differently in the Student Development Programme for 2005?

_____

_____

11. Would you recommend that other first-year students attend the meetings when they first come to UCT?
Please motivate your answer. Yes | No

_____

_____

Question for participants who DID NOT attend meetings provided by the Student Development Programme

12. If 'No', please say why you did not participate in the programme.

_____

_____

Questions for participants who attended the meetings AND those who did not attend any meetings

13. Do you think a programme assisting first-year students with their adjustment to university provides a useful service?
Please motivate your answer. Yes | No

_____

_____

14. Do you think that a programme focused on developing study skills, time-management skills, communication skills and exam competence is a useful programme for first-years? Please motivate your answer.

Yes	No

---

2. Questions regarding your motivation with regard to your studies

In the following, you will find a number of statements related to your studies at university. Please indicate in each case to what extent these statements are true for you. *Answers range from 1 (strongly disagree) to 5 (agree completely).*
Please mark with a cross or tick only one square per item and leave none of the statements unanswered.

	strongly disagree				agree completely
	1	2	3	4	5
1. I often wonder what I am supposed to do at university.	□	□	□	□	□
2. I am very uncertain whether I have chosen the proper field of study.	□	□	□	□	□
3. I really feel I'm wasting my time in university.	□	□	□	□	□
4. I really have great fun studying.	□	□	□	□	□
5. I really enjoy learning and working here.	□	□	□	□	□
6. I find that learning here is really exciting.	□	□	□	□	□
7. I am eager to learn and am curious about the subject matter.	□	□	□	□	□
8. I would rather be doing something else.	□	□	□	□	□
9. I have to force myself to learn.	□	□	□	□	□
10. Without pressure from outside I would do less.	□	□	□	□	□
11. I am learning primarily for the examinations.	□	□	□	□	□
12. I am committed to my studies, because they are personally very important for me.	□	□	□	□	□
13. I really want to become more competent and to develop my skills further.	□	□	□	□	□
14. I am committed in my studies, because I want to realize the goals I set myself.	□	□	□	□	□
15. I do my work otherwise I would have a guilty conscience.	□	□	□	□	□
16. I do my work, because it is the right and proper thing for a good student to do.	□	□	□	□	□
17. I have to give myself an inner push in order to study.	□	□	□	□	□
18. I must push myself in order to do the work in my studies.	□	□	□	□	□

3. Questions concerning study conditions at the university

Please evaluate from your point of view the following statements concerning study conditions. Do not refer to individual courses, but try to provide a general assessment.
1= *does not apply at all*; **2**= *is not likely to apply*; **3**= *applies in parts*; **4**= *is more likely to apply*; **5**= *applies completely*

	does not apply at all				applies completely
	1	**2**	**3**	**4**	**5**
1. In my studies the work is too difficult.	□	□	□	□	□
2. In my studies the volume of work is too high.	□	□	□	□	□
3. Too much is expected of me in the courses.	□	□	□	□	□
4. I have the feeling that the courses ask too little of me.	□	□	□	□	□
5. The number of required courses is too great.	□	□	□	□	□
6. I want to change my major.	□	□	□	□	□

Please tick the appropriate category and write brief answers in the spaces provided.

1. Was there any time this past year when you felt like dropping out of university?
   If "yes", please say why this is so

Yes	No

_____

_____

2. What would have made this past year at university an easier or better one for you?

_____

_____

3. Have there been any painful events or experiences this past year which may have affected you negatively at university?
   If "yes", please briefly describe the nature of these (e.g. divorce or death in the family, etc.)

Yes	No

_____

_____

5. If you have encountered difficulties this year, did you consult with any of the following?
   (tick as many as appropriate)

	Tutor (academic issues)	Mentor (social or emotional issues)		Counselor or Psychologist	
	Curriculum Advisor	Lecturer		No difficulties	

6. If you have encountered difficulties and you did not seek help what prevented you from doing so? (tick as many as appropriate)

	Limited time		I didn't know I could approach anyone
	Felt embarrassed		I didn't know that there were these services
	I thought I should solve the problem on my own		I didn't need to seek help
	I was afraid		Other. Please specify…… ……

4. Questions concerning adjustment to university

The 67 statements on the next 2 pages describe university experiences. Read each one and describe how well it applies to you at the present time (within the past few days). For each statement, circle the asterisk (*) at the point in the continuum that best represents how closely the statement applies to you. Circle only one asterisk for each statement. To change an answer, draw an X through the incorrect response and circle the desired response. Do not erase any responses.

Example: In the example on the right, this person feels that Item A applies very closely to him or her, and Item B was changed from "doesn't apply at all" to "applies somewhat."

Applies very Closely to me ← → **Doesn't apply to me at all**

Example									
A	*	*	*	*	*	*	*	*	*
B	*	*	*	*	*	*	*	*	*

Please begin .....

	Applies very Closely to me							**Doesn't apply to me at all**	
1. I feel that I fit in well as part of the university environment.	*	*	*	*	*	*	*	*	*
2. I have been feeling tense or nervous lately.	*	*	*	*	*	*	*	*	*
3. I have been keeping up to date with my academic work.	*	*	*	*	*	*	*	*	*
4. I am meeting as many people, and making as many friends as I would like at university.	*	*	*	*	*	*	*	*	*
5. I know why I'm at university and what I want out of it.	*	*	*	*	*	*	*	*	*
6. I am finding academic work at university difficult.	*	*	*	*	*	*	*	*	*
7. Lately I have been feeling down and moody a lot.	*	*	*	*	*	*	*	*	*
8. I am very involved with social activities at university.	*	*	*	*	*	*	*	*	*
9. I am adjusting well to university.	*	*	*	*	*	*	*	*	*
10. I have not been coping well during exams.	*	*	*	*	*	*	*	*	*
11. I have felt tired much of the time lately.	*	*	*	*	*	*	*	*	*
12. Standing on my own feet, taking responsibility for myself, has not been easy.	*	*	*	*	*	*	*	*	*
13. I am satisfied with the level at which I am performing academically.	*	*	*	*	*	*	*	*	*

14. I have had informal, personal contacts with university lecturers.	*	*	*	*	*	*	*	*	*
15. I am pleased now about my decision to go to university.	*	*	*	*	*	*	*	*	*
16. I am pleased now about my decision to attend this university in particular.	*	*	*	*	*	*	*	*	*
17. I'm not working as hard as I should at my course work.	*	*	*	*	*	*	*	*	*
18. I have several people I feel close to at university.	*	*	*	*	*	*	*	*	*
19. My academic goals are well defined.	*	*	*	*	*	*	*	*	*
20. I haven't been able to control my emotions very well lately.	*	*	*	*	*	*	*	*	*
21. I'm not really clever enough for the academic work I am expected to be doing now.	*	*	*	*	*	*	*	*	*
22. Homesickness or missing home is a source of difficulty for me now.	*	*	*	*	*	*	*	*	*
23. Getting a university degree is very important to me.	*	*	*	*	*	*	*	*	*
24. My appetite has been good lately.	*	*	*	*	*	*	*	*	*
25. I haven't been very efficient in the use of study time lately.	*	*	*	*	*	*	*	*	*
26. I enjoy living in a university residence. (Please leave this out if you do not live in a residence; any university housing should be regarded as a residence.)	*	*	*	*	*	*	*	*	*
27. I enjoy writing essays or papers for courses.	*	*	*	*	*	*	*	*	*
28. I have been having a lot of headaches lately.	*	*	*	*	*	*	*	*	*
29. I really haven't had much motivation for studying lately.	*	*	*	*	*	*	*	*	*
30. I am satisfied with the extracurricular activities available at university.	*	*	*	*	*	*	*	*	*
31. I've given a lot of thought lately to whether I should ask for help from the Psychologist/Counselling Services at Student Health or from a psychologist outside university.	*	*	*	*	*	*	*	*	*
32. Lately I have been having doubts regarding the value of a university education.	*	*	*	*	*	*	*	*	*
33. I am getting along very well with my roommate(s)/housemate(s) at university. (Please leave this out if you do not have a roommate.)	*	*	*	*	*	*	*	*	*
34. I wish I were at another university.	*	*	*	*	*	*	*	*	*
35. I've put on (or lost) too much weight recently.	*	*	*	*	*	*	*	*	*
36. I am satisfied with the number and variety of courses available at university.	*	*	*	*	*	*	*	*	*
37. I feel that I have enough social skills to get along well in the university setting.	*	*	*	*	*	*	*	*	*
38. I have been getting angry too easily lately.	*	*	*	*	*	*	*	*	*
39. Recently I have had trouble concentrating in lectures or when I try to study.	*	*	*	*	*	*	*	*	*
40. I haven't been sleeping very well.	*	*	*	*	*	*	*	*	*
41. I'm not doing well enough academically for the amount of work I put in.	*	*	*	*	*	*	*	*	*
42. I am having difficulty feeling at ease with other people at university.	*	*	*	*	*	*	*	*	*
43. I am satisfied with the quality of the courses available at university.	*	*	*	*	*	*	*	*	*
44. I am attending lectures regularly.	*	*	*	*	*	*	*	*	*
45. Sometimes my thinking gets muddled up too easily.	*	*	*	*	*	*	*	*	*
46. I am satisfied with the extent to which I am participating in social activities at university.	*	*	*	*	*	*	*	*	*
47. I expect to stay at this university for a bachelor's degree.	*	*	*	*	*	*	*	*	*
48. I haven't been mixing too well with the opposite sex lately.	*	*	*	*	*	*	*	*	*
49. I worry a lot about my university expenses.	*	*	*	*	*	*	*	*	*
50. I am enjoying my academic work at university.	*	*	*	*	*	*	*	*	*
51. I have been feeling lonely a lot at university lately.	*	*	*	*	*	*	*	*	*
52. I am having a lot of trouble getting started on university assignments.	*	*	*	*	*	*	*	*	*

53. I feel I have good control over my life situation at university.	*	*	*	*	*	*	*	*	*
54. I am satisfied with my programme of courses for this semester.	*	*	*	*	*	*	*	*	*
55. I have been feeling in good health lately.	*	*	*	*	*	*	*	*	*
56. I feel I am very different from other students at university in ways that I don't like.	*	*	*	*	*	*	*	*	*
57. On balance, I would rather be home than here.	*	*	*	*	*	*	*	*	*
58. Most of the things I am interested in are not related to any of my course work at university.	*	*	*	*	*	*	*	*	*
59. Lately I have been thinking about transferring to another university or technicon.	*	*	*	*	*	*	*	*	*
60. Lately I have been thinking about dropping out of university altogether and for good.	*	*	*	*	*	*	*	*	*
61. I find myself giving considerable thought to taking time off from university and finishing later.	*	*	*	*	*	*	*	*	*
62. I am very satisfied with the lecturers I have now in my courses.	*	*	*	*	*	*	*	*	*
63. I have some good friends or acquaintances at university with whom I can talk about any problems I may have.	*	*	*	*	*	*	*	*	*
64. I am experiencing a lot of difficulty coping with the stresses imposed upon me at university.	*	*	*	*	*	*	*	*	*
65. I am quite satisfied with my social life at university.	*	*	*	*	*	*	*	*	*
66. I'm quite satisfied with my academic situation at university.	*	*	*	*	*	*	*	*	*
67. I feel confident that I will be able to deal in a satisfactory manner with future challenges here at university.	*	*	*	*	*	*	*	*	*

5. IPIP: Questions about your self

On the following pages, there are phrases describing people's behaviours. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be or behave in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly the same age. Please read each statement carefully, and then fill in the square that corresponds to the number on the scale. You have the following response options: **1**= *very inaccurate*; **2**= *moderately inaccurate*; **3**= *neither inaccurate nor accurate*; **4**= *moderately accurate*; **5**= *very accurate*

	very inaccurate				very accurate
	1	**2**	**3**	**4**	**5**
1. Tend to vote for conservative political candidates.	□	□	□	□	□
2. Have frequent mood swings.	□	□	□	□	□
3. Am not easily bothered by things.	□	□	□	□	□
4. Believe in the importance of art.	□	□	□	□	□
5. Am the life of the party.	□	□	□	□	□
6. Am skilled in handling social situations.	□	□	□	□	□
7. Am always prepared.	□	□	□	□	□
8. Make plans and stick to them.	□	□	□	□	□
9. Dislike myself.	□	□	□	□	□
10. Respect others.	□	□	□	□	□

	very inaccurate				very accurate
	1	2	3	4	5
11. Insult people.	□	□	□	□	□
12. Seldom feel blue.	□	□	□	□	□
13. Don't like to draw attention to myself.	□	□	□	□	□
14. Carry out my plans.	□	□	□	□	□
15. Am not interested in abstract ideas.	□	□	□	□	□
16. Make friends easily.	□	□	□	□	□
17. Tend to vote for liberal political candidates.	□	□	□	□	□
18. Know how to captivate people.	□	□	□	□	□
19. Believe that others have good intentions.	□	□	□	□	□
20. Do just enough work to get by.	□	□	□	□	□
21. Find it difficult to get down to work.	□	□	□	□	□
22. Panic easily.	□	□	□	□	□
23. Avoid philosophical discussions.	□	□	□	□	□
24. Accept people as they are.	□	□	□	□	□
25. Do not enjoy going to art museums.	□	□	□	□	□
26. Pay attention to details.	□	□	□	□	□
27. Keep in the background.	□	□	□	□	□
28. Feel comfortable with myself.	□	□	□	□	□
29. Waste my time.	□	□	□	□	□
30. Get back at others.	□	□	□	□	□
31. Get chores done right away.	□	□	□	□	□
32. Do not talk a lot.	□	□	□	□	□
33. Am often down in the dumps.	□	□	□	□	□
34. Shirk my duties.	□	□	□	□	□
35. Do not like art.	□	□	□	□	□
36. Often feel blue.	□	□	□	□	□
37. Cut others to pieces.	□	□	□	□	□
38. Have a good word for everyone.	□	□	□	□	□
39. Don't see things through.	□	□	□	□	□
40. Feel comfortable around people.	□	□	□	□	□
41. Have little to say.	□	□	□	□	□

Please indicate the answer that best applies to you, depending on whether you agree, strongly agree, disagree, or strongly disagree. **1**= *strongly agree*; **2**= *agree*; **3**= *disagree*; **4**= *strongly disagree*

	strongly agree			strongly disagree
	1	**2**	**3**	**4**
1. On the whole, I am satisfied with myself.	□	□	□	□
2. At times I think I am no good at all.	□	□	□	□
3. I feel that I have a number of good qualities.	□	□	□	□
4. I am able to do things as well as most other people.	□	□	□	□
5. I feel I do not have much to be proud of.	□	□	□	□
6. I certainly feel useless at times.	□	□	□	□
7. I feel that I am a person of worth, at least on an equal plane with others.	□	□	□	□
8. I wish I could have more respect for myself.	□	□	□	□
9. All in all, I am inclined to feel that I am a failure.	□	□	□	□
10.I take a positive attitude toward myself.	□	□	□	□

6. (PSS): Questions concerning level of stress experienced

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate. For each question choose from the following alternatives
0= *never*; **1**= *almost never*; **2**= *sometimes*; **3**= *fairly often*; **4**= *very often*

In the last month, how often have you…	never				very often
	1	**2**	**3**	**4**	**5**
… been upset because of something that happened unexpectedly?	□	□	□	□	□
… felt that you were unable to control the important things in your life?	□	□	□	□	□
… felt nervous and stressed?	□	□	□	□	□
… dealt with irritating life hassles?	□	□	□	□	□
… felt you were effectively coping with important changes that were occurring in your life?	□	□	□	□	□
… felt confident about your ability to handle your personal problems?	□	□	□	□	□
… felt that things were going your way?	□	□	□	□	□
… found that you could not cope with all the things you had to do?	□	□	□	□	□
… been able to control irritations in your life?	□	□	□	□	□
… felt that you were on top of things?	□	□	□	□	□
… been angered because of things that happened that were outside of your control?	□	□	□	□	□
… found yourself thinking about things that you have to accomplish?	□	□	□	□	□
… been able to control the way you spend your time?	□	□	□	□	□
… felt that difficulties were piling up so high that you could not overcome them?	□	□	□	□	□

Thank you for participating in this study! ☺

Appendix D

Item analysis assessing the psychometric properties of the academic motivation sub-scales, and the scales measuring self-esteem, perceived stress, academic overload, and the sub-scales of the SACQ as referred to in Chapter 3

Single sample *t*-tests comparing the means of the scales to the midpoint of the scales as referred to in Chapter 3

Item Analyses

Academic Motivation Sub-Scales

Table D1. Full Item Analysis of Items Assessing Amotivation

	Summary for scale: Mean=6.461 Std.Dv.=2.577 Valid N:191 Cronbach alpha: .439 Standardized alpha: .429 Average inter-item corr.: .202				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
MOT1	3.958	3.349	1.830	0.291	0.297
MOT2	3.832	2.674	1.635	0.362	0.136
MOT3	5.131	5.255	2.292	0.181	0.477

Item 3 of this sub-scale was omitted from further analyses.

Table D2. Full Item Analysis of Items Assessing Intrinsic motivation

	Summary for scale: Mean=18.668 Std.Dv.=4.076 Valid N:190 Cronbach alpha: .795 Standardized alpha: .800 Average inter-item corr.: .456				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
MOT4	15.305	10.896	3.301	0.609	0.745
MOT5	14.905	10.612	3.258	0.737	0.707
MOT6	15.100	10.869	3.297	0.588	0.752
MOT7	14.926	11.005	3.317	0.623	0.741
NMOT8	14.437	12.214	3.495	0.360	0.826

None of the items of this sub-scale were omitted from further analyses.

Table D3. Full Item Analysis of Items Assessing Extrinsic regulation

	Summary for scale: Mean=8.286 Std.Dv.=2.798 Valid N:192 Cronbach alpha: .435 Standardized alpha: .434 Average inter-item corr.: .205				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
MOT9	5.349	4.175	2.043	0.340	0.198
MOT10	5.625	4.057	2.014	0.275	0.320
MOT11	5.599	5.084	2.255	0.184	0.471

Item 11 of this sub-scale was omitted from further analyses.

Table D4. Full Item Analysis of Items Assessing Identified regulation

	Summary for scale: Mean=13.316 Std.Dv.=2.393 Valid N:193 Cronbach alpha: .813 Standardized alpha: .818 Average inter-item corr.: .599				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
MOT12	9.021	2.673	1.635	0.676	0.731
MOT13	8.715	3.199	1.788	0.646	0.772
MOT14	8.896	2.435	1.560	0.691	0.721

None of the items of this sub-scale were omitted from further analyses.

Table D5. Full Item Analysis of Items Assessing Introjected regulation

	Summary for scale: Mean=14.233 Std.Dv.=3.67 Valid N:193 Cronbach alpha: .622 Standardized alpha: .626 Average inter-item corr.: .316				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
MOT15	10.710	8.807	2.968	0.334	0.601
MOT16	10.549	8.942	2.990	0.350	0.588
MOT17	10.508	8.136	2.852	0.528	0.464
MOT18	10.933	8.073	2.841	0.409	0.547

None of the items of this sub-scale were omitted from further analyses.

Self-Esteem

Table D6. Full Item Analysis of Items Assessing Self-Esteem

	Summary for scale: Mean=31.415 Std.Dv.=5.715 Valid N:188 Cronbach alpha: .805 Standardized alpha: .817 Average inter-item corr.: .316				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
NROSE1	28.144	26.655	5.163	0.558	0.780
ROSE2	28.505	27.133	5.209	0.416	0.796
NROSE3	28.016	27.377	5.232	0.476	0.789
NROSE4	28.160	26.889	5.186	0.543	0.782
ROSE5	28.266	26.238	5.122	0.488	0.788
ROSE6	28.473	25.994	5.098	0.542	0.781
NROSE7	28.117	27.550	5.249	0.460	0.791
ROSE8	29.043	28.828	5.369	0.185	0.829
ROSE9	27.952	26.216	5.120	0.602	0.775
NROSE10	28.059	25.959	5.095	0.685	0.768

Item 8 of this sub-scale was omitted from further analyses

Perceived stress

Table D7. Full Item Analysis of Items Assessing Perceived Stress

variable	Summary for scale: Mean=41.343 Std.Dv.=7.631 Valid N:181 Cronbach alpha: .722 Standardized alpha: .719 Average inter-item corr.: .159 Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
PSS1	38.265	49.642	7.046	0.362	0.703
PSS2	38.127	47.691	6.906	0.533	0.682
PSS3	38.000	48.983	6.999	0.441	0.694
NPSS4	38.663	61.737	7.857	-0.281	0.773
NPSS5	38.762	51.010	7.142	0.364	0.704
NPSS6	39.077	49.243	7.017	0.469	0.691
NPSS7	38.492	48.040	6.931	0.512	0.685
PSS8	38.365	51.944	7.207	0.301	0.710
NPSS9	38.663	50.842	7.130	0.413	0.699
NPSS10	38.508	50.095	7.078	0.393	0.700
PSS11	38.343	50.391	7.099	0.324	0.708
PSS12	37.155	56.650	7.527	0.014	0.738
NPSS13	38.691	50.567	7.111	0.378	0.702
PSS14	38.343	47.242	6.873	0.507	0.684

Item 12 of this sub-scale was omitted from further analyses.

Academic overload

Table D8. Full Item Analysis of Items Assessing Academic Overload

variable	Summary for scale: Mean=16.299 Std.Dv.=3.713 Valid N:194 Cronbach alpha: .681 Standardized alpha: .673 Average inter-item corr.: .306 Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
Overload1	13.284	9.028	3.005	0.597	0.565
Overload2	12.979	8.659	2.943	0.583	0.563
Overload3	13.046	8.116	2.849	0.533	0.583
NOverload4	11.954	12.044	3.470	0.111	0.745
Overload5	13.933	9.537	3.088	0.390	0.652

Item 4 of this sub-scale was omitted from further analyses.

Adjustment

None of the items of the SACQ full scale or the sub-scales were omitted from further analyses.

Table D9. Full Item Analysis of Items of the Full scale

	Summary for scale: Mean=389.846 Std.Dv.=70.406 ValidN:91 Cronbach alpha: .925 Standardized alpha: .928 Average inter-item corr.: .167				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ1	383.132	4748.620	68.910	0.530	0.923
SACQ2	385.714	4805.303	69.320	0.269	0.925
SACQ3	383.791	4811.176	69.363	0.328	0.924
SACQ4	383.934	4755.183	68.958	0.393	0.924
SACQ5	382.582	4712.968	68.651	0.599	0.923
SACQ6	385.396	4865.184	69.751	0.120	0.925
SACQ7	385.099	4764.814	69.028	0.353	0.924
SACQ8	385.462	4861.391	69.724	0.092	0.926
SACQ9	383.560	4720.444	68.705	0.624	0.923
SACQ10	384.791	4741.462	68.858	0.436	0.923
SACQ11	386.176	4831.771	69.511	0.175	0.925
SACQ12	385.209	4788.869	69.202	0.294	0.924
SACQ13	385.560	4816.730	69.403	0.236	0.925
SACQ14	385.626	4840.058	69.571	0.135	0.926
SACQ15	382.659	4712.994	68.651	0.598	0.923
SACQ16	382.341	4772.729	69.085	0.419	0.924
SACQ17	385.868	4864.533	69.746	0.080	0.926
SACQ18	383.418	4746.177	68.892	0.398	0.924
SACQ19	383.440	4727.674	68.758	0.508	0.923
SACQ20	384.857	4798.562	69.272	0.243	0.925
SACQ21	383.868	4735.697	68.816	0.436	0.923
SACQ22	384.121	4742.217	68.864	0.378	0.924
SACQ23	381.736	4810.172	69.355	0.325	0.924
SACQ24	383.385	4871.709	69.798	0.072	0.926
SACQ25	385.791	4789.462	69.206	0.306	0.924
SACQ27	385.077	4831.632	69.510	0.160	0.925
SACQ28	384.033	4802.384	69.299	0.237	0.925
SACQ29	384.934	4775.094	69.102	0.317	0.924
SACQ30	383.901	4737.100	68.827	0.410	0.924
SACQ31	383.681	4786.218	69.183	0.252	0.925
SACQ32	382.517	4743.920	68.876	0.472	0.923
SACQ34	382.462	4716.842	68.679	0.502	0.923
SACQ35	385.033	4786.406	69.184	0.246	0.925

Items 26 and 33 are included after Item 67.

Full scale (continued)

variable	Summary for scale: Mean=389.846 Std.Dv.=70.406 ValidN:91 Cronbach alpha: .925 Standardized alpha: .928 Average inter-item corr.: .167 Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ36	382.582	4757.320	68.973	0.466	0.923
SACQ37	383.648	4735.657	68.816	0.488	0.923
SACQ38	384.198	4662.950	68.286	0.614	0.922
SACQ39	385.560	4687.060	68.462	0.547	0.923
SACQ40	385.220	4764.457	69.025	0.317	0.924
SACQ41	385.769	4756.045	68.964	0.368	0.924
SACQ42	383.901	4675.232	68.376	0.596	0.922
SACQ43	382.692	4770.190	69.067	0.428	0.924
SACQ44	382.582	4783.034	69.159	0.345	0.924
SACQ45	385.187	4772.130	69.081	0.400	0.924
SACQ46	385.143	4816.804	69.403	0.206	0.925
SACQ47	382.033	4789.329	69.205	0.365	0.924
SACQ48	384.582	4825.936	69.469	0.161	0.926
SACQ49	386.681	4909.866	70.070	-0.039	0.926
SACQ50	383.626	4705.729	68.598	0.649	0.922
SACQ51	384.912	4762.454	69.011	0.338	0.924
SACQ52	384.879	4745.029	68.884	0.456	0.923
SACQ53	384.011	4686.077	68.455	0.620	0.922
SACQ54	383.582	4701.628	68.568	0.542	0.923
SACQ55	384.044	4798.020	69.268	0.290	0.924
SACQ56	384.165	4706.995	68.608	0.455	0.923
SACQ57	383.264	4702.370	68.574	0.522	0.923
SACQ58	383.418	4732.683	68.794	0.432	0.923
SACQ59	382.758	4687.458	68.465	0.545	0.923
SACQ60	382.154	4747.031	68.899	0.492	0.923
SACQ61	382.198	4755.895	68.963	0.447	0.923
SACQ62	383.330	4735.145	68.812	0.479	0.923
SACQ63	383.033	4721.944	68.716	0.470	0.923
SACQ64	384.791	4738.758	68.839	0.465	0.923
SACQ65	383.769	4756.595	68.968	0.399	0.924
SACQ66	384.736	4718.260	68.690	0.523	0.923
SACQ67	382.736	4703.359	68.581	0.708	0.922
SACQ26	382.517	4750.228	68.922	0.434	0.923
SACQ33	382.989	4721.505	68.713	0.472	0.923

Adjustment Sub-Scales

Table D10. Full Item Analysis of Items Assessing Academic Adjustment

	Summary for scale: Mean=139.054 Std.Dv.=26.767 Valid N:167 Cronbach alpha: .839 Standardized alpha: .842 Average inter-item corr.: .186				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ3	133.060	662.428	25.738	0.424	0.832
SACQ5	131.593	653.092	25.556	0.518	0.828
SACQ6	134.581	678.507	26.048	0.262	0.837
SACQ10	133.868	665.731	25.802	0.329	0.835
SACQ13	134.844	656.802	25.628	0.385	0.833
SACQ17	135.210	674.669	25.974	0.212	0.840
SACQ19	132.749	642.260	25.343	0.525	0.827
SACQ21	132.719	660.286	25.696	0.350	0.834
SACQ23	130.725	688.511	26.239	0.251	0.837
SACQ25	134.934	658.577	25.663	0.379	0.833
SACQ27	134.677	678.434	26.047	0.184	0.842
SACQ29	134.054	648.638	25.468	0.419	0.831
SACQ32	131.683	659.989	25.690	0.395	0.832
SACQ36	131.880	664.740	25.783	0.377	0.833
SACQ39	134.395	636.802	25.235	0.475	0.829
SACQ41	134.623	655.349	25.600	0.346	0.835
SACQ43	131.874	663.379	25.756	0.452	0.831
SACQ44	131.796	661.899	25.727	0.361	0.834
SACQ50	133.090	632.992	25.159	0.628	0.824
SACQ52	134.168	661.948	25.728	0.341	0.835
SACQ54	132.497	640.825	25.315	0.541	0.827
SACQ58	132.665	657.672	25.645	0.338	0.835
SACQ62	132.653	665.939	25.806	0.321	0.835
SACQ66	133.904	638.638	25.271	0.551	0.826

Table D11. Full Item Analysis of Items Assessing Social Adjustment

	Summary for scale: Mean=118.786 Std.Dv.=26.919 Valid N:117 Cronbach alpha: .844 Standardized alpha: .851 Average inter-item corr.: .227				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ1	112.017	657.042	25.633	0.557	0.833
SACQ4	112.863	633.041	25.160	0.589	0.830
SACQ8	114.291	666.565	25.818	0.318	0.842
SACQ9	112.444	653.888	25.571	0.563	0.833
SACQ14	114.479	671.703	25.917	0.255	0.845
SACQ16	111.325	674.766	25.976	0.350	0.840
SACQ18	112.359	638.965	25.278	0.534	0.832
SACQ22	113.274	666.848	25.823	0.289	0.844
SACQ30	112.880	647.952	25.455	0.451	0.836
SACQ37	112.675	640.852	25.315	0.580	0.831
SACQ42	112.880	637.011	25.239	0.544	0.832
SACQ46	114.154	655.686	25.606	0.389	0.839
SACQ48	113.342	685.422	26.181	0.154	0.850
SACQ51	113.786	658.920	25.669	0.354	0.840
SACQ56	113.060	637.851	25.256	0.480	0.835
SACQ57	112.419	648.722	25.470	0.427	0.837
SACQ63	112.111	638.201	25.263	0.519	0.833
SACQ65	112.821	640.438	25.307	0.546	0.832
SACQ26	111.650	664.193	25.772	0.364	0.840
SACQ33	112.111	656.834	25.629	0.375	0.839

Table D12. Full Item Analysis of Items Assessing P/emotional Adjustment

	Summary for scale: Mean=77.515 Std.Dv.=20.112 Valid N:171 Cronbach alpha: .776 Standardized alpha: .776 Average inter-item corr.: .189				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ2	73.152	361.521	19.014	0.346	0.767
SACQ7	72.614	343.781	18.541	0.524	0.752
SACQ11	73.444	352.107	18.765	0.428	0.760
SACQ12	72.918	366.180	19.136	0.274	0.773
SACQ20	72.129	354.042	18.816	0.360	0.766
SACQ24	70.971	387.888	19.695	0.084	0.786
SACQ28	71.503	347.010	18.628	0.440	0.758
SACQ31	71.251	354.504	18.828	0.346	0.767
SACQ35	72.444	339.066	18.414	0.449	0.757
SACQ38	71.661	336.470	18.343	0.548	0.748
SACQ40	72.404	351.317	18.743	0.389	0.763
SACQ45	72.637	364.898	19.102	0.336	0.767
SACQ49	74.292	370.195	19.240	0.249	0.775
SACQ55	71.386	361.909	19.024	0.373	0.765
SACQ64	72.398	347.327	18.637	0.560	0.751

Table D13. Full Item Analysis of Items Assessing Attachment

	Summary for scale: Mean=102.780 Std.Dv.=21.909 Valid N:150 Cronbach alpha: .855 Standardized alpha: .858 Average inter-item corr.: .294				
variable	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
SACQ1c	96.233	422.859	20.564	0.552	0.843
SACQ4c	96.800	432.080	20.787	0.335	0.854
SACQ15	95.573	425.218	20.621	0.486	0.846
SACQ16c	95.427	421.178	20.523	0.535	0.844
SACQ26c	95.613	424.397	20.601	0.423	0.849
SACQ34	95.507	401.010	20.025	0.636	0.837
SACQ36d	95.593	434.268	20.839	0.405	0.850
SACQ42c	96.973	411.719	20.291	0.511	0.845
SACQ47	94.907	431.538	20.773	0.467	0.847
SACQ56c	97.120	423.279	20.574	0.363	0.854
SACQ57c	96.173	408.783	20.218	0.552	0.842
SACQ59	95.753	398.039	19.951	0.610	0.838
SACQ60	95.067	418.822	20.465	0.581	0.842
SACQ61	95.320	417.698	20.438	0.523	0.844
SACQ65c	96.860	424.147	20.595	0.416	0.850

(Note: The means of some of the scales reported in the item analysis may differ from that reported in Chapter 2 as the means used in further analyses were calculated differently. This difference did not affect the interpretation of the results of the study or the Cronbach Alpha values.)

Sample T-Test Analyses

Table D14: Single sample *t*-tests comparing the means of the academic motivation sub-scales to the midpoints of the subscales.

	N	Mean	Standard Deviation	Std.Err.	Reference Constant	t-value	df	*p*
Amotivation	193	2.57	1.15	0.08	2.50	0.85	192	0.40
Intrinsic Motivation	193	3.72	0.82	0.06	2.50	20.64	192	0.00
Extrinsic Regulation	193	2.81	1.13	0.08	2.50	3.76	192	0.00
Identified Regulation	193	4.44	0.80	0.06	2.50	33.92	192	0.00
Introjected Regulation	193	3.57	0.92	0.07	2.50	16.09	192	0.00

Table D15: Single sample *t*-tests comparing the mean of intrinsic motivation to the mean of identified regulation.

Mean Identified Regulation	Mean Intrinsic Motivation	*t*-value	*df*	*p*
4.44	3.72	8.82	384	0.001

Table D16: Single sample *t*-tests comparing the means of the scales measuring self-esteem, perceived stress and academic overload to the midpoints of the scales.

	N	Mean	Standard Deviation	Std.Err.	Reference Constant	t-value	df	*p*
Self-Esteem	194	3.22	0.60	0.04	2.00	28.11	193	0.00
Perceived Stress	194	37.41	7.67	0.55	32.5	8.92	193	0.00
Academic Overload	194	2.99	0.87	0.06	2.50	7.82	193	0.00

Table D17: Single sample *t*-tests comparing the means of the SACQ full scale and sub-scales to the midpoints of the scales.

	N	Mean	Standard Deviation	Std.Err.	Reference Constant	t-value	df	*p*
Full Scale	193	45.09	9.76	0.70	50.00	-6.99	192	0.00
Academic	193	47.32	10.31	0.74	50.00	-3.61	192	0.00
Social	193	46.01	10.08	0.73	50.00	-5.50	192	0.00
P/Emotional	193	41.54	9.06	0.65	50.00	-12.97	192	0.00
Attachment	193	51.60	10.45	0.75	50.00	2.12	192	0.04

Appendix E

Item composition of the SACQ sub-scales referred to in Chapters 3 and 4

Table E1. Item Composition of the SACQ Sub-Scales.

Item Number	Scoring [a]	Item
		Academic Adjustment (24 items)
3	+	I have been keeping up to date with my academic work.
5	+	I know why I'm at university and what I want out of it.
6	-	I am finding academic work at university difficult.
10	-	I have not been coping well during exams.
13	+	I am satisfied with the level at which I am performing academically.
17	-	I'm not working as hard as I should at my course work.
19	+	My academic goals are well defined.
21	-	I'm not really clever enough for the academic work I am expected to be doing now.
23	+	Getting a university degree is very important to me.
25	-	I haven't been very efficient in the use of study time lately.
27	+	I enjoy writing essays or papers for courses.
29	-	I really haven't had much motivation for studying lately.
32	-	Lately I have been having doubts regarding the value of a university education.
36[b]	+	I am satisfied with the number and variety of courses available at university.
39	-	Recently I have had trouble concentrating in lectures or when I try to study.
41	-	I'm not doing well enough academically for the amount of work I put in.
43	+	I am satisfied with the quality of the courses available at university.
44	+	I am attending lectures regularly.
50	+	I am enjoying my academic work at university.
52	-	I am having a lot of trouble getting started on university assignments.
54	+	I am satisfied with my programme of courses for this semester.
58	-	Most of the things I am interested in are not related to any of my course work at university.
62	+	I am very satisfied with the lecturers I have now in my courses.
66	+	I'm quite satisfied with my academic situation at university.
		Social Adjustment (20 items)
1[b]	+	I feel that I fit in well as part of the university environment.
4[b]	+	I am meeting as many people, and making as many friends as I would like at university.
8	+	I am very involved with social activities at university.
9	+	I am adjusting well to university.
14	+	I have had informal, personal contacts with university lecturers.
16[b]	+	I am pleased now about my decision to attend this university in particular.
18	+	I have several people I feel close to at university.
22	-	Homesickness or missing home is a source of difficulty for me now.
26[b]	+	I enjoy living in a university residence. (Please leave this out if you do not live in a residence; any university housing should be regarded as a residence.)
30	+	I am satisfied with the extracurricular activities available at university.
33	+	I am getting along very well with my roommate(s)/housemate(s) at university. (Please leave this out if you do not have a roommate.)
37	+	I feel that I have enough social skills to get along well in the university setting.
42[b]	-	I am having difficulty feeling at ease with other people at university.
46	+	I am satisfied with the extent to which I am participating in social activities at university.
48	-	I haven't been mixing too well with the opposite sex lately.
51	-	I have been feeling lonely a lot at university lately.
56[b]	-	I feel I am very different from other students at university in ways that I don't like.
57[b]	-	On balance, I would rather be home than here.
63	+	I have some good friends or acquaintances at university with whom I can talk about any problems I may have.
65[b]	+	I am quite satisfied with my social life at university.

Table E1 (continued). Item Composition of the SACQ Sub-Scales.

Item Number	Scoring [a]	Item
		Personal-Emotional Adjustment (15 items)
2	-	I have been feeling tense or nervous lately.
7	-	Lately I have been feeling down and moody a lot.
11	-	I have felt tired much of the time lately.
12	-	Standing on my own feet, taking responsibility for myself, has not been easy.
20	-	I haven't been able to control my emotions very well lately.
24	+	My appetite has been good lately.
28	-	I have been having a lot of headaches lately.
31	-	I've given a lot of thought lately to whether I should ask for help from the Psychologist/Counselling Services at Student Health or from a psychologist outside university.
35	-	I've put on (or lost) too much weight recently
38	-	I have been getting angry too easily lately.
40	-	I haven't been sleeping very well.
45	-	Sometimes my thinking gets muddled up too easily.
49	-	I worry a lot about my university expenses.
55	+	I have been feeling in good health lately.
64	-	I am experiencing a lot of difficulty coping with the stresses imposed upon me at university.
		Attachment (15 items)
1[c]	+	I feel that I fit in well as part of the university environment.
4[c]	+	I am meeting as many people, and making as many friends as I would like at university.
15	+	I am pleased now about my decision to go to university.
16[c]	+	I am pleased now about my decision to attend this university in particular.
26[c]	+	I enjoy living in a university residence. (Please leave this out if you do not live in a residence; any university housing should be regarded as a residence.)
34	-	I wish I were at another university.
36[d]	+	I am satisfied with the number and variety of courses available at university.
42[c]	-	I am having difficulty feeling at ease with other people at university.
47	+	I expect to stay at this university for a bachelor's degree.
56[c]	-	I feel I am very different from other students at university in ways that I don't like.
57[c]	-	On balance, I would rather be home than here.
59	-	Lately I have been thinking about transferring to another university or technicon.
60	-	Lately I have been thinking about dropping out of university altogether and for good.
61	-	I find myself giving considerable thought to taking time off from university and finishing later.
65[c]	+	I am quite satisfied with my social life at university.

Note: Item 53 (*I feel I have good control over my life situation at university*) and Item 67 (*I feel confident that I will be able to deal in a satisfactory manner with future challenges here at university*) are not scored on any sub-scale, and contribute to the full scale only.

[a] Agreement with items marked "+" is consistent with a high score on the scale. Agreement with items marked "-" is consistent with a low score on the scale.

[b] This item also appears on the Attachment sub-scale.

[c] This item also appears on the Social Adjustment sub-scale.

[d] This item also appears on the Academic Adjustment sub-scale.