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Relating Identity Processing Styles and Self-Efficacy to Academic Achievement in first-year University students

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A dissertation in partial fulfillment of the requirements for the degree of Masters in Education (Educational Psychology) in the Faculty of Humanities

Johannesburg

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Declaration

I. I, Samantha Leader declare that this research report is a product of my own work and has not been aided by any person other than myself.

II. The content of this research has only been submitted to the University of the Witwatersrand in fulfillment of academic requirements for the Masters in Education (Educational Psychology) degree.

III. This research report has never before been used for previous examination or academic purposes.

IV. I acknowledge that plagiarism includes denying an author credit for their work and this would result in disciplinary action. In light of this, I declare that no part of this current research project has been plagiarized.

V. I declare that I have utilized the American Psychological Association's referencing method to attribute credit to the authors of the references made.

Signature: _____

Samantha Leader

Date: _____

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TABLE OF CONTENTS

CHAPTER I *9*

Introduction and Rationale *9*

CHAPTER II *12*

2. Literature Review *12*

2.1 Higher Education in the South African Context *12*

2.2 Academic achievement of undergraduate students in Higher Education *15*

2.3 Adolescence *15*

2.4 Transition to University *16*

2.5 Identity *21*

2.6 Identity Processing Styles *24*

2.7 Identity Processing Styles and Academic Achievement *27*

2.8 Self-efficacy *29*

2.9 Self-efficacy and Academic Achievement *32*

CHAPTER III *37*

3. Methodology *37*

3.1 Research Aim *37*

3.2 Research questions *37*

3.3 Sampling *37*

3.4 Instruments *42*

3.5 Research design *46*

3.6 Ethical Considerations *46*

3.7 Data Analysis *47*

CHAPTER IV *50*

4. Results *50*

4.1 Test for Normality ***50***
4.2 Descriptive statistics ***51***
4.3 Multivariate Correlational Analyses ***52***

CHAPTER V *54*
5. Discussion ***54***
5.1 Identity Processing Styles ***54***
5.2 The relationship between Identity Processing Styles and Academic Achievement ***55***
5.3 The relationship between Identity Processing Styles and General Self-Efficacy ***56***
5.4 The relationship between General Self-Efficacy and Academic Achievement ***58***

CHAPTER VI ***59***
6. Concluding Remarks ***60***
6.1 Limitations of the current study ***60***
6.2 Limited Research Studies ***60***
6.3 Instruments ***61***
6.4 Sample ***62***
6.5 Directions for future research ***62***
6.6 Additional research in the current area of interest ***63***
6.7 Conclusion ***64***

References ***67***

Appendices 74
APPENDIX A: Ethical Clearance Certificate ***76***
APPENDIX B: Course Coordinator and Lecturer Information Sheet ***78***
APPENDIX C: Participant Information Sheet ***81***
APPENDIX D: Course coordinator and Lecturer permission form ***84***
APPENDIX E: Participant Informed Consent Form ***86***

APPENDIX F: Head of School Information Sheet 89
APPENDIX G: Head of School Permission Form..... 93
APPENDIX H: Distribution Analysis of Informational Identity Processing Style 94
APPENDIX I: Distribution Analysis of Normative Identity Processing Style..... 95
APPENDIX J: Distribution Analysis of Diffuse- Avoidant Identity Processing Style..... 96
APPENDIX K: Distribution Analysis of General Self-Efficacy Scores 97
APPENDIX L: Distribution Analysis of Academic Achievement (X) 98
APPENDIX M: Demographic Questionnaire 100
APPENDIX N: Identity Style Inventory (ISI3) 101
APPENDIX O: General Self-Efficacy Scale (GSE)..... 102

LIST OF TABLES

TABLE 1: UNIVARIATE FREQUENCIES OF PARTICIPANTS' HOME LANGUAGE……..……...39
TABLE 2: GENDER CHARACTERISTICS OF THE SAMPLE 39
TABLE 3: ONE-WAY FREQUENCY OF SCHOOL ATTENDED BY PARTICIPANTS 40
TABLE 4 : RACIAL COMPOSITION OF THE PARTICIPANTS..... 41
TABLE 5: THE KOLMOGOROV SMIRNOV TEST FOR NORMALITY RESULTS FOR IDENTITY PROCESSING STYLES (INFORMATIONAL, NORMATIVE, DIFFUSE-AVOIDANT) AND GENERAL SELF-EFFICACY 50
TABLE 6: MEANS AND STANDARD DEVIATIONS OF THE IDENTITY PROCESSING STYLES, GENERAL-SELF-EFFICACY SCORES AND ACADEMIC ACHIEVEMENT. 52
TABLE 7: RELATIONSHIP BETWEEN IDENTITY PROCESSING STYLES AND GENERAL SELF-EFFICACY (GSE) WITH ACADEMIC ACHIEVEMENT AMONG FIRST-YEAR UNIVERSITY STUDENTS 53

Abstract

The purpose of the current study was to investigate the relationship between identity processing styles and self-efficacy to academic achievement in first-year university students. The sample included one hundred and twenty-seven first-year university students (*n=127).* Non-probability purposive sampling was used to select the participants on the basis of their status as first-year university students. Participants completed a Demographic Questionnaire, Identity Style Inventory Revised (ISI3) and General Self-Efficacy Scale (GSE). The research findings indicated a non-significant relationship between the *normative* and *diffuse-avoidant* identity processing styles to academic achievement. However, a significant relationship was found between the *informational* identity processing style and academic achievement. More specifically, a weak, negative correlation between the informational identity processing style and academic achievement was noted. With regard to General Self-Efficacy, a significant relationship between identity processing styles and General Self-Efficacy was indicated. With reference to previous research studies, the results of the current research study are discussed.

Keywords: identity, identity processing styles, academic achievement, self-efficacy.

CHAPTER I

1. Introduction and Rationale

Since the 1990's, higher education institutions in South Africa have experienced a continuing problem with student retention rates (Gouws & van der Merwe, 2004). Indicative of this, is the high dropout rates evident within the South African higher education context. As a result, a call for practical and effective intervention strategies to reduce high dropout rates in universities is therefore a matter of urgency. In an effort to address this issue, academic support programmes have been implemented at the University of the Witwatersrand (Onsongo, 2006). The aim of these programmes is to offer assistance to students experiencing academic difficulties at first-year level with the objective of reducing failure and subsequent drop-out rates. Onsongo (2006) reports that between 1986 and 2002 the level of dropout had escalated in the first year of study. He further states that only 55 percent of engineering students completed their degree within the standard four year period whereas the remainder took five to six years to complete their studies between 1986 to 1997 (Onsongo, 2006). The high dropout rates require further investigation into the causes thereof. Furthermore, it is imperative to highlight the detrimental outcomes of high dropout rates at university as these have far-reaching effects.

Educating students within a university setting has profound economic ramifications, as the financial investment in students attaining academic achievement is regarded as productive, whereas the financial outlay for students who drop out of university is viewed as a forfeit of funding (Gouws & van der Merwe, 2004). Not only are the outcomes of the high dropout rates within South African universities in effect with regard to funding but rather, the implications thereof are pervasive. In light of this, the outcomes of student dropout are significant at a number of different levels and attention needs to be focused at the respective levels; governmental, educational as well as individual.

The consequences of the high failure and dropout rate of first-year university

students are profound at the individual, institutional and governmental level. Ochse (2003) explains that at the individual level, students who experience failure are less likely to secure remunerative employment. Thus, without a specialized qualification and skills, individuals are less likely to find employment. At the institutional level, in recent years financial losses have been experienced in terms of deficits in government funding granted to higher education institutions (de Villiers & Steyn, 2009). As a result, the number of academic staff in higher education institutions is outweighed by increasing student enrolments (de Villiers & Steyn, 2009).

At the governmental level, Nair (2002) states that with regard to the high failure and drop out rate within South Africa Higher Education institutions, the costs incurred by the government are estimated at millions of Rands. Government subsidies comprise 50 percent of funding made available to higher education institutions (Mubangizi, 2005). Furthermore, government funding to higher education institutions is largely dependent on the number of registered students, however more specifically to those students studying at postgraduate level (Mubangizi, 2005). Therefore, in order for government funding to be granted, it is essential for first-year students experiencing academic difficulties to be identified, so as to ensure their completion of an undergraduate qualification and educational advancement to a post-graduate level. In light of the widespread repercussions of student dropout and failure rates, it is necessary to investigate factors contributing to this particular issue. Subsequently, the current research study focuses on identity processing styles and self-efficacy in relation to academic achievement.

Previous research studies (Hejazi, Shahraray, Farsinejad &, Asgary, 2009; Mills, Pajares & Herron, 2007) have indicated a relationship between self-efficacy and academic performance. Studies relating self-efficacy and academic performance have been conducted mainly in countries other than South Africa namely, France (Mills et. al, 2007) and Tehran (Hejazi et. al, 2009). The current research study aims to determine whether significant results found in Western and European countries, are replicated specifically within the South African Higher Education context. In addition, the current study endeavours to investigate the association between academic achievement and

identity processing styles of first-year university students. The focus on identity processing styles in the current study is motivated by the fact that the majority of students entering university are in the stage of late adolescence and a means of determining whether these students will succeed and function effectively at university is by evaluating their developmental stage of identity in relation to academic preparedness (Boyd, Hunt, Kandell & Lucas, 2003). The developmental phase at which adolescents enter university corresponds with a period of "identity confusion" and is characterized by adolescents' troubling emotions of uncertainty associated with the formulation of an identity in relation to a particular career (Erikson, 1968). Furthermore, Erikson (1968) refers to a state of moratorium as a period forced upon an individual who is unable to commit to responsibilities. The coupling of identity confusion and moratorium with the expectations for success (academic achievement) as emphasized by universities, highlights a disparity.

CHAPTER II

2. Literature Review

2.1 Higher Education in the South African Context

Education is not only to be viewed as a tool for learning but also a mechanism for identity formation, as the impetus for formulation of education policy centers around political, social and cultural aims (Msila, 2007). Thus, the current status of higher education within South Africa should be viewed against the backdrop of a marred political history. Gultig (2000) states that policy advocated during the apartheid era produced a context for higher learning which was tainted by prejudicial, inequitable and unjust practices. Reinforcement of racial segregation was instated by the establishment of universities accommodating distinct separation of black and white university students (Wolpe, 1995).The collapse of the apartheid regime as well as the advent of democracy in South Africa resulted in the promotion of diversity. Diversity in this context may be understood in terms of conceding to multiculturalism within universities and the repudiation of discriminatory practices (Cassim, 2005). In light of this, measures correcting the inequalities of the past needed to be implemented. Governmental attempts to introduce such diversity within the Higher Education sector were addressed by means of various amendments to educational policy and legislation (Gultig 2000). Moreover, it was necessary for transformation to occur on a wider scale, focusing on both institutional structures and modifications to educational policy (Van der Westhuizen, 2007).

Gultig (2000) asserts that the White Paper of 1998 placed emphasis on governmental intentions to eliminate predating exclusionary practices in Higher Education admissions and an increase in the level of inclusion of students from previously disadvantaged backgrounds. Despite this, Fraser and Killen (2005) state that certain institutional structures, such as the selection of students based on Grade 12 academic achievement, remain in place despite the potential outcomes thereof being questionable. Discrimination is still clearly evident in this particular practice as students from previously disadvantaged backgrounds may not have received the same quality of

instruction and learning as those students from schools (independent schools for example) equipped with more resources. Despite this, with the arrival of a new democratic government, other necessary changes and modifications within the educational sector came to the fore. The National Plan for Higher Education (Department of Education, 2001) underscored the necessity for financial assistance for students of underprivileged backgrounds as well as implementation of facilities at Higher Education institutions which would facilitate the learning process for students inadequately prepared for tertiary education.

Furthermore, following the 1994 national elections, political reorganization occurred and resulted in changes in social structures, one of which includes the South African Higher Education system. In 2001 the former Minister of Education, Prof. Kader Asmal, explained that it was necessary for the South African government to introduce an educational framework that promoted, "…democracy, human dignity, equality and social justice" (Department of Education, 2001, p.4). Reforms aimed at the educational system post-1994 intended to address the uneven representation of race and class therefore; allowance was made for the integration of students from various ethnic, financial and social backgrounds into the higher education system (Fraser & Killen, 2005). An example of such educational reform is evident in the National Plan of Education (Department of Education, 2001) which emphasized an increase in student admissions regardless of the socio-economic status, religious, ethnic and gender groupings of students. This is of value given that the South African population is one characterized by diversity evident in the array of religious, cultural and ethnic groupings. Given the above mentioned diversity, eleven official languages are used by the various groupings of South African students. Therefore, it is imperative for educational policies to assign adequate consideration to the extent of the diversity evident within the South African student population so as to foster a learning environment that accommodates, as realistically as possible, the educational needs of the various student groupings.

In addition to the combined differences in students' varied backgrounds, the expansive range of students' proficiencies, distinct characteristics and motivational forces

leading to student unpreparedness for higher education (Fraser & Killen, 2005) need to be considered. The necessity for this is that students' anxieties of being ill equipped to deal with the difficulties presented at university may affect academic achievement. A possible explanation for this relates to the educational policies fashioned by the apartheid regime, which has resulted in continued differences between student groups. The outcome of the previous discriminatory educational policies established by the apartheid government is still noted in the large number of disadvantaged students entering university. Segregation policies of the apartheid regime perpetuated a system of poverty and unequal opportunities for adequate learning. The effects thereof are identified in the large number of students emerging from impoverished backgrounds which has often made opportunities for adequate schooling inaccessible. Despite the inadequate educational experiences afforded these students, the quota of previously disadvantaged students registering at university has increased (Gouws, Roberts & van der Merwe, 2006). Although these students may gain entry into university, academic success is not guaranteed. The fact that a number of these students may not have been adequately schooled unfairly compromises their chances for academic success at tertiary level. In light of this, Fraser and Killen (2003) question the morality of higher education institutions deliberately permitting access to any students at risk for academic failure. In discussing the historical influences on academic achievement of students, the importance of bearing in mind factors other than cognitive ability in relation to academic achievement has been underlined. Thus, the following section further explores additional factors contributing to the current standing of students' academic achievement in higher education.

2.2 Academic achievement of undergraduate students in Higher Education

For the purposes of this research study, academic achievement is understood in terms of a student attaining the necessary academic results in order to pass a course relevant to their current degree. Furthermore, the first-year student is achieving academic success through preventing drop out within the first-year of university. The National Plan for Higher Education (Department of Education, 2001) defines the dropout

rate in universities in terms of students' incompletion of a qualification and the failure to return to university to re-register. It is stated that graduate rates evident within the South African context are inconsistent with the increasing number of students entering university (Department of Education, 2001). Therefore, the discrepancy between students gaining access to university and those ultimately attaining a qualification alludes to a problem of student drop out. This proves to be a great cause for concern for the South African government, as the costly financial losses incurred for Higher Education funding equates to R1, 3 billion for a student dropout rate of 20% (Department of Education, 2001, p.23). As a result, the government has adopted a more critical stance towards universities experiencing high dropout and low graduation rates and has highlighted the necessity for this serious issue to be attended to (Gouws, Roberts & van der Merwe, 2006). The low graduation rate evident within South African universities underlines the significance of investigating factors contributing to academic achievement. Included in the scope of this discussion is the adolescent developmental stage, the transition to university, identity, identity processing styles and general self-efficacy. Exploration of these factors is aimed at determining the relevance or significance of these factors with regard to academic achievement in first-year university students.

2.3 Adolescence

The transitional phase between adolescence and early adulthood is easily identifiable and characterized by general individual change (Lerner & Spanier, 1980). It is during this developmental stage that bodily, emotional and psychological changes occur and as a result of this, adolescents are forced to adapt to physical, hormonal, emotional changes as well as others' reactions to these changes (Archibald, Graber, & Brooks-Gunn, 2006). Accompanying confusion related to the onset of unfamiliar change and the increase in responsibilities is adjoined to adolescence and the progression to adulthood. In addition to these intrapersonal changes, for many late adolescents a further challenge includes the transition to university. Adolescents transferring low self-efficacy beliefs into a new environment (such as university) are more prone to increased stress and maladjusted functioning within this particular environment (Bandura, 1997). Furthermore, such challenges are further complicated by the difficulties encountered with

adapting to the social and educational responsibilities encountered within the adolescent phase. Uncertainty and confusion experienced as an adolescent may lead to dysfunctional attempts at adjustment. As a result, academic achievement is compromised by the transitional university experience as well as developmental adjustments experienced during the adolescence life stage. The following section elaborates upon the transition to university experience, as well as the significance thereof to academic achievement of first-year university students.

2.4 Transition to University

An appropriate starting point for evaluating academic achievement of first-year university students includes focusing on the transition to university as it is at this stage that initial academic difficulties occur and need to be addressed. However, prior to addressing the influential role of the transition to university upon academic achievement, attention is initially focused on the personal effects this transition to university may have on the first-year university student.

For many individuals exiting secondary education, entrance to university is viewed as a rite of passage as it is a milestone of progression from adolescence to adulthood (Montgomery & Côté 2006). Factors noted by current research as influential upon the first-year university experience include; relocation, gains of independence and freedom, separation from direct familial support and unfamiliarity within novel surroundings (Nkuna, 2008). Students leaving the familiarity of their home environments may experience difficulty in that the transition to university requires independent adjustment to novel surroundings, without the constant guidance of significant family members (Montgomery & Côté, 2006). In certain instances, first-year university students may struggle to detach themselves from their parents and function independently. In the face of challenges, this may create difficulties for the first-year student as reliance on internal resources of strength and support is lacking. Comparatively, those students who continue residing at home are likely to experience more conflict in terms of familial relations, however they are more easily able to access support and comfort of family members when needed (Montgomery & Côté, 2006).

Given this, it seems that one of the greatest challenges for first-year university students includes managing their new found independence in the face of academic and social challenges encountered within the university context. It is important to mention that despite the inevitable grant of independence upon entering university, students may not be emotionally or psychologically equipped to manage this new found independence. As explained by Baltes and Silverberg (as cited in Zimmer-Gembeck & Collins, 2006) the effects of being ill-equipped are multi-faceted and gains in independence are significant in facilitating effective functioning in academic and social domains, identity development, self-esteem as well as emotional self-regulation. Based on this, it is imperative that the emergence of adolescent independence during the first-year of university is further explored.

Erikson (1965) states that young adults have a propensity towards being concerned with external perceptions as opposed to focusing on personal views of self. In accordance with Harter, (as cited in Zimmer-Gembeck & Collins, 2006) in instances where late adolescents demonstrate a preoccupation with external perceptions of themselves, the development of autonomy is hampered. Thus, the emergence of a preoccupation with social activities and increased freedom previously absent in high school becomes evident. Such new found independence in social activities requires the students to conduct themselves in a manner conducive to academic achievement as well as create a balance between academic responsibilities and social activities (Zulu, 2008). Thus, first-year university students are expected to exercise maturity in relation to their independence. This is achieved by means of instituting limitations and regulations for their behaviour in relation to time, money, social relationships and activities (Montgomery & Côté, 2006). Management of daily living and social financial expenses, as well as academic commitments and deadlines is necessary at the first-year level. If the student is unable to negotiate these responsibilities, academic success is bound to be compromised. In light of this, it is assumed that in order to adjust effectively to university, the call for greater personal and academic self-reliance on the part of the student needs to be exercised in order to attain academic achievement.

Given this, first-year university students' perseverance in ultimately attaining a qualification, is dependent on adjustment within the social, as well as academic domains (Montgomery & Côté, 2006). Thus, it is necessary for first-year students to identify and formulate means to manage academic and social difficulties which would potentially hamper a positive university experience. In addition to student involvement, personal factors relevant to students are significant contributors to the university experience (Montgomery & Côté, 2006). Moreover, the transition from secondary to tertiary education is a daunting experience for many first-year university students. In addition to the academic difficulties which may be encountered within the first year studies at university, students are often required to engage in a process of negotiating and managing academic concerns in conjunction with personal stresses and problems, as well as issues of adjustment. Furthermore, the first year of university is viewed as taxing in relation to the expectation for students to leave the familiarity of their home surroundings and fulfill the necessary academic requirements stipulated by the chosen university (Chickering, 1969 as cited in Berzonsky & Kuk, 2005). Cognizance of this fact is significant; in that a student's academic achievements within the first year may serve as a determinant of the decision to continue with the remaining years of study in order to obtain the desired qualification (Zulu, 2008).

In accordance with Gow, McKenzie and Schweitzer (2004), the first year of university is of great importance, as it is within this year that students formulate personal views of self, their chosen course of study and methods employed for learning at university. Moreover, previous research has emphasized the importance of focusing attention on adjustment of first-year university students, as in relation to academic achievement, it serves as a valuable predictive factor (Petersen, Louw & Dumont, 2009). An all-inclusive account of academic achievement entails investigating internal as well as, external factors influencing academic performance at the first-year level at university as academic achievement is largely influenced by intrinsic and environmental determinants It has been noted that the majority of research investigating academic achievement has focused primarily on Grade Point Average (GPA) scores (Fraser & Killen, 2003) as opposed to internal factors. Therefore, the current research project is

valuable in contributing to an apparent gap in research which pays no heed to the influence of internal factors on academic achievement.

Therefore, emphasis is placed on identifying factors which act as predictors of academic achievement and those contributing to failure within the first-year at university. For example, research studies have indicated that the following factors act as valuable predictors of academic achievement; student perceptions of escalated or excessive levels of academic demands, self-esteem and stress (Petersen, Louw & Dumont, 2009) self-efficacy, assimilation to university, full-time studies in the absence of employment (Mckenzie & Schweitzer, 2001) techniques for learning, students' results achieved in high school (Gow, Mckenzie & Schweitzer, 2004) internal motivation, learning in a self-governing manner (Killen, Marais & Loedolff, 2003), the ability to approach academic tasks with discipline (Fraser & Killen, 2005) and personality features (Chamorro-Premuzic & Furnham, 2003).

In terms of adjustment to the unfamiliar university environment including institutional structures, practices and teaching techniques, it is necessary to draw attention to several factors. Insufficient readiness for university has been highlighted as a contributing factor to failure in first-year university students (Zulu, 2008). Adjustment requires first-year students to adapt to the teaching styles and methods utilized during lectures at university, the increased complexity of academic tasks as well as supplementary independent learning. Complementing adequate adjustment and academic success is self-confidence, as well as students' belief in their capacity to succeed (Sikhwari, 2007). Findings of research conducted by Mckenzie and Schweitzer (2001) indicated that positive academic results were yielded by students' demonstrating a high level of self-efficacy. If one believes they are able to complete a task successfully it is most likely that time and energy will be invested in the task, so as to experience a sense of accomplishment and to provide confirmation of self-belief. Furthermore, as students advance in their academic careers and academic tasks increase in terms of level of complexity; students need to become more dependent on their self-belief (Gifford, Briceno-Perriott & Mianzo, 2006). Substantiation for this relates to the fact that,

improvements in self-efficacy beliefs are noted as students advance in their educational tuition (Brannick, Miles & Kisamore, 2005). Based on this, the self-efficacy beliefs held by first-year university students may only undergo positive development as they progress to the proceeding years of study.

Having explored various factors related to adjustment and its role in relation to academic achievement, focus is directed to contextual factors such as; employment whilst completing studies within first-year at university and study techniques. Although these factors are not directly linked to the current study, they are perceived as external factors affecting academic achievement. Students utilizing techniques accommodating further learning have the tendency to perform better academically than those who utilize such methods less frequently (Gow, Mckenzie & Schweitzer, 2004). Certain student practices perceived as influencing academic achievement positively have been identified by students and lecturers in recent research. For example, students who manage their time effectively, study unaided and make use of appropriate study methods, are perceived as more successful academically (Zulu, 2008).

In terms of a leading external factor influencing academic achievement, full-time student employment whilst studying in the first year was identified as a negative contributor to academic achievement (Mckenzie & Schweitzer, 2001). Unfortunately, within the South African context, as a means to sustain their academic career, a large quota of students unable to afford the cost of university fees and denied institutional bursaries are forced to seek employment, whilst completing their studies. As a result of this, academic achievement may be compromised as adequate time is not allocated to university studies. Furthermore, the pressure of financial stresses may impact negatively on students' academic functioning. Although the afore-mentioned findings are valuable in predicting academic achievement of students in university, for the purposes of the current study, the focus was specifically limited to the investigation of identity processing styles and self-efficacy, in relation to academic achievement. The motivation for this research focus was to replicate previous research findings, which have identified the role of identity processing styles and self-efficacy in relation to academic achievement. Most

importantly, the research endeavoured to replicate similar findings within the South African context specifically. In an attempt to do so, the discussion of relevant literature pertaining to identity, identity processing styles and self-efficacy is explored.

2.5 Identity

Most students leaving high school and bound for the transition to university are still within the developmental stage of adolescence. In general, this developmental stage is marked by physical and psychological changes accompanied by confusion. In accordance with Erikson's (1968, p. 87) psychosocial lifespan theory, adolescence is a period in which the individual engages in a process of establishing an identity. Eriksonian concepts most relevant to the stage of late adolescence include the life stage referred to as *identity versus role confusion* as well as *identity crisis* (Kroger, 2006).

For many first-year students entering university in late adolescence, issues related to identity formation may still be relevant and thus influence their functioning and academic achievement. The developmental stage at which adolescents experience challenges in attaining a sense of inner identity is referred to as, *sense of role confusion* (Erikson, 1968, p. 87). In accordance with Erikson, it is within this psychosocial stage of development that adolescents seek out their individual position, function and independent responsibilities within society (Donald, Lazarus & Lolwana, 2010). This would include giving consideration to a particular academic course which would facilitate attainment of the individual's desired career choice. The significance of this relates to the fact that the establishment of an identity results when an individual has unified their personal identity, as well as their identity within the social environment (Donald et al., 2010). Moreover, Erikson states that the demands and restrictions of the individual's social environment impact upon their psychological processing (Donald et al., 2010). Thus, psychological processing has a significant influence on an individuals' functioning within the academic and social domains.

Expanding upon Erikson's identity theory, Marcia, a pioneer of identity research reasoned that exploration of oneself in various spheres of personal life ultimately leads to

stability in the way in which one defines oneself (Nauta & Kahn, 2007). Marcia (1980, p.159) defines identity as the, "… self-constructed, dynamic organization of drives, abilities, beliefs and individual history". Difficulty in establishing an identity results in the inability to view oneself as separate from others, and leads to a reliance on others for an evaluation of oneself (Marcia, 1980). As the adolescent leaves the stringent conformities and monitoring characteristic of high school and is required to act independently in the university context, reliance on teachers, family and peer appraisal is not conducive to effective and promising academic functioning. Marcia's Identity Statuses describe the manner in which individuals negotiate issues related identity (Marcia, 1980) and are elaborated upon in the following section.

The four identity statuses proposed by Marcia (1980) typify the ways in which adolescents generally manage problems related to identity and include; *identity achievement, foreclosure, identity diffusion* and *moratorium.* The functionary role of the identity statuses includes the extent to which individuals engage in a process of deciding on (*crisis*) and committing to an identity embedded in career choice as well as political and religious beliefs (Marcia, 1966). During the developmental stage of adolescence young adults encounter the *crisis* stage which entails contemplation and indecision relevant to available options whereas *commitment* pertains to the level of individual effort invested in committing to a career, political or religious beliefs (Marcia, 1966). For instance, a first-year student may enroll in a specific course based on the prestige or status associated with the course but realize that they are not particularly interested in the course. As a result, the student may withdraw from this course and enroll in a course which appeals to their interest. Marcia (1966) highlights a particular identity status following the experience of identity crisis.

Marcia (1966) states that adolescents in the *identity achievement* status have made a commitment to their chosen beliefs and career path following a period of crisis. Emphasis is placed on the fact that adolescents in the *identity achievement* status have committed to a specific career and belief system based on individual choice. Comparatively, adolescents in the *foreclosure* status have committed to a belief system

and career however, commitment is strongly influenced by parents and significant others. For example, students influenced by family members who are of the opinion that a certain career choice will ensure financial security or prestige. Alternatively, adolescents in the *identity diffusion* status are both undecided and uncommitted to a belief system and career and appear to be unperturbed by such indecision. An expressed interest in a career may become evident, yet knowledge pertaining to the career appears limited. In this particular instance, the student may have an idea of a suitable career but they have not invested effort in investigating the standard number of years for study, selection criteria or mandatory requirements essential to attaining the qualification of interest. Adolescents in the *moratorium* status include those who are in the process of committing to a particular career and set of beliefs and are therefore in a stage referred to as an "identity crisis". A marked difference between the identity *diffuse* adolescent and one in the moratorium status is that the identity diffuse adolescent is not experiencing a state of questioning and contemplation in relation to committing to an identity (Marcia, 1966).

In relation to academic achievement, when compared to adolescents in the identity achievement status one would assume that adolescents in the *identity diffusion status* are less likely to attain academic achievement. The basis of this assumption relates to the fact that a prerequisite for academic achievement includes commitment to academic tasks and functioning. However, Marcia's (1966) research project using the Concept Attainment Task performance (CAT) and two stress conditions (assessing the feature of cognitive ability and academic performance) yielded scores inconsistent with this assumption. The scores indicated that of the four identity statuses, performance on tasks yielded the lowest scores for adolescents within the *foreclosure* status. The most prominent features of poor performance by the foreclosure adolescents relates to their adherence to authoritative expectations, difficulties in managing failure at tasks, inadequate responses to stress and fragility in self-esteem in response to unwanted feedback (Marcia, 1966). Given this, one is able to foresee anticipated academic difficulties for students within the *foreclosure status.*

Academic achievement at university is characterized by academic stress as demands for deadlines; time management and successful completion of academic tasks are expected by authority figures such as lecturers. *Foreclosed* students' difficulty managing and overcoming stress and undesirable feedback may hamper academic achievement. It can be hypothesized that, *Foreclosed* students become preoccupied with meeting others' expectations of their performance and this ultimately compromises performance. Comparatively, adolescents within the *identity achievement* status demonstrated more effective means for managing stress in relation to tasks and persisted in the face of encountering difficulties on tasks (Marcia, 1966). Following on Marcia's (1966) focus on the outcomes of identity namely; identity statuses, Berzonsky (1989) proposed identity processing styles.

2.6 Identity Processing Styles

Identity processing styles refer to the socio-cognitive strategies utilized by adolescents to assist with managing problems, decision-making and the processing of information relevant to self when establishing an identity (Berzonsky, 1989). Individuals will demonstrate an inclination towards one of the identity processing styles when partaking in or evading activities relevant to forming and sustaining an identity (Berzonsky, 2008). The three identity processing styles proposed by Berzonsky (1989) include; *informational*, *normative* and *diffuse-avoidant*. It is important to note that the use of a particular identity style does not serve as a reflection of one's level of intelligence (Berzonsky & Ferrari, 1996). Rather, differences denoted by the identity processing styles relay variances in students' self-assurance in their capacity for; attending to information, making resolutions and addressing difficulties (Berzonsky & Ferrari, 1996). Furthermore, students utilizing different identity processing styles demonstrate varying levels of coping when encountering difficulty and stress, (Berzonsky, 1992a) as well as variations in approaches to processing (Berzonsky, 2008). In light of the factors mentioned, the differences evident in students' behaviour within educational settings may be better understood by extensively exploring the academic outcomes of the individual identity processing styles.

In order to commit to an identity it is necessary for individuals to invest in cognitive processing of complex information (Berzonsky & Ferrari, 1996). To elaborate further, identity formation is a product of consideration given to vast amounts of information, opinions, beliefs and viewpoints. The manner in which individuals manage and make decisions in relation to such information determines the identity processing style adopted. Therefore differences in the manner in which individuals perceive the short and long-term advantages and disadvantages of decisions and information results in the identity processing style employed by an individual. Berzonsky (2008) states that in terms of cognitive processing, *informational*-oriented students' use instinctive as well as rational reasoning, for *normative*-oriented students processing is instinctive whereas for *diffuse-avoidant* students logical and rational cognitive processing is less likely. Employment of the individual identity processing styles is manifested in varying behaviours evident within different contexts. The following section highlights the manifested behaviours relevant to the three identity processing styles.

Berzonsky (1988, as cited in Berzonsky 1989) claimed that the *informational* identity processing style is closely linked to the *achievement* and *moratorium* statuses proposed by Marcia (1966). For *informational*-oriented individuals, decision making is approached with rationality and attentiveness whereas *diffuse-avoidant* students experience trepidation and delay decision making (Berzonsky & Ferrari, 1996). Marcia's (1966) status of *foreclosed* adolescents may be viewed as paralleling *normative-oriented* individuals who are preoccupied with and accepting of the norms valued by significant others. In addition, in comparison to *information*-oriented students *normative*-oriented students engage in less planning, more deference and utilization of ineffective means in the decision-making process. *Diffuse-oriented* adolescents can be categorized within Marcia's (1966) *identity diffuse* status, which defines adolescent behaviour as motivated by external reinforcement and an inclination toward procrastination. *Normative- oriented* students reflect Marcia's (1966) identity *foreclosure* status (Berzonsky, 1988 as cited in Berzonsky, 1989). *Normative-oriented* adolescents present as being focused, possessing clearly defined goals for their academic life and career as well as secure in their commitments (Berzonsky & Kuk, 2005). Interestingly, in terms of commitment, research

suggests that *normative*-oriented students exercise more commitment to academic aims and objectives than *information*-oriented students (Berzonsky & Kuk, 2005).

Further differences have previously been noted between the *informational* and *normative* oriented students. For example, *normative* students are viewed as less autonomous (academically) and less likely to form appropriate social relationships (Berzonsky & Kuk, 2005). In drawing a parallel between *normative* and *foreclosed* students, Berzonsky and Kuk's (2005) finding is consistent with Marcia's (1966) results which highlighted *foreclosed adolescents* dependence on external confirmation. Independent functioning is vital in the higher education context, as academic tasks at tertiary level are assessed in terms of the students' ability to exercise independent critical thought and abilities. With regard to *normative* students' ability to act independently in the academic sphere, these students may require more emotional (e.g. encouragement and motivation) and academic support (e.g. additional guidance from lecturers) from others to function effectively and attain academic success. In spite of the need for support, *normative*-oriented students struggle to establish valuable social relationships with peers and others and this compromises the extent of the support they receive. In light of this, normative-oriented students function most effectively in higher education settings which offer academic support. Moreover, *normative* oriented students are best suited to organized higher education institutions emphasizing structure (Berzonsky & Kuk, 2005).

It is imperative at this stage to highlight the relevance of identity processing styles within the South African context. Due to the extensive degree of diversity and multiculturalism evident within South Africa, it is vital to gain an understanding of identity formation and identity processing styles in relation to ethnicity. In light of this, acculturation plays a significant role in identity formation for students from non-westernized ethnic groups as such students are forced to negotiate an identity relative to their own non-Western culture in addition to the predominant Western culture (Crocetti, Rubini, Luyckx & Meeus, 2007). The significant difference between the contrasting cultures includes the fact that non-Western cultures place emphasis on and assign value to collectivism, a sense of community and interdependence, whereas Western cultures are

characterized by individualism (Seabi, 2009). Based on this, one would hypothesize that students from non-Western cultures are more likely to utilize the *normative* identity processing styles, as the views and opinions of significant others are incorporated accordingly. Evidence supporting this hypothesis is noted in a research study conducted within the South African Higher Education context. Findings of this research (in which the greatest number of students were African) indicated that 37% of the sample utilized the normative identity processing style (Seabi, 2009). Although this finding may not be replicated in the current research study, it is necessary to understand the manner in which the respective identity processing styles adopted by late adolescents facilitate the management of academic challenges. Therefore, the following section explores the relationship between identity processing styles and academic achievement.

2.7 Identity Processing Styles and Academic Achievement

Previous research (Berzonsky and Kuk, 2005; Hejazi et. al, 2009) provides evidence of a relationship between identity processing styles and academic achievement. The purpose of the research study was to investigate the differential influence of the identity processing styles on adaptation of college students to the college setting. The research project was conducted in New York and was comprised of 460 college students. Findings of this research indicated that students with an *informational* processing style were most likely to adapt effectively to the college setting and had a proclivity toward academic achievement (Berzonsky & Kuk, 2005). Reasoning for this relates to students with an *informational* processing style possessing the capacity for independent functioning, explicit academic goals and the ability to engage socially (Berzonsky & Kuk, 2005). These factors highlight the significance of a well-established identity as individual agency, social interaction and the assignment of personal academic goals require a sense selfhood. Substantiation of this is described by Erikson as self-belief stemming from individuals' ability to overcome the state of identity confusion and advance to the next phase of development (Donald et al., 2010). Use of a particular identity processing style facilitates this process and ultimately affects academic achievement.

Support for the differential influence of identity processing styles on academic success indicates that the *informational* identity processing style is found to influence academic achievement positively whereas *diffuse-avoidant* identity processing influences academic achievement negatively (Hejazi, et. al, 2009). More specifically, it was found that of the three identity processing styles, *information*-oriented students entering university are most aptly equipped to succeed academically. The reasoning highlights the functioning and attitude characteristic of *information*-oriented students. It is postulated that *information*-oriented students are more inclined to be focused and able to act independently when attempting to complete academic tasks. Comparatively, *diffuse*-oriented adolescents manage emotional difficulties by using, avoidant, unrealistic, distancing and stress reducing devices (Berzonsky, 1992a). The reason for utilizing such an approach relates to *diffuse-avoidant* students attempts at avoiding the origin of the particular difficulty encountered (Berzonsky, 1992a). In light of this, *diffuse–avoidant* oriented adolescents are more prone to encountering academic difficulties (Berzonsky & Kuk, 2000). For example, whereas an *information*-oriented student has the capacity to complete tasks independently without seeking assistance from others (peers and lecturers), the *diffuse-avoidant* student would demonstrate dependence on others for assistance. It is necessary and significant to understand the relevance and applicability of these findings within the South African context.

Prescribing to previous research findings (Seabi, 2009) within the South African context, the prevalence of poor academic achievement amongst students utilizing the *diffuse-avoidant* identity processing style may be explained in relation to levels of commitment. Findings indicated that in relation to the achievement of academic aims, the level of commitment demonstrated by *diffuse- avoidant* students was low (Seabi, 2009). In addition, *diffuse-avoidant* students anticipate academic problems, lack academic autonomy, demonstrate uncertainty in relation to academic aims and experience difficulty with time management (Berzonsky & Kuk, 2000). Furthermore, when problematic situations are encountered by these students, they have a proclivity towards defensiveness, justification and evasion (Berzonsky & Ferrari, 1996) and the tendency to engage in activities unrelated to academic tasks (Berzonsky, Nurmi, Kinney & Tammi,

1999). These may include non-academic social activities and hence detracting from effort invested in academic tasks.

Contrastingly, university students utilizing an *informational* identity processing style demonstrate a greater degree of preparedness in managing difficulties experienced academically as well as those present in their personal and social interactions (Berzonsky & Kuk 2005). Reasoning for this alludes to the fact that *informational-oriented* students tend to utilize, "active, problem-focused strategies" when confronted by challenges (Berzonsky, 1992a, p.783). Therefore, for *information*-oriented students, confidence in their ability to resolve academic challenges is present and exercised. Use of this particular approach highlights the relationship between identity processing styles and self-efficacy when making reference to academic achievement. Previous research findings have indicated that the attribute of self-efficacy serves as a mediator when considering *normative* and *informational*-identity processing styles as contributors to academic success (Hejazi et al., 2009). The current research project aimed to replicate similar findings within the South African context. In order to gain an understanding of self-efficacy in relation to academic achievement it is necessary to investigate additional research findings substantiating or disconfirming this relationship.

2.8 Self-efficacy

Social Cognitive theory places emphasis on individuals' anticipation related to the outcomes or consequences of incidents as well as their personal opinions of themselves (Pervin & John, 2001). As a proponent of Social Cognitive Theory these personal opinions of self are expressed by Bandura (1986) as self-efficacy which refers to, "…people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p.391). Thus, with reference to first-year university students, self-efficacy is relevant to students' perceptions of their capacity for academic achievement. Prior to attaining academic achievement, individuals specify academic goals for themselves. Furthermore, goal-setting is determined by individuals' personal ideals for their actions as well as feedback

provided by others (Pervin & John, 2001).

Moreover, in order to attain academic achievement the motivation to do so should be present. Self-motivation necessitates goal-setting as well as the achievement of such goals (Pervin & John, 2001). If individuals' actions are not met with internal or external reward the motivation for action is limited (Bandura, Barbaranelli, Caparara & Pastorelli, 1996). An example of an internal reward may include the experience of personal satisfaction or a sense of accomplishment (Pervin & John, 2001). Comparatively, an external reward could include external praise provided by significant others or lecturers. In order to gain insight into the development of self-efficacy beliefs, focus is directed to the origins of establishing such beliefs.

With reference to the definition of self-efficacy, exploration of self-efficacy within a developmental framework provides further understanding and insight of the concept. Research indicates that in instances where parents communicate affirming scholastic goals and ambitions to their children, fulfillment of such goals, such as efficacy related to reasoning and self-management increases (Bandura et al., 1996). Much like the relationship between independent functioning and positive academic outcomes for *informational*-oriented students, children's ability to manage their actions effectively is significant. In instances where children feel a sense of responsibility, accountability and command for their academic achievements, academic success is attained (Bandura, et. al, 1996). Having explored the role of parents in instilling efficacy beliefs in their children, it is of value to give consideration to the assumptions of self-efficacy in the following section.

Self-efficacy is premised on the following four principles; *enactive attainments physiological state, vicarious experience and verbal persuasion* (Bandura, 1986, p.399). Enactive attainment and physiological state relate to an individual's intrapersonal experiences whereas vicarious experience and verbal persuasion involve other parties and are therefore interpersonal. Enactive attainments refer to the idea that frequent experiences of success result in elevated levels of self-efficacy. For example, when students consistently attain exceptional results for a statistics module, the chances for

future successes are greater as the students believe they are capable of further achievement. Conversely, increased experiences of failure result in lower levels of self-efficacy as individuals start to question and lack confidence in their current abilities. Bandura (1986) explains that low levels of self-efficacy are further exacerbated in instances where failure is not the result of insufficient effort invested by the individual. To illustrate this point consider a student having invested many hours of studying over an extensive period of time in order to understand mathematics but experiences failure at the end of the semester. In this instance, failure cannot be attributed to inadequate effort but rather to the student's inability to relate to the lecturer's style of instruction or difficulty understanding certain mathematical concepts for example.

Vicarious experience refers to a process of observing or imagining others to whom one is alike attaining success (Bandura, Adams, Hardy & Howells, 1980 as cited in Bandura, 1986) resulting in improved self-efficacy. For instance, a university student may observe a peer in their class with similar abilities to themselves achieve academic success. Based on the principle of vicarious experience, this student may conclude that due to similarities in ability levels, s/he is also able to achieve academic success. In addition to observing others achieve success; self-efficacy may be understood in terms of external encouragement to exercise self-belief. Bandura (1986) defines verbal persuasion as convincing by others to believe in one's abilities to succeed, which reduces uncertainty and increases personal investments made when confronting challenges. An example of verbal persuasion includes peer support (in the form of verbal encouragement) for students lacking confidence in their presentation skills. Finally, *physiological state* relates to the way in which a person responds to bodily signals in certain situations, (stressful and not) and connects this experience to their belief in their ability to perform (Bandura, 1986). For instance, in a stressful situation, an individual may become highly anxious and experience heart palpitations and sweaty palms. Based on this uncomfortable experience, the person may stop believing that they are able to succeed at that time. At this stage it is necessary to evaluate additional factors which may influence self-efficacy.

Bandura (1986, p.392) highlighted a distinction between *outcome expectations* and self-efficacy. Outcome expectations are the result of behaviour performed whereas

self-efficacy refers to how one perceives their actual ability to succeed at performing that same task. Bandura (1986) explains that outcomes cannot be divorced from self-efficacy as the results of actions (outcomes) are predetermined by one's belief and judgment in the choice of action. When individuals doubt their ability to function effectively within a given situation, they would rather steer clear of it altogether (Bandura, 1977). Comparatively, if one views their personal capabilities in a positive light, they are more likely to respond with greater confidence in intimidating circumstances.

Furthermore, it is suggested that self-efficacy serves as a determinant of the time duration and the amount of energy invested when difficult situations are encountered i.e. the higher the levels of self-efficacy, the more energy will be invested in that situation (Bandura, 1977). In addition, Social Cognitive theory highlights the influence of individuals' skills and competencies in relation to the self-efficacy beliefs they hold for themselves (Pervin & John, 2001). Thus, if an individual possesses the skills and competencies relevant to a particular situation, it is assumed that self-efficacy beliefs are likely to be more positive. Given this, one may assume that students within the identity achievement status possess higher self-efficacy beliefs as Marcia (1966) highlighted that these students persist in the face of difficulties. The variability in the nature of the emotions and thoughts experienced under either difficult or manageable circumstances relates to self-efficacy beliefs. In difficult situations a person might become anxious and experience self-doubting thoughts regarding their ability to achieve success (Pervin & John, 2001). The assumptions of self-efficacy discussed, as well as the associated cognitions and emotions are likely to affect academic achievement.

2.9 Self-efficacy and Academic Achievement

Previous research has highlighted a relationship between self-efficacy and academic achievement (Fenollar, Roman & Cuestas, 2007; Mills et. al, 2007; Margolis & McCabe, 2006). More specifically, within the academic domain, self-efficacy serves as a determinant of the investment students make in their academic careers and the speed with which they complete tasks (Zimmerman, 2000). With reference to this claim, disparities in academic achievement of students with high and low self-efficacy are investigated.

Students with high self-efficacy are characterized by their readiness to confront academic difficulties; they invest more energy in academic tasks, are less anxious, and are adaptive in their approaches to learning, have realistic evaluations of their academic achievements, possess appropriate self-management skills and demonstrate academic inquisitiveness (Mills et al., 2007). Contrastingly, low self-efficacy is described as a hindrance to achieving academic success and Margolis and McCabe (2006) justify this view as follows;

> "Low self-efficacy beliefs, unfortunately, impede academic achievement and in the long run, create self-fulfilling prophecies of failure and learned helplessness that can devastate psychological well-being" (p. 219).

In instances where students rate their academic potential negatively (low self-efficacy) poor academic achievement reflects this self-belief. In turn, low self-efficacy is reinforced and the cycle of poor academic achievement is fuelled. Students demonstrating low self-efficacy are therefore less likely to seek out academic support and guidance when encountering academic difficulties. Furthermore, students with low self-efficacy are more likely to have negative cognitions related to their academic abilities and inaccurately attribute poor academic achievement to their personal academic deficiencies (Margolis & McCabe, 2006). For this exact reason, a means for correcting inaccurate self-beliefs or low self-efficacy noted in certain students includes providing precise evaluations and critiques of students' performance as this facilitates realistic views of actual self-efficacy (Fenollar et. al, 2007). In so doing, students are actively able to recognize the pitfalls and inaccuracies evident in their personal self-efficacy beliefs. Addressing these incongruous self-beliefs enables students to set appropriate academic goals in order to attain academic successes.

Bandura (1986) states that individuals are less likely to set goals for themselves if they believe the specified goals are personally unattainable. Therefore, if a student perceives certain academic goals as impossible to achieve, limited effort may be invested as to achieve only the goals considered realistic to in relation to the student's personal judgments. Therefore, for students with low levels of self-efficacy, academic goals may

not be set as they are not of the belief that such goals are achievable. Comparatively, in instances where individuals have greater self-efficacy, the more goals and aims they set for themselves, the more unyielding is their commitment to these goals (Bandura, 1996). Studies providing reasoning for this have shown that students with greater self-efficacy tend to demonstrate a willingness to be involved, resilience when encountering challenges and invest more energy in attaining their goals (Bandura, 1997; Pajares, 2003; Schunk, 1991; as cited in Guerra, Hsieh, Sullivan, 2007). Mills, Pajares and Herron (2007) support this claim by stating that individuals with high levels of self-efficacy will opt to confront a difficult task but will rather confront it with the objective of attaining achievement. These claims are reinforced by the concept of *triadic reciprocality* which highlights the shared interaction between, "action, cognition and environmental factors" Bandura's (1986, p.521). To explain this, if one believes they are incapable of performing a specific task (self-efficacy belief), this is translated into the act of failure (action) and because failure is not generally praised or rewarded (environmental factors), low self-efficacy beliefs are reinforced perpetuating a cycle of ongoing failure. An additional factor associated with the relationship between self-efficacy and academic achievement is academic anxiety as it is stated that students with lower scores in self-efficacy have a proclivity towards experiencing academic anxiety (Bandura, 1997). As such, instances in which academic anxiety are effectively managed it is assumed that academic performance remains unaffected. However, if academic anxiety is experienced as unmanageable or debilitating, academic performance is negatively impacted upon.

A study investigating whether the self-efficacy beliefs of French students would serve as a predictor of their achievement in intermediate-level French was conducted and the results indicated that the self-efficacious beliefs students held about their ability to self-regulate served as a predictor of their performance (Mills, et al., 2007). *Self-efficacy for self-regulation* may be understood as the perceptions individuals hold about their ability to, organize, manage and achieve task requirements (Bandura, 1997, as cited in Herron et al., 2007). Individuals exercising self-efficacy for self-regulation appear to mirror the autonomous nature associated with the *informational*-oriented student in that they also behave independently. Their autonomy is evident in their ability to evaluate

their behaviour or actions and utilize suitable plans to attain achievement academically (Mills et al., 2007). As a result, one would hypothesize that high levels of self-efficacy are associated with the *informational* identity processing style and subsequently greater academic achievement. Contrastingly, academic functioning evident in students with low self-efficacy is characterized by avoidance of complex tasks, deficiencies in perseverance when attempting academic activities and a demonstrated preference for simple tasks (Mills et al., 2007). Therefore, for students with low self-efficacy the level of commitment to all (easy and difficult) academic tasks is inadequate. These characteristics appear congruent with *diffuse-avoidant* students as previously mentioned, their level of commitment to academic objectives was low (Seabi, 2009). In addition to a student's level of autonomy, self-efficacy beliefs affect goals for academic achievement.

Empirical research (Bouffard, Bouchard, Goulet, Denoncourt & Couture, 2005) using a sample of 140 American college students, investigated the influence of achievement goals and self-efficacy on student's self-regulation and performance. Findings from this research suggest that students with low self-efficacy beliefs are more likely to demonstrate less versatile functioning than the students with high self-efficacy (Bouffard et al., 2005). Furthermore, students with low self-efficacy had the tendency to experience more negative thoughts whilst problem-solving and when compared to students with high self-efficacy, their performance results were less promising (Bouffard et al., 2005). Thus, performance may be hampered by the influence of negative thoughts associated with failure and anticipated poor performance. Having explored the relationship between self-efficacy and academic achievement, for the purpose of the current research study, it is necessary to further examine the relationship between identity processing styles and self-efficacy with academic achievement.

Previous research (Hejazi et.al, 2009) has noted a significant mediating relationship between identity processing styles and academic self-efficacy with academic achievement. More specifically, the *diffuse-avoidant* identity processing style is associated with poor academic performance and lower scores in academic self-efficacy (Hejazi et al., 2009). As such, similar results were anticipated in the current research

study. The following section provides a discussion of the research methods employed in the current study.

CHAPTER III

3. Methodology

3.1 Research Aim

Previous research has demonstrated a relationship between identity processing styles and academic achievement as well as identity processing styles and self-efficacy (mediating role) and academic achievement (Mills et. al, 2007). The afore-mentioned research studies were conducted in New York (Berzonsky & Kuk, 2005), France (Mills et. al, 2007) and Tehran (Hejazi et. al, 2009) respectively. Thus the aim of the current research study was to identify if a similar relationship between identity processing styles, self-efficacy and academic achievement among first year university students would be elicited within the South African context.

3.2 Research questions

i. Is a significant relationship between identity processing styles (informational, normative, diffuse-avoidant) self-efficacy and academic achievement evident?

ii. Is a significant difference evident between the identity processing styles (informational, normative, diffuse-avoidant) in terms of academic achievement?

iii. Is there a significant difference between the identity processing styles (informational, normative, diffuse-avoidant) in terms of General Self-Efficacy?

iv. Does general self-efficacy moderate the relationship between identity processing styles and academic achievement?

3.3 Sampling

This research endeavour utilized non-probability, purposive sampling. This sampling strategy allows for the selection of participants specific to the research purposes and employs a form of sampling in which the researcher exercises control of participant

selection (Calmorin & Calmorin, 2007). The researcher required a sample of first-year University students specifically, as the research focused on the relationship between identity processing styles and self-efficacy to academic achievement of first-year university students. Thus, the sample was limited to first-year university students and the researcher approached only first-year university students of various departments at the University of the Witwatersrand.

3.3.1 Participants

The sample for the current research study comprised first-year university students from the Health Sciences, Education and Psychology departments at the University of the Witwatersrand. The sample comprised 127 participants and the mean age of the participants was 19 years.

Table 1 indicates the number and percentage of participants noted in each of the language categories outlined. Eleven language categories were identified, two of which highlight the prominent language groups evident within the current sample. Fifty-eight participants were English speaking, comprising 46.0 percent of the sample. Furthermore, Zulu-speaking participants comprised 16.7 percent of the sample. Therefore, the dominant language groups identified in the current sample included English and Zulu speaking first-year university students. The language category specified as ‘other’ comprises one Portuguese and four Shona speaking first- year university students.

Table 1: ***Univariate Frequencies of participants' home language***

Home language	n	%
English	58	46.0
Afrikaans	1	0.8
isiZulu	21	16.7
Tsonga	4	3.2
Venda	2	1.6
Sepedi	6	4.8
Swati	5	4.0
Tswana	5	4.0
Xhosa	11	8.7
S.Sotho	8	6.4
Other	5	4.0

The gender characteristics of the participants included in the current sample are depicted in Table 2. It is important to note that the sample size indicated in Table 2 differs from the previously reported sample size of 127 as one participant did not provide their gender on the demographic questionnaire. As indicated, 27 percent of participants were male and 73 percent of participants in the sample were female. Therefore, the sample comprised predominantly female participants as opposed to male.

Table 2: ***Gender characteristics of the sample***

Gender	Sample Size (*n* = 126)	
	N	**%**
Male	34	27
Female	92	73

With regard to the type of school attended by participants, 52 percent of participants previously attended Government schools, 36 percent attended Independent schools and 12 percent attended Former Model C schools as shown Table 3. Thus, the majority of the sample completed their Grade 12 qualification at a government school. Hofmeyr (2000) states that legislation such as 'The Schools Act of (1996)' was instated post 1994 and typified Independent (Private) and Government (State) schools. The aim was to impart governance to the schools in the form of governing bodies (Hofmeyr, 2000). Moreover, a key factor distinguishing Government from Independent schools is that if an application for funding is proposed by the latter, such schools are required to adhere to certain pass rate requirements in order to receive provincial funding or subsidies (Hofmeyr, 2000). Finally, as per South Africa's previous educational segregation policies, Model C schools are those schools previously attended by [1]'White' students only (Nazir & Soudien, 1999).

Table 3: ***One-Way frequency of school attended by participants***

School Type	**n**	**%**
Government School	65	52
Independent School	46	36
Former Model C school	15	12

[1] Please note that the author acknowledges the derogatory and discriminatory use of racial terms and descriptions used for segregation purposes in the context of South Africa's political history. However, use of racial descriptions and categorizations in this thesis has no intent of alluding to any form of prejudicial or discriminatory values or views on the author's part.

In terms of race, 54 percent of the sample comprised African participants, 30 percent were Caucasian, 9 percent Indian, 6 percent Coloured and 1 percent of the sample comprised Asian participants. Table 4 indicates the frequency and percentage of students within each South African race group. Therefore, the highest percentage of participants fell into the African race group followed by the Caucasian race group. Moreover, the lowest percentage of students is categorized in the Asian race group.

Table 4 : ***Racial composition of the participants***

Race	**n**	**%**
African	67	54.03
Indian	11	8.87
Coloured	**7**	5.65
Asian	1	0.81
Caucasian	38	30.65

3.3.2 Procedure

Prior to gaining access to the research participants it was necessary to approach the Head of School, Course Coordinator and lecturers of the relevant departments. An information sheet outlining the aim of the research study, data collection and analysis procedures and ethical considerations was provided and signed by the Head of School (Appendix F) as well as the relevant Course Co-ordinators and Lecturers (Appendix B). The researcher's attendance at lectures was arranged and students were provided with verbal information as well as typed participant information sheets (Appendix C). A requirement for participation in the research study included students' written consent to voluntary participation.

With the permission of the Head of School and lecturers, first-year university students were approached during the allocated lecture or tutorial times. First-year university students were approached on four separate occasions at different lecture times. The demographic questionnaire, Identity Style inventory and General Self-Efficacy Scale were handed out to students and completed either during the lecture or the students' own time. Students who completed questionnaires in their own time delivered the completed questionnaire and scales to the Psychology main office and placed them in an appropriately marked, sealed box for the researcher's collection. Participants' academic results were obtained upon request to the relevant administrators. The academic results received were for the following courses; History, Chemistry and Psychology. Once all the questionnaires and scales had been received, the data was inserted into an excel spreadsheet. Following this, statistical analyses were performed using SAS version 4.2.

3.3.3 Selection Criteria

The participants were selected on the basis of their current year of study. Irrespective of current course of study, age or gender, for the purposes of investigating the variable academic achievement in the first-year level of study, a prerequisite for participation in the current research study was that participants had to be within their first year of study at the University of the Witwatersrand.

3.4 Instruments

For the purpose of investigating the relationship between identity processing styles and self-efficacy to academic achievement among first-year university students, the questionnaire and scales used in this research study included the following: a demographic questionnaire, Identity Style Inventory 3 (Revised Version) (Berzonsky, 1992b) and the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1993). Scales were utilized in the current study as they are considered appropriate for assessing participant's beliefs, judgments and attitudes (Terre Blanche, Durrheim & Painter, 2006). Both the Identity Style Inventory and the General Self-Efficacy scale are Likert type scales which required participants to rate their beliefs and attitudes on a 1-5 rating scale. More

specifically, the Identity Style Inventory (ISI3) required participants to rate their beliefs and attitudes regarding statements relevant to identity whereas the General Self-Efficacy Scale assessed participants' beliefs and judgments of their general capabilities.

In order to gain certainty regarding the reliability of the current research findings, statistical analyses were performed to determine the internal reliabilities of the Identity Style Inventory (ISI3) and the General Self-Efficacy Scale. Statistical Analyses indicated that item 29 of the Diffuse-Avoidant subscale was low with a coefficient alpha of 0.59. Therefore, item 29 was removed from further statistical analyses performed on the ISI3. As a result, with the deletion of item 29, the Cronbach Coefficient Alpha's yielded for the Identity Processing Styles (*informational, normative and diffuse-avoidant*) subscales of the ISI3 were; 0.70, 0.70 and 0.64 respectively. Furthermore, the Cronbach Coefficient Alpha yielded for the General Self-Efficacy Scale was 0.80.

With regard to the internal consistency of the items of the ISI3 the reliability values for the respective identity processing style subscales are consistent with previous research. The Cronbach coefficient alpha's provided by Berzonsky (1992) are as follows; 0.70 for the *informational* subscale, 0.64 for the *normative* subscale and 0.78 for the *diffuse-avoidant* subscale. Within the current study, the standardized Cronbach Coefficient Alpha value for the *Diffuse-Avoidant* subscale was below that of 0.7, however when compared to previous research using the ISI3 within the South African Context, the current Cronbach coefficient yielded for the *diffuse-avoidant* subscale was higher. For instance, previous research within the South African context, yielded Cronbach Alpha Coefficients of; .49 for the *informational* subscale, 0.39 for the *normative* subscale and 0.63 for the *diffuse-avoidant* subscale (Seabi, 2009). In addition, with regard to the Cronbach Coefficient Alpha yielded for the General Self-Efficacy Scale (0.8) within the current research study, this value is considered appropriate for use when evaluating the construct, General Self-Efficacy.

3.4.1 Demographic Questionnaire

The demographic questionnaire ascertained participant information including the research participants' name and surname, student number, age, gender, race/ethnicity, home language, school type and year of study. The purpose of the demographic questionnaire was to obtain identification details so as to access the research participants' academic records. Information attained from the academic records was used to measure the variable, academic achievement. In addition, demographic information such as home language, age, ethnicity and gender was collected for the purpose of providing a demographic description of the research participants included in the sample.

3.4.2 Identity Style Inventory (ISI 3)

The Identity Style Inventory Revised ISI3 (Berzonsky, 1992b) is used to assess the extent to which an individual identifies with a particular identity style (Berzonsky, Branje, Meeus, 2007). As explained by Berzonsky and Kuk (2005), the Identity Style Inventory (ISI3) Revised Version (Berzonsky, 1992b) comprises 40 statements and is a Likert-type scale. The 40 statements are subdivided into informational, normative, diffuse-avoidant and identity commitment subscales. Furthermore, the number of statements assigned to the respective subscales differs. The identity commitment subscale comprises 11 items however, for the purpose of the current research study, these items were excluded as for the purposes of this research study the construct, commitment, was not investigated.

Participants rated the statements read on a scale of 1 (not like me at all) to 5 (Very much like me) in terms of relevance to self. Items 2, 5, 6, 16, 18, 25, 26, 30, 33, 35 and 37 are representative of the *Informational*-oriented student. An example of assessing the *Informational* identity processing style includes, 'When I have to make a decision, I like to spend a lot of time thinking about my options. Within the *normative* subscale, 9 items (4, 10, 19, 21, 23, 28, 32, 34 and 40) are presented, for example, 'I prefer to deal with situations where I can rely on social norms and standards'. Included in the *diffuse-avoidant* subscale are 10 items (3, 8, 13, 17, 24, 27, 29, 31, 36 and 38) for example, 'I am

not really thinking about my future now' (Seabi, 2009). Vleiros and Bosma (2005, as cited in Seabi, 2009) stated that the internal reliability of the Identity Style Inventory 3 is generally low. Research conducted using the ISI3 on a sample of South African students yielded the following Cronbach alpha coefficients; for the *informational* subscale, 0.49, the *normative* subscale, 0.39 and for the *diffuse- avoidant subscale*; 0.63 (Seabi, 2009) . The Cronbach coefficient alpha's provided by Berzonsky (1992) are as follows; 0.70 for the *informational* subscale, 0.64 for the *normative* subscale and 0.78 for the *diffuse-avoidant* subscale. Information pertaining to Convergent Validity of the ISI3 is provided in Berzonsky (1992). With regard to the current research study the Cronbach coefficient alpha yielded for the *informational* subscale was 0.70, for the *normative* subscale, 0.70 and the *diffuse-avoidant* subscale, 0.64. The Identity Style Inventory Revised (ISI3) appears as Appendix N in the Appendices list.

3.4.3 General Self-Efficacy scale (GSE)

The General Self- Efficacy Scale (Schwarzer & Jerusalem, 1993) consists of 10 items, an example of which states, "Thanks to my resourcefulness, I can handle unforeseen situations" (2005). Participants are able to select their responses according to four different ratings. A rating of (1) implies that the response is not at all true for them, (2) hardly true, (3) moderately true and (4) exactly true. A total score is calculated and may range between 10 and 40. It is claimed that the reliability of the scale is high and in previous research the stability and construct validity of the scale has been verified (Green glass, Mueller & Schwarzer, 1999; Kraft, Leanger & Roysamb, 2000 as cited in Luszczynska, 2005). In a previous research study assessing General Self-Efficacy in a sample of 225 Polish students, a Cronbach alpha coefficient of .90, was reported (Luszczynska, 2005). Regarding the General Self-Efficacy Scale in the current research study, a Cronbach coefficient alpha of 0.80 was yielded. The General Self-Efficacy Scale appears as Appendix O in the Appendices list.

3.4.4 Academic achievement

The variable academic achievement included the academic results participants obtained for two tests, two assignments and an exam mark attained in the current year of

study. In addition, the participants' overall year mark was obtained. However, due to the fact that the researcher was only able to access the year marks of a large portion of participants, and not the other required information. The variable of academic achievement was measured utilizing only the year marks of all participants.

3.5 Research design

The present research study adopted a quantitative research design, as data was collected in a numerical format (Likert Rating Scales) and statistical analyses were conducted on the data collected (Terre Blanche, Durrheim & Painter, 2006). Given the aim of the research; the investigation of a relationship between identity processing styles and self-efficacy to academic achievement in first-year university students, a correlational research strategy, which measures variables in order to determine whether a relationship between variables exists, was employed (Gravetter & Forzano, 2003). The research approach can be described as non-experimental, as the independent variables (identity processing styles and self-efficacy) were not manipulated by the researcher (Reber & Reber, 2001). Given the quantitative nature of the research aims, the specified research design was considered most suitable for the current study

3.6 Ethical Considerations

Prior to requesting student participation in the study, permission to approach the first-year Wits University students to participate in the study was obtained from the Head of School (Appendix G) and the respective first-year course co-coordinators (Appendix D). Thereafter, the researcher provided a detailed description to the first-year university students of a) the purpose of the research b) the name, type and nature of the measures to be completed c) the research requirements (e.g. the time necessary to complete each of the measures) d) the purposes for which the results will be used e) when, where and how participants may access the results of the research upon completion.

Moreover, participants were informed that for the purposes of the current study,

access to their academic records was necessary as these academic results served as a measure of their academic achievement. Informed consent regarding participation in the research and accessing participants' academic records was obtained from those who volunteered their participation in the study (Appendix E). Outlined in the informed consent form was information pertaining to the research, the rights and responsibilities of the participant and researcher, the participant's acceptance of participation in the research and permission for the researcher to access the participants' academic records. Emphasis was placed on the fact that participation was voluntary and that participants had the right to withdraw from the study at any stage. The limitations of anonymity in this study were communicated to the students. Anonymity could not be ensured as it was required that participants provide their name, surname and student number on the demographic questionnaire. However, confidentiality was ensured in the reporting of results as participant's identifying details would not be included in the final research report.

With regard to confidentiality, it was communicated to students that the data collected from students would be kept in a locked cupboard in the office of the researcher's supervisor. Furthermore, the researcher conveyed that the collected data is kept for a period of two years if it is utilized for publication. Alternatively, it was communicated that the data is kept for six years if it not used for publication purposes, after which the data is destroyed. The researcher also communicated to the research participants that the identification details of participants is limited to the view of the researcher and research supervisor and great care is taken to ensure that the raw data is kept safe from access by unauthorized persons. In light of this, confidentiality was assured to all the participants.

3.7 Data Analysis

The identifying details and demographic information of participants provided on the demographic questionnaire were numerically coded. The purpose of this was to modify the information, with the aim of manipulating the data so that it was compatible for statistical analyses. Data gathered from the demographic questionnaire would serve to provide descriptive information relevant to the participants.

As previously mentioned, data analysis included performing a number of statistical analyses of the collected data using SAS 4.2. The reliability of the instruments used namely; the ISI 3 and General Self-Efficacy Scale was ascertained. Following this, distribution analyses to assess the normality of the data were performed. In order to gain summary statistics such as the means, standard deviations, distributions (in the form of histograms) and Univariate Frequencies of demographic information (race, age, gender, home language and school type), the identity processing styles, general self-efficacy scores and year marks SAS 4.2 was utilized.

Multivariate correlation analyses were performed to determine the significance or non-significant relationship between the Identity Processing Styles, General Self-Efficacy and academic achievement. Furthermore, a One-way Analysis of Variance (ANOVA) was performed in order to analyze the differences in General Self-Efficacy scores in relation to each of the identity processing styles. Finally, so as to determine whether Self-efficacy acts as a moderating variable between the identity processing styles and academic achievement, an Analysis of Covariance (ANCOVA) was performed.

3.7.1 Descriptive and Inferential statistics

The statistical programme, SAS 4.2 was utilized to obtain summary statistics of the distributions of age, the identity processing styles (informational, normative and diffuse-avoidant), general self-efficacy scores and academic achievement (year marks). The output data of these distributions was provided in the form of histograms which are included in Appendices; H, I, J, K and L.

3.7.2 Multivariate correlation analyses

Pearson's Product Moment correlation is often used to determine the variability that is shared between variables (Field, 2009). In the case of the current research study, Pearson's Product Moment correlation was used to address two of the research questions. Firstly, this statistical analysis was utilized to determine whether a significant relationship between the identity processing styles, self-efficacy and academic achievement is

evident. Pearson's correlation coefficients (*r*) were interpreted at the $p < 0.05$ level of significance. Furthermore, Analysis of Variance (ANOVA) was performed so as to test for differences which may be evident between more than two groups (Field, 2009). In light of this, with the objective of determining whether a significant difference between the respective identity processing styles (informational, normative, diffuse-avoidant and academic achievement is evident, One-way Analysis of Variance was performed.

Finally, Analysis of covariance (ANCOVA) was performed so as to determine whether general self- efficacy serves as a moderating variable between identity processing styles and academic achievement. The *F* statistic was interpreted using a significance level of $p < 0.05$. Based on the output data obtained from the statistical analyses (Pearson's Product Moment, ANOVA and ANCOVA) inferences regarding the relationship between the variables of the current research study (identity processing styles, self-efficacy and academic achievement) were made.

CHAPTER IV

4. Results

Chapter four provides the results of statistical analyses performed on the data collected for the current research study.

4.1 Test for Normality

The results yielded from the Kolmogorov-Smirnov Test for normality indicate $D = 0.77$, $p < 0.05$ for the *informational* subscale and $D = 0.10$, $p < 0.05$ for the *normative* subscale $D = 0.78$, $p < 0.05$ for the *diffuse-avoidant* subscale. In terms of the General Self-Efficacy scores obtained in the current research study, $D=0.81$, $p < 0.05$. The result for the normality of academic achievement scores indicated that $D=0.10$, $p < 0.05$. Thus, this test is not significant and therefore it can be inferred that the scores are normally distributed as the distributions in the current research study do not differ significantly from a normal distribution (Field, 2009). The histograms of these distribution analyses are provided in Appendices H, I, J, K and L.

Table 5*: The Kolmogorov - Smirnov test for normality results for Identity Processing Styles (Informational, Normative, Diffuse-Avoidant) and General Self-Efficacy*

Variable	***D***
Informational	0.77
Normative	0.10*
Diffuse- Avoidant	0.78
General-Self-efficacy	0.81
Academic Achievement	0.10*

* $p < 0.05$

4.2 Descriptive statistics

Table 6 presents the means and standard deviations of the identity processing styles *(informational, normative and diffuse avoidant),* General Self-Efficacy and academic achievement.

Table 6: ***Means and Standard Deviations of the Identity Processing Styles, General-Self-Efficacy Scores and Academic Achievement.***

Variable	**n**	**Mean**	***SD***
Informational	38	39.3	5.5
Normative	80	33.7	5.1
Diffuse-Avoidant	**7**	23.5	5.1
General Self-Efficacy	125	31.4	4.1
Academic Achievement (Year Mark)	125	66.8	13.4

It is imperative to note that the sample size for the participants who completed the ISI3 and General Self-Efficacy Scale is 125 which is lower than the sample size reported earlier (n =127) as 2 participants failed to complete the ISI3 and the General Self-Efficacy Scale. Table 6 highlights the differences in the means of the identity processing styles. As indicated for thirty eight of the students included in the sample, the highest scores obtained were for the *informational* subscale. Therefore, for these particular students, the *informational* identity processing style is adopted for negotiating identity issues. Furthermore, for eighty of the students, their scores were highest for the *normative* identity processing style and the remaining seven participants in the sample scored highest on the *diffuse-avoidant* identity processing style. In light of this, the highest

number of participants in the sample utilizes the *normative* identity processing style. Thus, the fact that the majority of the sample is *normative*-oriented students may serve as a reflection of the collectivistic cultural system most evident within the South African context.

4.3 Multivariate Correlational Analyses

For the purpose of measuring the variable of academic achievement, students' year marks were utilized. Pearson's Product Moment Correlation Coefficients yielded for the relationship between identity processing styles (Informational, Normative and Diffuse-Avoidant), General Self-Efficacy and academic achievement (Year mark) are presented in Table 7.

Table 7: ***Relationship between Identity Processing Styles and General Self-Efficacy (GSE) with Academic Achievement among first-year university students***

	Academic Achievement	**GSE**
Informational	- 0.19*	0.41*
Diffuse Avoidant	- 0.04	-0.27*
Normative	- 0.13	0.28*
General Self-Efficacy	0.02	1.00

*$p < 0.05$

The first question of the study investigated the relationship between identity processing styles (informational, normative, diffuse-avoidant), self-efficacy and academic achievement. As indicated in Table 7, the results yielded from Pearson's Product Moment

test indicated a significant relationship between identity processing styles and academic achievement. Specifically, a significant relationship between the *informational* identity processing style and academic achievement was found. However, the relationship between the *informational* identity processing style and academic achievement was a weak, negative relationship. With regard to the relationship between the *normative* and *diffuse-avoidant* identity processing styles and academic achievement respectively, a non-significant relationship was found.

In terms of the relationship between General Self-Efficacy and the Identity Processing Styles, Pearson's correlation coefficients presented in Table 7, indicated a significant relationship between General Self-Efficacy and Identity Processing Styles. A positive, moderate relationship between the i*nformational* identity processing style (r =0.41), $p < 0.05$ and General Self-Efficacy was indicated. However, a weak, negative relationship between the *normative* identity processing style and a General Self-efficacy is noted (r = -0.27). The Pearson's correlation coefficient (r = 0.28), $p < 0.05$ for the relationship between the *diffuse-avoidant* identity processing style and General Self-Efficacy indicates a weak, positive relationship. A non-significant relationship between academic achievement and General Self-Efficacy is evident (r = 0.02), $p > 0.05$.

The results yielded from the Analysis of Variance (ANOVA) indicated non-significant differences between the identity processing styles and academic achievement as $F\ (2)$ = 0.25, ($p > 0.05$). In determining whether General Self-Efficacy acts as a moderating variable between the identity processing styles on academic achievement, the results of ANCOVA indicated a non-significant result, F=1.42, $p > 0.05$.

CHAPTER V

5. Discussion

The current study endeavoured to investigate the relationship between identity processing styles and Self-Efficacy in relation to academic achievement among first-year university students. In so doing, significant differences between the identity processing styles in relation to General Self-Efficacy, as well as academic achievement were investigated. In addition, observations of the identity processing style utilized by most participants were made.

5.1 Identity Processing Styles

Although the identity processing style utilized by most participants in the current sample was not included in the research aims, a noteworthy observation was made. The current sample comprised participants utilizing mainly a *normative* identity processing style. As mentioned by Seabi (2009), possible reasoning for this relates to the cultural value systems most prevalent in the South African population which is characterized by the spirit of *ubuntu*. More specifically, *umuntu ngumuntu nga Bantu* is translated to mean, "a person is a person through other people" (Kruger, Lifschitz & Baloyi, 2007, p. 331). African countries are considered to be mostly collectivistic (Dalton, Elias & Wandersman, 2001) thus, with an emphasis on a sense of community, collectivism is a cultural value system emphasized within the South African context. Such cultural values are most closely associated with group functioning, mutual accord and significant interests in the well-being of the group (Dalton, Elias & Wandersman, 2001). In light of this, one is able to draw a parallel between the *normative* identity processing style and a collectivistic value system as significant value is placed on interpersonal relationships. Moreover, the *normative identity* processing style is related to Marcia's (1966) *foreclosed* status as both orientations hold the norms valued by others in high regard.

With regard to the *informational*-oriented students that constituted the second largest section of the sample, individualism is assigned greater significance. Reasoning for this is highlighted by the fact that *informational*-oriented students have a preference

for functioning independently (Berzonsky & Kuk, 2005) as opposed to demonstrating a dependence on others, as noted in the *normative*-oriented students. As such the disparity between individualistic versus collectivistic ideals upheld by informational and individualistic students respectively is underscored. With regard to individualistic cultural systems, values such as independence, autonomy, as well as ambition and the drive to succeed are considered significant and appropriate (Dalton et al., 2001). As explained by Berzonsky and Kuk (2005), when compared to *normative*-oriented students, *informational*-oriented students are more likely to function autonomously and strive for academic achievement.

5.2 The relationship between Identity Processing Styles and Academic Achievement

As indicated in Chapter Three, a research aim specified by the current study was to investigate the relationship between identity processing styles and academic achievement. A weak, negative relationship between the *informational* identity processing style and academic achievement was found. This finding is inconsistent with the results of the previous empirical studies. Previous research (Berzonsky & Kuk, 2005; Hejazi et. al, 2009) identified a significant relationship between identity processing styles and academic achievement. More specifically, the *informational* identity processing style was identified as being associated with academic achievement (Berzonsky & Kuk, 2005).

A possible explanation for this finding may relate to the social desirability of the self-report measure used namely; the Identity Style Inventory 3 (ISI3). Social desirability is referred to as the proclivity of participants to select items on a self-report measure based on the social appropriateness thereof (Phillips, 2009). The most prominent issue related to social desirability relates to the fact that the research results may be skewed and in turn, affect the research findings (Phillips, 2009). In the current study, the possibility exists that students identified items in the scale which may have been perceived as socially desirable and as a result those items were selected. In the general administration of the ISI 3, participants are not required to provide their identifying details therefore, the

likelihood of selecting socially desirable statements is limited (Phillips, 2009). However, in the current study, students were required to provide their identifying details on the demographic questionnaire so as to access their academic results.

An example of a statement which may be perceived as socially desirable includes; "When I discuss an issue with someone, I try to assume their point of view and see the problem from their perspective". In comparison to a statement such as; "I'm not really thinking about my future; it's still a long way off", the former may be considered as more socially acceptable to the participant. The validity of the current research findings was not statistically assessed and therefore these findings should be interpreted with caution.

5.3 The relationship between Identity Processing Styles and General Self-Efficacy

A significant relationship between identity processing styles and General Self-Efficacy was found. Positive correlations were noted for the *informational* and *normative* identity processing styles and General Self-Efficacy. Comparatively, a negative correlation between the *diffuse-avoidant* identity processing style and General Self-Efficacy was noted. Therefore, the *informational* and *normative* identity processing styles are associated with positive self-efficacy beliefs whereas the *diffuse-avoidant* identity processing style is related to negative self-efficacy beliefs. Thus, whereas students utilizing an *informational* and *normative* identity processing style demonstrate greater confidence in their capabilities, the converse is experienced by students utilizing the *diffuse-avoidant* processing style. These findings may be best explained and understood in relation to the cognitive processing, decision-making and autonomous attributes and functioning associated with the respective identity processing styles. In addition, these factors are considered significant to the process of formulating and establishing self-efficacy beliefs.

Berzonsky and Kuk (2008) state that of the three identity processing styles adopted by students, the *informational*-oriented student is most likely to utilize rational

cognitive processing when approaching tasks, whereas the *normative* oriented student is more prone to utilizing instinctive processing. In light of this, the *informational*-oriented student may be able to make more realistic and accurate appraisals of their actual abilities (self-efficacy beliefs) when attempting tasks. In turn, the experience of negative self-fulfilling prophecies may be less prevalent, as personal insight into the actual capabilities is viewed from a rational perspective. Comparatively, as mentioned in the literature review, students with low self-efficacy have the tendency to experience negative cognitions related to their academic abilities (Margolis & McCabe, 2006). Thus, students utilizing the *diffuse-avoidant* identity processing style are more likely to experience negative self-efficacy beliefs within the academic domain. For this reason, a means for correcting inaccurate self-beliefs or low self-efficacy noted in these students includes providing precise evaluations and critiques of students' performance as this facilitates realistic views of actual self-efficacy (Fenollar et al., 2007). In so doing, students are actively able to recognize the pitfalls and inaccuracies evident in their personal self-efficacy beliefs. Addressing these incongruous self-beliefs enables students to set appropriate academic goals in order to attain academic successes. Moreover, the *diffuse-avoidant* oriented student uses avoidant processing (Berzonsky & Kuk, 2008), which may impact negatively upon self-efficacy beliefs, as accurate reflections of self-efficacy are postponed and thus, students might delay the completion of academic tasks. In this instance, procrastination in the academic domain is likely to yield negative results, as incomplete assignments and academic tasks are likely to result in poor academic results.

In relation to the *normative*-oriented student, which is paralleled with the Marcia's (1966) *foreclosed* status, the preoccupation with the views and opinions of significant others is detrimental to decision-making, as these opinions may impact negatively upon a student's self-efficacy beliefs. To elaborate, students may become entirely dependent on the views significant others may hold for them. In the case of failure or poor performance, the student may experience disappointment and self-defeat which in turn may lead to negative self-fulfilling prophecies. In line with this, the *diffuse-avoidant*-oriented student has a proclivity towards postponing the decision-making process (Berzonsky & Ferrari, 1996). This approach is also ineffectual within the

academic domain, as daily academic functioning requires students to engage in ongoing decision-making processes. The inability to do so is likely to impact negatively upon time-management, timeous planning and execution of academic tasks. In comparison to the *diffuse* and *normative*-oriented students, *informational*-oriented students utilize rationality in decision-making (Berzonsky & Ferrari, 1996) and are therefore able to manage academic functioning more effectively.

With regard to autonomous functioning the *normative*-oriented student is considered less autonomous than the *informational*-oriented student (Berzonsky & Kuk, 2005) and is therefore less likely to engage in independent formulation of self-efficacy beliefs. Rather, when paralleled with Marcia's (1966) *foreclosed* identity status described in the literature review, one would assume that self-efficacy beliefs are established in line with the advice and affirmation provided by significant others. Comparatively, *diffuse-avoidant* students are less able to exercise general academic autonomy (Berzonsky & Kuk, 2000) and as such the formulation and establishment of academic self-efficacy beliefs may be postponed. The implication of this is that the academic achievement of these students may be compromised as their self-efficacy beliefs are not clearly defined.

5.4 The relationship between General Self-Efficacy and Academic Achievement

In addressing the research aim; investigation of the relationship between General Self-Efficacy and academic achievement, the statistical results provided in the results section highlight a non-significant relationship. This finding is inconsistent with previous research, which identified a significant relationship between General Self-Efficacy and academic achievement (see Fenollar et al., 2007; Mills et al., 2007; Margolis & McCabe, 2006). More specifically, negative self-efficacy beliefs are perceived as an obstacle to academic achievement (Margolis & McCabe, 2006). Comparatively, as mentioned in the literature review, students with positive self-efficacy beliefs exercise skills such as adaptive management of academic anxiety and academic difficulties as well as effective learning approaches (Mills et al., 2007) thus, academic achievement is complemented.

An explanation for the non-significant relationship between General Self-Efficacy in the current study pertains to the necessity for or value assigned to positive self-efficacy beliefs in the courses (Psychology, History and Chemistry) investigated. Perhaps, mastery of the coursework in the respective courses is dependent upon cognitive ability and style of learning rather than General Self-Efficacy beliefs. For instance, in a course such as History, mastery of the coursework relies upon rote learning of factual information. This form of learning highlights the significant role of memory and the recall of factual information as opposed to the students' belief in academic ability.

The final research aim highlighted relates to the mediating role General Self-Efficacy plays in the relationship between identity processing styles and academic achievement. Although previous research (Hejazi et al., 2009) has identified General Self-Efficacy as a mediating variable between identity processing styles and academic achievement, as noted in the results section, a non-significant relationship was found in the current study.

CHAPTER VI

6. Concluding Remarks

The following section will highlight the limitations of the current study and provide recommendations for future research in the current area of interest. Moreover, the findings of the current research as well as the implications thereof are underscored.

6.1 Limitations of the current study

Several limitations of the current research study have been identified. These limitations are related to a lack of previous research studies conducted in the current area of interest, as well as issues associated with the instruments and sample which were utilized in the current study. The purpose of highlighting the limitations of the current study is to ensure that in future, research relevant to the current area of interest will address the limitations outlined in the following section.

6.2 Limited Research Studies

Previous research studies investigating the relationship between identity processing styles and academic achievement appears to be an area of research which has failed to undergo extensive research in the past. As a result, previous empirical research and scientific knowledge related to this area of interest is not easily available or accessible. Hence, reference to previous research studies was relatively limited. Only a handful of research studies investigating issues relevant to identity processing styles have been undertaken within the South African Context specifically (see Seabi, 2009). Similarly, it was noted that previous research investigating the relationship between self-efficacy and academic achievement were restricted mainly to international research, for example, two relevant studies were conducted in France (Mills et al., 2007) and Tehran (Hejazi et.al, 2009). Thus, it is necessary for additional local and international studies in the current area of interest to be conducted so as to contribute to the existing knowledge base.

6.3 Instruments

With regard to the scales used in the current research study namely; the Identity Style Inventory (ISI3) and General Self-Efficacy Scale, both are Likert-Type Scales. Thus, research participants were required to provide their responses in accordance with a rating scale. As such, a criticism of Likert-type scales point to the propensity for students to respond to items in a similar manner throughout the scale for example, participants choose to select the most neutral rating repeatedly (Gravetter & Forzano, 2003). Such responses are referred to as a response set (Gravetter & Forzano, 2003). Furthermore, a significant issue related to use of Likert Type scales includes response bias. Response bias refers to a participant's responses which reflect a socially desired response as opposed to the construct being evaluated by the scale (Whitley, 2002).

At first glance, certain items of both the General Self-Efficacy Scale and Identity Style Inventory may be perceived as socially desirable by participants. For example, statements in the Identity Style which may be perceived as more socially desirable by participants include; "I've spent a great deal of time thinking seriously about what I should do with my life" and "I'm really into my major, it's the academic area that is right for me". Alternatively, a statement which may be interpreted as socially undesirable includes; "I'm not really sure what I'm doing at university; I guess things will work themselves out." Similar perceptions may have emerged when completing the General Self-Efficacy Scale. To elaborate further, a rating of "exactly true" to the statement; "It is easy for me to stick to my aims" may be considered to be socially desirable whereas a response of "not at all true" to the same statement may be perceived as socially undesirable. In light of this, participants may have responded to statements by selecting ratings to statements they perceived as desired by the researcher.

A further limitation of the General Self-Efficacy Scale which evaluated the General Self-Efficacy of first-year university students includes the fact that General Self-Efficacy assessed a non-specific domain as opposed to a particular domain such as academic self-

efficacy. Hence, the fact that one of the research questions included determining a significant relationship between General Self-Efficacy and academic achievement, it stands that the possibility that use of an instrument investigating academic self-efficacy may have yielded more accurate and relevant results.

6.4 Sample

The sample utilized in the current research study was relatively small. Thus, the generalizability of the current research study is considered dubious. The fact that the sample comprised only 127 participants implies that the findings of the current research may not be generalized or considered applicable to other populations (Whitley, 2002). Furthermore, participants included in the sample were sourced across only three different departments in a single University namely; Education, Psychology and Medicine. Thus, the variability in the current sample is limited to these faculties in isolation. A further limitation regarding the current sample included accessing potential participants. In the process of approaching potential participants, the researcher observed that many students demonstrated reluctance to participate in the current research study. It became apparent that the reasoning for this related to the fact that the research required access to participants' academic records as these results would be used as a measure for the variable, academic achievement. Despite this, the researcher assured potential participants of the confidentiality of their identifying details and that access to their academic results was limited to the researcher.

6.5 Directions for future research

In light of the fact that the current research study found a non-significant relationship between general self-efficacy and academic achievement, it is recommended that future research investigate the relationship between academic self-efficacy and academic achievement. Such research is more likely to evaluate the specific domain of academic self-efficacy as opposed to the more general domain of General Self-Efficacy in relation to academic achievement. Elias (2008) states that in investigating efficacy

within academic institutions, it is recommended that the construct of academic self-efficacy should rather be evaluated, as this includes self-efficacy in relation to examination, assignment and essay undertakings. As such, use of another more appropriate scale for example; an academic self-efficacy scale is recommended. In relation to academic achievement, academic self-efficacy may be considered a more relevant construct in this regard. For example, a previous research study investigating academic self-efficacy (Elias, 2008) among business students utilized an academic self-efficacy scale created by Chemers, Hu and Garcia (2001).

Furthermore, although the current research study included participants from various university departments (Education, Psychology and Medicine), the sample included only participants from specific courses within these departments. For example, only Pharmacy, Psychology and History students were included in the sample of the current study. In future studies the sample could be more expansive and include students completing different courses. For example, additional students from the Business and Commerce, Economics and Social Sciences faculties may be included as to increase the heterogeneity of the sample. Substantiation for this is highlighted by the fact that there is a paucity of research investigating the academic self-efficacy amongst students enrolled in the Science and Engineering courses (Santiago & Einarson, 1998). In addition to the inclusion of students from various courses within different faculties of a particular University, it is recommended that future research in this area expands across a number of different universities. The purpose of this would be to increase the sample size and in turn, improve the representativeness of the sample as well as the generalizability of the research findings.

6.6 Additional research in the current area of interest

Due to the inconsistencies of the current research findings with previous research, it is recommended that a replication study is conducted. In the instance that similar findings are found, the validity of the findings from the current study as well as inferences made would be verified. However, if the current findings are found to be

inconsistent with the replication study, the validity of these findings would be questionable. In addition to verifying the validity of the current findings, it is necessary to address the apparent gap noted in local and international studies within the current area of interest.

As previously mentioned, existing research which has investigated the relationship between the variables included in the current research study namely; identity processing styles, self-efficacy and academic achievement, include mainly international studies. As a result, it is recommended that future research is conducted within the South African context and perhaps research investigating the concurrence of race and Identity Processing Styles may contribute to this area of research.

In addition, due to the duality between the cultural value systems evident in African and Western societies, it is further recommended that investigation into the role of cultural differences in relation to identity processing styles and self-efficacy is explored. In addition, it has been stated that research exploring the factors determining academic self-efficacy as well as the influence of demographic characteristics on academic self-efficacy is an area of research which is in need of attention (Elias, 2008).

6.7 Conclusion

With reference to the research aims of the current study, the findings of the current research study indicated a non-significant relationship between the *normative* and *diffuse-avoidant* identity processing styles and academic achievement. Furthermore, it was noted that a weak, negative significant relationship is evident between the *informational* identity processing style and academic achievement. Given this, *informational*-oriented students are considered at-risk students. However, as explained in the discussion section, this finding is inconsistent with previous research findings. In the present study, the weak negative relationship between the *informational* identity processing style and academic achievement has been explained by use of self-report measures and the possibility of social desirability bias.

With regard to the relationship between general-self-efficacy and academic achievement, a non-significant relationship was found in the current research study. Furthermore, significant variances were noted in the different identity processing styles in relation to general self-efficacy. Findings indicated a significant negative correlation between the *diffuse-avoidant* identity processing style and general self-efficacy. Comparatively, a positive correlation was noted between the *normative* and *informational* identity processing styles and general self-efficacy. Therefore, the *diffuse-avoidant* identity processing style is associated with negative self-efficacy beliefs whereas the *informational* and *normative* identity processing styles are associated with positive self-efficacy beliefs. Based on this, *diffuse-avoidant oriented* students experience less confidence in their general capabilities whereas *normative* and *informational* oriented students experience greater confidence in this regard. Finally, in determining whether General Self-Efficacy serves as a moderating variable between the identity processing styles and academic achievement, a non-significant relationship was noted in the current research findings. The implication of these findings highlights the inconsistency between local and international findings in the current area of interest. Thus, the direction for future research includes further investigation into the validity of the apparent inconsistencies identified in the present study.

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APPENDICES

APPENDIX A: Ethical Clearance Certificate

APPENDIX B: Course Coordinator and Lecturer Information Sheet

APPENDIX B

Information sheet: Course coordinator and Lecturers

Private Bag 3
Wits 2050
South Africa
(011) 717-4500/2/3/4

Dear Sir or Madam

My name is Samantha Leader and a requirement for the completion of the Masters Degree in Education (Educational Psychology) is to conduct a research study. Your response regarding permission to conduct the current study described would be appreciated. The current research study entitled, **"Relating identity processing styles and self-efficacy with academic achievement among first-year university students"** will be conducted under the supervision of my research supervisor, Mr Joseph Seabi. The aim of the present study is to determine whether there is a significant relationship between identity processing styles, self-efficacy and academic achievement. The rationale for the study highlights the high dropout rate amongst first year university students (Onsongo, 2006). The high dropout rates within South African universities are problematic in that the implications thereof are pervasive at the individual, institutional and governmental level. For this reason, it is necessary to investigate factors influencing academic achievement in higher education institutions. As indicated by Hejazi, Shahraray, Farsinejad and Asgary (2009) a relationship between identity processing styles, self efficacy (as a mediating variable) and academic achievement has been found however, the current study intends to determine the relevance of these findings to the South African context.

The present study adopts a quantitative, correlational research design and will utilise nonprobability, purposive sampling as a means for selecting a sample. The sample comprises

approximately four hundred first-year University students enrolled at the University of the Witwatersrand. Information obtained from the participants who choose to participate voluntarily in the research study will be gathered using three measures namely; Demographic questionnaire, Identity Style Inventory (Berzonsky, 1992) and the General Self-Efficacy Scale (Jerusalem & Schwarzer, 1993).

Participation in the current research study is voluntary and participants may exercise the right to withdraw from the study at any stage without encountering any negative consequences as a result. Furthermore, it will be communicated to students that access to their academic records as a measure of academic achievement is required. Students will be made aware of the fact that although confidentiality can be assured, anonymity is limited as their name, surname and student number are required for accessing their academic records. However, no student identification details will be included in the final report. At the start of the lecture it will be requested that students who agree to participate in the research study sign an informed consent form and complete the measures.

The researcher does not foresee the participants being exposed to any form of risk. However, if a concern does arise, a referral to the Career and Development Unit at the University of the Witwatersrand will be made. Completion of the three measures will take approximately fifteen minutes per student. The final results of the current research study will be presented in the form of a research report which may be accessed by contacting the Psychology Department.

If you have any further queries related to the research study please do not hesitate to contact the researcher or research supervisor at the contact details provided below.

Kind Regards
Samantha Leader

Contact information:
Researcher: Samantha Leader **s.leader@mweb.co.za** 083 226 8401
Research supervisor: Joseph Seabi **Joseph.seabi@wits.ac.za** (011) 717 8331

APPENDIX C: Participant Information Sheet

APPENDIX C: _____

Participant information sheet
Private Bag 3
Wits 2050
South Africa
(011) 717-4500/2/3/4

Dear Student

My name is Samantha Leader and a requirement for the completion of the Masters Degree in Education (Educational Psychology) is to conduct a research study. The topic of the current research study is, **"Relating identity processing styles and self-efficacy with academic achievement among first-year university students".** The aim of the present study is to determine whether there is a significant relationship between identity processing styles, self-efficacy and academic achievement. The rationale for the study highlights the high dropout rate amongst first year university students (Onsongo, 2006). The high dropout rates within South African universities are problematic in that the implications thereof are pervasive at the individual, institutional and governmental level. For this reason, it is necessary to investigate factors influencing academic achievement in higher education institutions.

The research study requires a sample of approximately four hundred first-year university students. Introductions will take place before lectures commence. Information relevant to the research (research topic, measures to be used, rights and responsibilities of the participant and researcher) will be provided and questions from students will be addressed. Following this, students who are willing to participate in the study will be provided with an informed consent form to sign. This form will serve as confirmation of voluntary participation in the research as

well as written permission for the researcher to access participants' academic records. The information retrieved from the academic records will include the results of two assignments and two tests which take place between the months of March and May. The demographic questionnaire, Identity Style Inventory (ISI3) and General Self-Efficacy Scale will be handed to participants before the start of a psychology lecture. Administration of the measure will be conducted in a group. Completion of the measures should take each student approximately 10 to 15 minutes. Once the data has been collected from students, it will be analyzed.

There is a limit to anonymity as your student number is required for the purpose of accessing your academic records. However, confidentiality is ensured and it is important to note that the data collected from students will only be viewed by the researcher and research supervisor. Care will also be taken to keep the collected safe and out of reach from unauthorized persons.

Your time and willingness to participate in the current research study would be greatly appreciated. Should you have any queries regarding the research study please do not hesitate to contact the researcher or research supervisor at the contact details provided below.

Thank you
Samantha Leader

Contact information:
Researcher: Samantha Leader **s.leader@mweb.co.za**
Research supervisor: Joseph Seabi **Joseph.seabi@wits.ac.za**

APPENDIX D: Course coordinator and Lecturer permission form



APPENDIX D: _____

Course coordinator and lecturer permission form

I, _____, the course coordinator of the first-year _____ course, do hereby grant Samantha Leader permission to conduct her research in the _____ Department at the University of the Witwatersrand provided the following terms and conditions are adhered to:

1) Participation in the current research study is voluntary and free of coercion in any form.
2) Participants may choose to withdraw from the research study at any stage without encountering any negative consequences as a result.
3) Refusal to answer questions which cause discomfort is allowed.
4) The collected data remains confidential.
5) Results and findings of the current research are accessible to the participants.

(Please print)_____at _____on_____

Signature_____

APPENDIX E: Participant Informed Consent Form

APPENDIX E:

Participant Informed Consent Form
Wits 2050
Private Bag 3
South Africa
(011) 717-4500/2/3/4

I_____ agree to participate in the research study titled, **"Relating Identity Processing Styles with self-efficacy and academic achievement among first-year university students."**

I acknowledge that in signing this Informed consent form:

1) I am participating in the research study voluntarily.

2) I acknowledge my right to withdraw from the research study at any stage without resulting negative consequences.

3) I acknowledge my right to leave out questions which I would prefer not to respond to.

4) I have been informed of the limitations of anonymity in this research study.

5) For research purposes only, I am willingly granting permission to Samantha Leader to access my academic records.

6) I have been informed about where I can access the research report once it has been completed.

7) I have been assured that confidentiality will be maintained.

Date: _____ Signature: _____

APPENDIX F: Head of School Information Sheet

APPENDIX F

Information Sheet: Head of School
School of Human and Community Development
Private Bag 3
Wits 2050
South Africa
(011) 717-4500/2/3/4

Dear _____

My name is Samantha Leader and a requirement for the completion of the Masters Degree in Education (Educational Psychology) is to conduct a research study. Your response regarding permission to conduct the current study described would be appreciated. The current research study entitled, **"Relating identity processing styles and self-efficacy with academic achievement among first-year university students"** will be conducted under the supervision of my research supervisor, Mr Joseph Seabi. The aim of the present study is to determine whether there is a significant relationship between identity processing styles, self-efficacy and academic achievement. The rationale for the study highlights the high dropout rate amongst first year university students (Onsongo, 2006). The high dropout rates within South African universities are problematic in that the implications thereof are pervasive at the individual, institutional and governmental level. For this reason, it is necessary to investigate factors influencing academic achievement in higher education institutions. As indicated by Hejazi, Shahraray, Farsinejad, and Asgary (2009) a relationship between identity processing styles, self efficacy (as a mediating variable) and academic achievement has been found however, the current study intends to determine the relevance of these findings to the South African context.

The present study adopts a quantitative, correlational research design and will utilise nonprobability, purposive sampling as a means for selecting a sample. The sample comprises approximately four hundred first-year University students enrolled at the University of the Witwatersrand. Information obtained from the participants who choose to participate voluntarily in the research study will be gathered using three measures namely; Demographic questionnaire, Identity Style Inventory (Berzonsky, 1992) and the General Self-Efficacy Scale (Jerusalem & Schwarzer, 1993).

Participation in the current research study is voluntary and participants may exercise the right to withdraw from the study at any stage without encountering any negative consequences as a result. Furthermore, it will be communicated to students that access to their academic records as a measure of academic achievement is required. Students will be made aware of the fact that although confidentiality can be assured, anonymity is limited as their name, surname and student number are required for accessing their academic records. However, no student identification details will be included in the final report. At the start of the lecture it will be requested that students who agree to participate in the research study sign an informed consent form and complete the measures.

The researcher does not foresee the participants being exposed to any form of risk. However, if a concern does arise, a referral to the Career and Development Unit at the University of the Witwatersrand will be made. Completion of the three measures will take approximately fifteen minutes per student. The final results of the current research study will be presented in the form of a research report which may be accessed by contacting the Psychology Department.

If you have any further queries related to the research study please do not hesitate to contact the researcher or research supervisor at the contact details provided below.

Kind Regards
Samantha Leader

<u>Contact information:</u>

Researcher: Samantha Leader **s.leader@mweb.co.za** 083 226 8401

Research supervisor: Joseph Seabi **Joseph.seabi@wits.ac.za** (011) 717 8331

APPENDIX G: Head of School Permission Form

Head of School Permission Form

I, _____, the Head of School of_____ do hereby grant Samantha Leader permission to conduct her research in the_____ Department at the University of the Witwatersrand provided the following terms and conditions are adhered to:

1) Participation in the current study is voluntary and free of coercion in any form.

2) Participants may choose to withdraw from the current study at any stage without encountering any negative consequences as a result.

3) Refusal to answer questions which may cause any form of discomfort is permitted.

4) The collected data maintains the confidentiality of student identification details.

5) The results and findings of the current study are accessible to the participants.

(Please print)_____at_____
on_____

Signature_____

APPENDIX H: Distribution Analysis of *Informational* Identity Processing Style

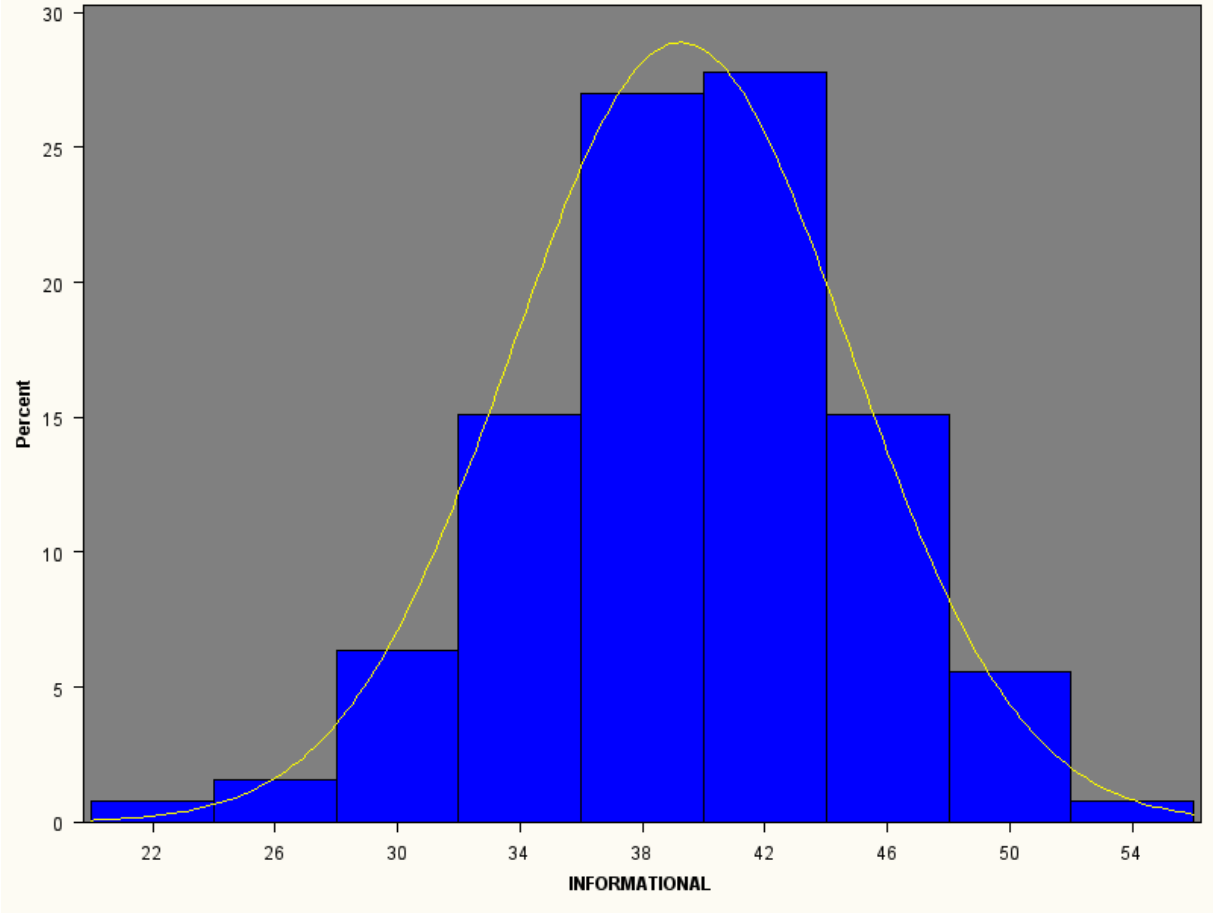


Figure 1: Distribution Analysis of *Informational* Identity Processing Style

APPENDIX I: Distribution Analysis of *Normative* Identity Processing Style

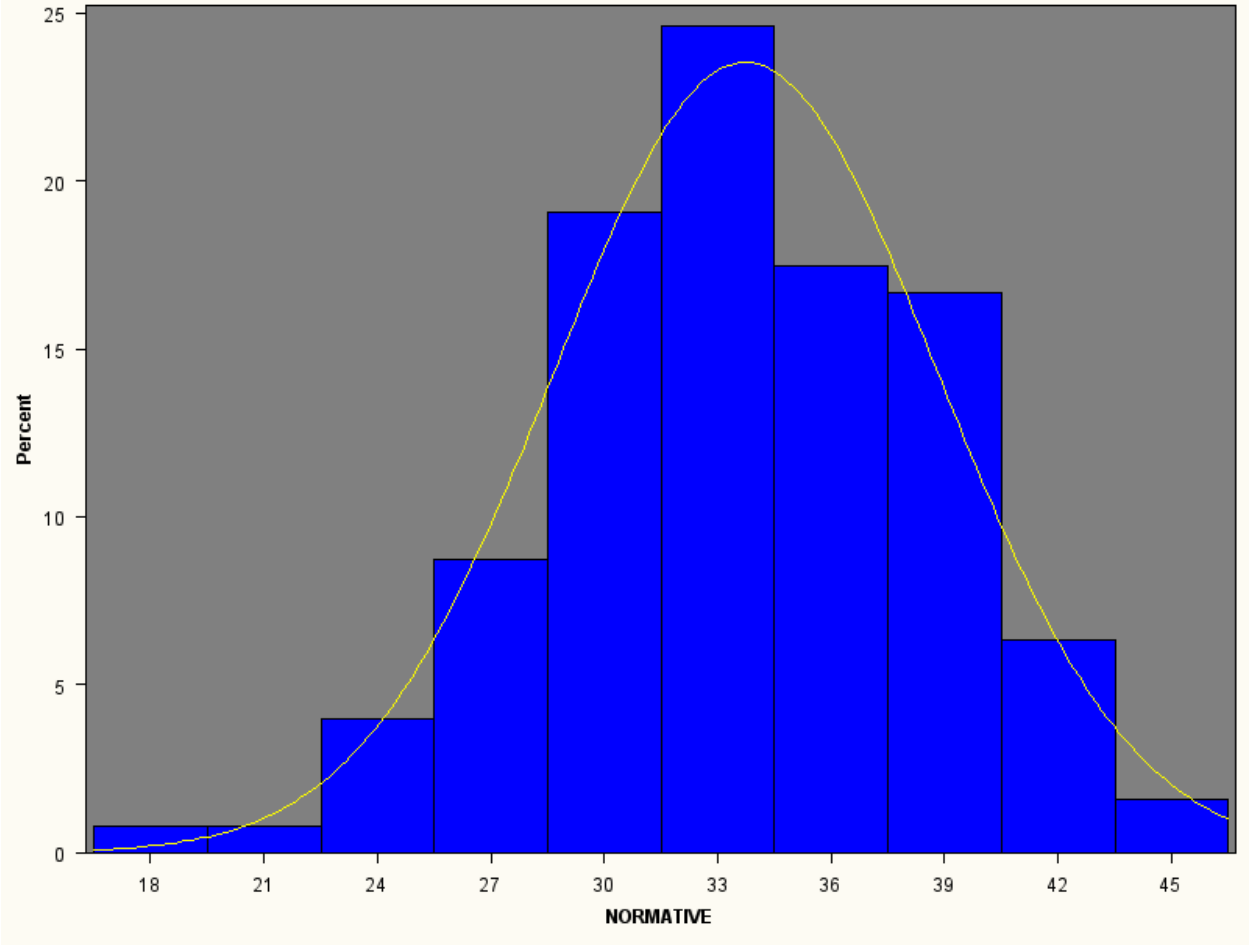


Figure 2: Distribution Analysis of *Normative* Identity Processing Style

APPENDIX J: Distribution Analysis of *Diffuse- Avoidant* Identity Processing Style

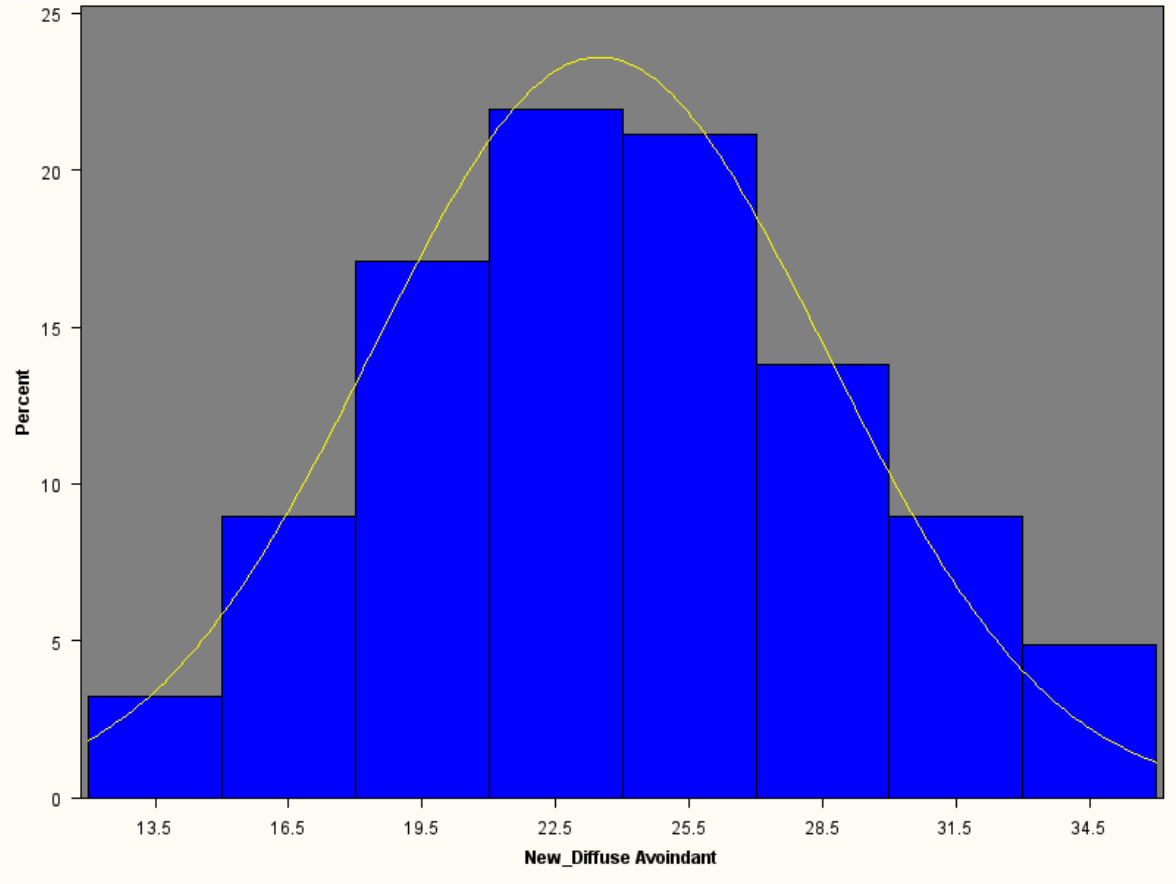


Figure 3: Distribution Analysis of *Diffuse- Avoidant* Identity Processing Style

APPENDIX K: Distribution Analysis of General Self-Efficacy Scores

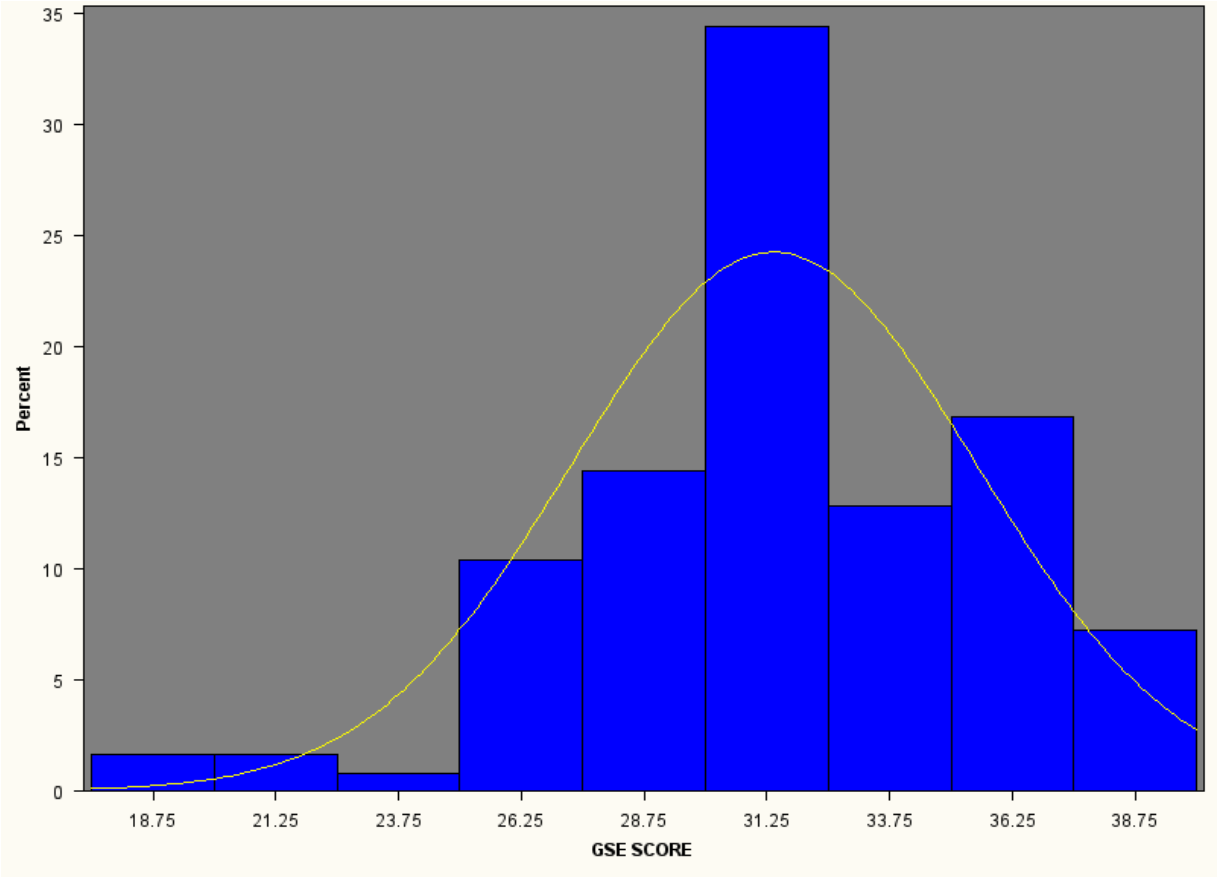


Figure 4: Distribution Analysis of General Self-Efficacy Scores

APPENDIX L: Distribution Analysis of Academic Achievement (X)

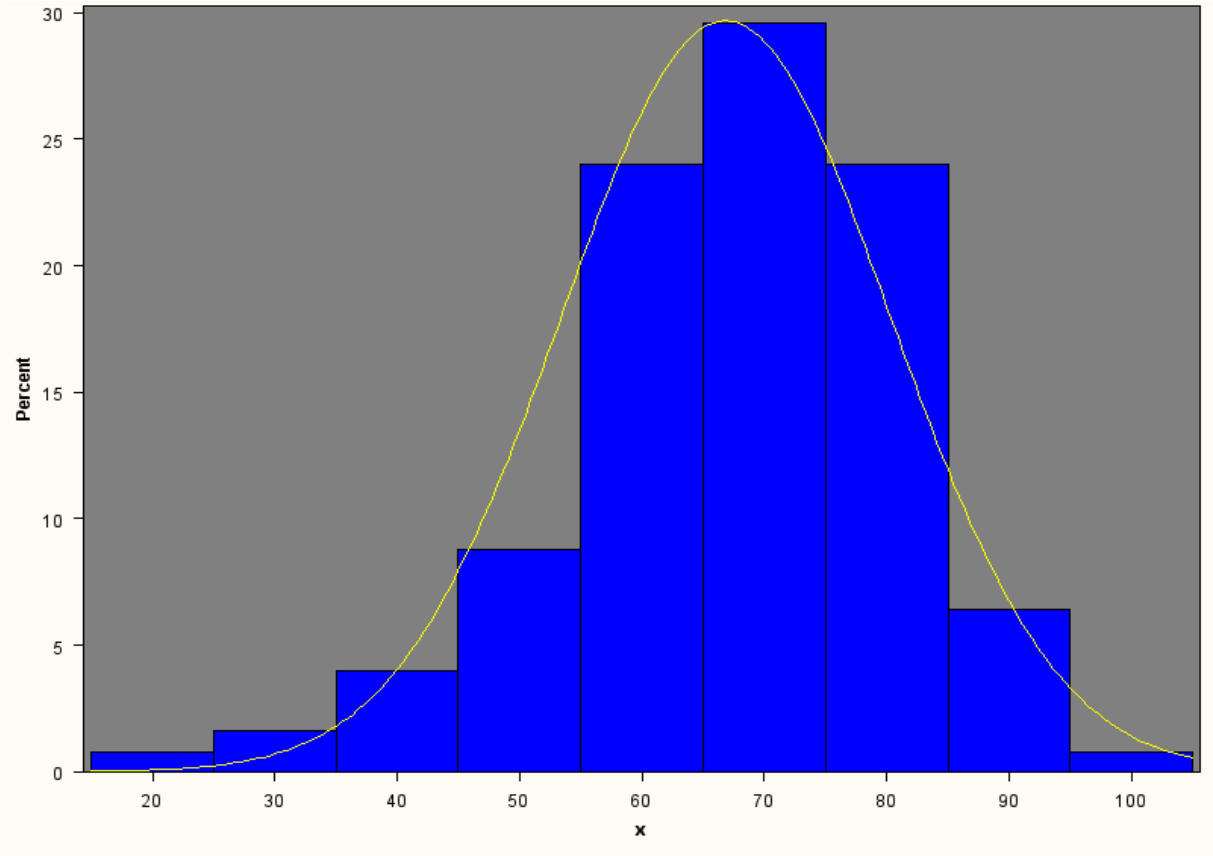


Figure 5: Distribution Analysis of Academic Achievement (X)

APPENDIX M: Demographic Questionnaire

APPENDIX N: Identity Style Inventory (ISI3)

(Berzonsky, 1992)

Examples of statements extracted from the Identity Processing Style Inventory (ISI3)

Item number	**Statement**
5	"I've spent a good deal of time reading and talking to others about religious beliefs '.
12	"I'm not sure which values I really hold".
17	'I'm not really thinking about my future now; it's a long way off".
25	"When I have a personal problem, I try to analyze the situation in order to understand it."

APPENDIX O: General Self-Efficacy Scale (GSE)

(Jerusalem & Schwarzer, 1993)

Examples of statements extracted from the General Self-Efficacy Scale.

Item Number	Statement
1	"I can always manage to solve difficult problems if I try hard enough".
4	"I am confident that I could deal efficiently with unexpected events".
6	"I can solve most problems if I invest the necessary effort".