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Factors Influencing University

Students' Educational Achievement:

Quality of Life and Social Psychological Variables

by

Christine M. Adams Stubbs

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A Thesis

Submitted to the Faculty of Graduate Studies

in Partial Fulfillment of the Requirements

for the Degree of

MASTER   OF EDUCATION

Faculty of Education

University of Manitoba

Winnipeg, Manitoba

Canadä

THE UNIVERSITY OF MANITOBA

FACULTY OF GRADUATE STUDIES
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Abstract

At present, universities are increasingly being required to be accountable to the citizens. Accountability, in this respect, means that most students who are admitted to universities are successfully completing degrees. Many students are not successful, and the reason for this is that there are numerous psychological, institutional, and social and university background variables that influence their educational achievement. The objective of this study is to examine the relationship between students' perceived quality of life within their faculties and their social psychological disposition when social and university background variables are controlled, on their educational achievement. If these variables can be changed, more students would graduate.

The study was conducted in the Faculties of Arts and Science at the University of Manitoba. A survey entitled *Quality of Life in the Faculties of Arts and Science* was sent, in March of 1997, to a random sample of students in the Faculties of Arts and Science. Responses from 854 students, approximately half Faculty of Arts and half Faculty of Science, are analyzed. The survey was designed to measure the students' social and university background, their quality of life within their faculty, their social psychological disposition, and their educational achievement. A theoretical model outlining proposed linkages between these variables was developed. This model guided the structural equation modeling procedures used to analyze the interrelationships among the variables.

Several findings support the idea that students' quality of life and their social psychological disposition influence their educational achievement. Specifically, students' coping responses and their perceived academic control are shown to affect their educational achievement. Students' cognitive experiences are found to negatively affect

their educational achievement. Nevertheless, students' affective experiences are found to positively affect their educational achievement, particularly the experience of positive affect, and positive interactions with their professors. The effects of students' affective experiences are mediated, at least to some degree, by the social psychological variables. Interestingly, the effects of students' social and university background variables on their educational achievement are relatively small and they are mediated to the greatest degree by students' quality of life experiences.

The complete theoretical model explains approximately 24% of the variance in the students' educational achievement. Consequently, students' quality of life experiences and social psychological disposition play crucial roles in their success in university. The thesis concludes by suggesting that university administrators consider these findings when making decisions on resource allocation, and offers a few suggestions for resource allocation. In order to be accountable to the citizens, universities must graduate more students than they have in the past. To do this they must foster positive quality of life experiences for their students and they must help students develop positive social psychological dispositions.

Acknowledgments

A study of this magnitude would not have been possible without the generous support from an internal grant from the University of Manitoba and the Humanities and Social Science Council. Nor would it have been possible without the participation of the undergraduate students in the Faculty of Arts and Sciences who completed the questionnaires in 1997. I express my appreciation to the granting agents and to the students.

I appreciate Dr. Rod Clifton for taking me on as a student and mentoring me through this stage of my Master's program. His style as both a teacher and mentor reflects the meaning of "warm demander". With his high expectations along with his openness, availability, patience, and encouragement, he challenged, inspired me, and provided unconditional support. I am forever grateful to him, and feel lucky to have had the experience of working with him.

In addition, I appreciate the support provided by the members of my thesis committee, Dr. Ray Perry, Dr. Lance Roberts, and Dr. William Schulz. Their questions and feedback contributed to the development of my thoughts and helped to make this a better thesis.

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Chapter 1

Introduction

Public demand for citizens to become educated at the post-secondary level has led

to increased enrolment levels at institutions across North America. Nielsen (1991), for

example, reported that 80% of the jobs available in the early 1990s require some post-

secondary education. All post-secondary institutions, but universities specifically, have

responded to this demand by increasing their enrolment levels, despite minimal gains in

population. Statistics Canada (1996) reported that in 1961 the total enrolment in

Canadian universities was 185 436, by 1995 that number increased to 846 410. This

increase is not the result of a dramatic increase in the Canadian population. The Canadian

population in 1995 was approximately 1.7 times larger than in 1961, while enrolment in

universities was more than 5 times larger.

To increase enrolment, many universities have implemented a number of policies

including less restrictive admission standards. Universities set a minimum performance

requirement and any applicant who meets the requirement is admitted. The rationale for

less restrictive admission standards is twofold. At a time of decreased government

funding for post-secondary education, universities need as many students as possible to

continue to operate at their current levels. Without admitting this though universities have

responded by promoting accessibility.

Secondly, beginning during the mid-sixties through the early-seventies, demand

for equal treatment and outcomes for social groups (gender, ethnicity, sexual orientation,

etc.) increased, and as a result demand for accessibility has become an issue. Universities

have responded to this demand by offering educational opportunities to individuals and

groups who, in the past, have generally been underrepresented in higher education. The

traditional university student is no longer a male, high achiever, and from the upper-

middle class (Rever & Kojaku, 1975). Thus, in order to meet the demand for university

educated individuals, to provide accessibility, and to be accountable universities have

now become less selective in their admissions policies.

In fact, across North America, universities claim they have become accountable

by opening their doors to as many people as can be educated with the available resources.

The University of Manitoba, the university that is the focus of this research, addresses

this issue in its mission statement, by stating it must be accountable by "facilitating

access to its programs for as many students as meet its admission requirements and as can

be accommodated and effectively educated with the available resources" (University of

Manitoba, 2000, p. 5). The University of Manitoba is the largest university in the

province and the only one that offers medical and doctoral programs. To be accessible

and accountable to the people of Manitoba, the university has, among other initiatives, an

open admissions policy where any student with a minimum 63% average on three Grade

12 academic subjects is admitted. Additionally, the university has a mature student

admission policy that allows any student who lacks the normal entrance requirements, but

is at least 21 years of age, to enter the university. Access programs have also been

designed, programs that attempt to increase student success by providing academic and

personal supports; typically preference is given to Aboriginal students, residents of

Northern Manitoba, or students from low socioeconomic classes.

Nevertheless, accountability cannot end with accessibility. Questions regarding

whether the North American universities are truly being accountable to the public, or if

they have created a revolving door, by bringing students in and flunking them out before

they graduate have proliferated. Cuseo (1991) reported that 39% of all entrants to four-

year college programs in the United States depart without earning a degree. Surprisingly,

he reported that at least half of these students leave during the first six to eight weeks in

their first year. Tinto (1985) provided research from the National Longitudinal Survey of

the High School Class of 1972 that indicates that about 60% of first time entrants to a

four year degree program leave the first institution they register in without completing a

degree. Astin (1975) reported that close to 50% of entering students leave college or

university before they graduate. The November 14, 1996, issue of the *Globe and Mail*

reported that the drop out rate from Canadian post-secondary institutions is between 10%

and 50% (Lewington, 1996). Statistics at the University of Manitoba are consistent with

these findings. For example, between 1989 and 1996, only 79.1% of the entering students

were retained after year 1, and 69.4% were retained after year 2. Only 29.2% of the

undergraduate students at the University of Manitoba, from 1989 to 1993, completed a

degree in 4 years, and only 54.3% completed a degree in 6 years (University of Manitoba,

1998).

   More specifically, females were more likely to graduate with degrees within 4

years, at a rate of 33.9% compared to males who graduated at a rate of 24.0%. After 6

years, 57.5% of females had graduated, while only 50.8% of males had (University of

Manitoba, 1998). These statistics demonstrate that many students are not successful once

they are admitted to the university, and that some background characteristics (i.e. gender)

affect their success. To be accountable, universities must be proactive and ensure that

students who are granted entrance are also retained and graduate with a degree; that is,

universities must attempt to provide an environment that will result in student success. Students are not successful when they leave the university prior to degree completion. Students leave universities without completing a degree either because they have been required to as a result of poor performance, or voluntarily because of dissatisfaction (Noel, 1985; Tinto, 1985). Noel (1985) argued that for students to persist, and therefore be successful, they must experience success, satisfaction, and learning.

Canadian universities need to be accountable to their students and to the general public unlike ever before in their history. Canadian universities receive significant funding from the government and as a result need to be able to explain how the financial resources of the government, and therefore the people, are being put to good use. Additionally, they must be able to explain student failures to the students, their parents, and to the citizens. A student's decision to leave university before completing a degree comes at a high price, not only are universities losing valuable tuition dollars, but students are losing valuable time in their search for an appropriate career. An additional concern for universities is that a high rate of attrition could cause an enrollment crisis because students that leave in the middle of a year are not replaced with other students (Noel, 1985). Furthermore, from an economic point of view it is more economical for an institution to retain the students they have enroled than it is to recruit new students. Admitting students and retaining them until they graduate will benefit the students, the university, and society. Consequently, student attrition should be a great concern for universities.

University administrators at the University of Manitoba must believe that students who meet the required 63% average can be successful once they are admitted to the

university, otherwise they would not accept them. A cynic may say something else —

administrators want the government grants and the tuition fees, even from students who

are not likely to succeed in the institution. It has become evident that problems related to

student success go beyond the open admissions policies. Some, but not all, students

admitted to university with low high school grades are successful, whereas, some

students with good high school grades occasionally fail. Why is this happening? The next

section of this chapter will address the theoretical reasoning for why this is likely

happening. Following the discussion of the theory, the significance of the study will be

discussed. The third section of the chapter discusses the limitations of the study, and the

final section provides an overview of the thesis.

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The Problem

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As noted, to provide accessibility and to be able to operate at their current levels,

universities have been challenged to admit as many students to their institutions as the

available resources will allow. Universities have responded to the challenge by adopting

open admissions policies. As a result, universities are faced with a new challenge; some

of the students admitted to the university are not succeeding as measured by their

educational achievement. Students' grade point averages (GPAs) are a measure of their

success in university and some students are not achieving high enough GPAs to continue

in the institution. The solution to this problem would be easy if the students who were

unsuccessful were those who had performed poorly in high school, and had grades below

or close to the minimum average required. Universities could simply raise the minimum

average required for admission to a level where students would be successful. By doing

this, universities would maintain accountability by ensuring that they were only admitting

students who could be successful. The solution is not that simple, however, because some students who are failing have been admitted with the minimum average required while others have received university entrance scholarships.

Past performance has been shown to be an effective measure of students' ability and a strong predictor, in fact the strongest predictor, of academic success. However, it is not the only factor that contributes to success in university. From the review of the literature that is presented in Chapter 2, it seems likely that past academic success, particularly high school grades, are responsible for explaining between 20% and 30% of the variance associated with student success at university (see Hyers & Joslin, 1998; Marks & Murray, 1965; Perry, Hladkyj, & Pekrun, 1998; Prus, Hatcher, Hope, & Grabiel, 1995; Rogers, 1990). If 20% to 30% is explained by this variable, between 70% and 80% of the variance is unexplained. Numerous psychological, institutional, and social and university background variables have been identified as possible factors that may account for at least part of the unexplained variance. In this study, I propose two main sets of variables that may account for this unexplained variance in students' educational achievement, a set of student social psychological variables and a set of institutional variables reflected by the quality of life the institution provides for its students. The rationale for the inclusion of both sets of variables is discussed.

As a result of universities being asked to account for factors such as their budgets and student attrition rates, studies examining factors that contribute to student success in university have proliferated. Individual differences in social psychological disposition have been demonstrated to influence students' educational achievement. This study includes a measure of students' perceived academic control, self-esteem, and coping

responses, to assess how their educational achievement is influenced by their

psychological disposition. The theoretical model that guided the selection of these three

variables is Weiner's Theory of Motivation and Emotion (1985). Weiner's theory argues

that how students think about an event will determine how they feel, which will

determine how they act, all of which will influence their future educational achievement.

For the purposes of this study, the thinking (perceived academic control), feeling (self-

esteem), and acting (coping responses) components were assessed as having separate and

parallel effects on educational achievement. In other words, I did not assume any of these

three variables caused the others.

Perceived academic control is a construct that has been empirically demonstrated

to influence students' educational achievement. It refers to the degree to which students

believe that they can predict and influence their academic performance (Perry, 1991).

Individuals with a strong sense of control, perform better in achievement situations than

students with a weak sense of control. By the time students reach university their

perceptions of control are probably fairly strong and can be considered as representing

relatively stable personality characteristics (Perry, Schonwetter, Magnusson, and

Struthers, 1994; Schonwetter, Perry, and Struthers, 1993). A strong sense of control is

considered to be adaptive in university students, as it is perceived as necessary for

survival in university (Perry, 1991). Particularly, students are expected to be independent,

they are expected to complete assignments on time, to study for exams, to seek out help if

they need it, and to attend classes. Students who believe that their success, or their

failure, is within their own control, that is, success is a result of their own behaviors, are

going to be independent and successful because they have a strong sense of control and

they realize the things they must do to be successful. Students with a weak sense of control, on the other hand, believe that success or failure is not within their control. In fact, these people believe success is within the control of other factors so why should they bother doing anything to ensure their own success? In high school, students with a weak sense of control may have been able to achieve relatively high grades because they were bright and the demand for independence was not as important as it is in university. Once in university, however, bright students may fail because of a weak sense of control, their teachers no longer take care of them, and the academic demands are very high.

Self-esteem is conceptualized as an important social psychological variable because it seems likely that students with high self-esteem will strive to succeed. Positive self-esteem generally results from success, and causes future success (Craparo, Hines, & Kayson, 1981). Therefore, it seems likely that self-esteem will foster educational achievement. Low self-esteem generally results from failure experiences in the past, and therefore may lead to low educational achievement in the present and the future. Craparo et al. (1981) demonstrated that participants who had succeeded at a task had higher self-esteem than unsuccessful participants. Furthermore, participants with higher self-esteem were most successful at a later problem-solving task. They argued that once self-esteem is successfully manipulated, participants may be in a state to avoid dissonance, that is, they will work harder to be successful. For example, these researchers observed that successful participants worked harder and more diligently than previously unsuccessful students, and the successful participants were attempting to maintain their current levels of self-esteem. Additional studies have demonstrated that self-esteem

positively influences students' educational achievement (Etcheverry, 1996; Shavelson & Bolus, 1982).

Students' coping responses are included because they reflect the actual behaviors students engage in, some of which will clearly facilitate success and some of which will not. When faced with academic challenges, different students behave differently. Some students are able to cope much better than others, and have the built-in capacity to choose behaviors that will lead to success. Other students seem to lack this capacity and do not choose appropriate coping behaviors and their educational achievement suffers. Combining this variable with the other two variables, perceived academic control and self-esteem, reflects students' social psychological dispositions, all of which influence their educational achievement. Consequently, I predict that students with a strong sense of perceived academic control, self-esteem, and who engage in positive coping behaviors, will experience positive effects on their GPAs. I will now discuss a second variable, the quality of life the institution provides to students, and I will propose that the variables in this set influence both students' social psychological disposition and their educational achievement.

Cognitive and affective experiences that students have within classrooms reflect, at least to some degree, the quality of life the institution is providing for them. A positive quality of life experience will positively influence students' educational achievement, and a negative quality of life experience will negatively influence their educational achievement. Researchers have argued that for students to benefit from university education, and to have a positive experience within the institution, they must be simultaneously challenged by their studies and supported by their professors and peers

(Clifton, 1997; Clifton, Etcheverry, Hasinoff, & Roberts, 1996; Etcheverry, 1996; Roberts & Clifton, 1992). Little challenge and/or little support from significant others has/have been shown to negatively influence students' educational achievement (Clifton, 1997; Etcheverry, 1996). When students enter university they are entering a new cultural environment, one in which they need to learn to adjust to, or they will be unsuccessful. Most students come from much smaller institutions, high schools mostly, where they know many more students and teachers and many more students and teachers know them. Students must learn to interact differently with students and professors in large institutions like universities. The academic demands and the demand for independence in students also increase as they move from high school to university. Research has shown that there are classroom environments that support this adjustment and ones that do not. Supportive classroom environments cognitively challenge students as well as socially support them by having a positive affective environment and one where interaction amongst students, and between students and professors, is evident. For example, Noel (1985) argued that one of the major reasons students leave universities without successfully completing a degree is because of academic boredom, which often stems from a lack of challenge. Additionally, he argued that a caring attitude of the faculty and staff is the most potent retention force on campus. Environments that are cognitively challenging and socially supportive facilitate the adjustment students need to make to university and influences their social psychological disposition and their educational achievement.

A teaching style that has been demonstrated to support educational achievement is one where professors are perceived as being warm and demanding (Roberts & Clifton,

1992). These professors provide students with intellectual challenges, while at the same time providing an environment that promotes positive affect, positive interaction with them, and positive interaction amongst students. This type of environment will also help students adjust to the new cultural environment of the university that will support their social psychological dispositions and their educational achievement. However, it is important to note that one of the struggles faced by universities is that there are limited rewards for individual professors to work at becoming a good teacher (Hum, 2000). As a result, some students experience challenges in an unsupportive environment, and therefore they may be intimidated. For example, some students enter classes where the professor tells them that this course will weed out those students who are not meant for the program. It is clear that the course will be challenging, but it is not a supportive environment, and consequently students will likely feel alienated and their educational achievement will probably suffer.

Comments and behaviors such as the one mentioned in the previous paragraph can negatively influence students' social psychological disposition. Even though perceptions of control, it has been argued, are typically stable and enduring (Perry, 1991), situations can occur in classrooms that result in changes in students' perceived academic control. Negative comments by professors and other students can lead students to believe that their success is not within their control, so why should they bother trying to achieve? Additionally, students' self-esteem may be negatively affected when professors make such inappropriate comments; students without a strong sense of self-esteem may think that it is impossible for them to succeed, so they may give up and/or drop out. Students' coping abilities may also be affected negatively. Other events that have been

demonstrated to affect students' perceived academic control include their interaction with their professors, level of instructor expressiveness, exposure to complex material, unannounced tests, excessive content and poorly organized lectures (Perry & Magnusson, 1987; Perry & Penner, 1990). Beyond this, however, I predict positive affective experiences, and positive interaction with students will also affect students' perceived academic control. Perry and Penner (1990) argued that both stable cognitive schemata and transient environmental situations, work together affecting students' perceived academic control in university classes. Consequently, factors such as instructor expressiveness, exposure to complex material, unannounced tests, excessive content, or poor organization, factors that have been demonstrated to influence students' perceived academic control, are conceptually similar to the broader categories of students' cognitive and affective experiences. Thus, it makes sense to include measures of the quality of life variables on the social psychological variables being examined in this study.

The main purpose of this study is to attempt to explain why some students succeed in university as measured by their educational achievement. To do this, I will test a theoretical model that examines the impact of a set of quality of life variables and a set of social psychological variables on educational achievement. The model is tested on students in two faculties at the University of Manitoba, the Faculty of Arts and the Faculty of Science. Testing of the model will examine the impact of students' social psychological disposition on their educational achievement. It will also examine the impact of the quality of life provided by the institution on their social psychological disposition on their educational achievement. The study will contribute to the social psychological literature and the quality of life literature. It will provide further

confirmation of the influence of students' social psychological disposition, and the quality of life the institution provides, on their educational achievement.

This study is also about ensuring institutional accountability and therefore if the results support the hypothesized model, policy suggestions will be made. Personality and institutional environmental variables are more amenable to change than students' innate abilities. Through an identification of adaptive personality and environmental variables that facilitate the success of students, universities, such as the University of Manitoba, can develop programs that will ensure more students succeed. Attributional retraining is an intervention that has been developed from the perceived control research that may help reduce the percentage of unsuccessful students. Also, universities can improve the environment for students, and by improving their quality of life, it is hypothesized that student success will increase. Universities can be accountable through a provision of positive social psychological and quality of life experiences that will assist in increasing the number of students who are successful. Following the empirical examination of the model in Chapter 4, additional strengths may be identified. I will now turn to a discussion of the limitations of the study.

Limitations

This study has limitations in two areas, with the sample and with the measurement instrument. First, the study is based on data collected from students in two faculties, Arts and Science, in one Canadian university, the University of Manitoba. This sample may limit the generalizability of the results to other populations of students, such as students in other faculties, students in other universities, and students in other countries. Further research with other groups of students should be conducted to fully understand the

generalizability of the results. Specific concerns with studying only the Faculties of Arts and Science have been identified. At the University of Manitoba, both the Faculties of Arts and Science are similar to each other in a number of ways, and probably differ from other faculties. The faculties of Arts and Science are the two largest undergraduate faculties, neither are professional faculties, and neither of them have set curricula where students form cohorts and move through the program as groups. Additionally, both faculties have a tendency to be perceived, at least by some students, as default faculties. In other words, students enter the Faculties of Arts or Science because they do not have definite plans or professions in mind. In this respect, it is likely that differences exist between this sample of students and students in other faculties, particularly faculties such as dentistry, law, management, and medicine.

Students in both Arts and Science are required to take courses from the other faculty, and both of the faculties allow students to take courses from other faculties, this may result in a second concern. The questionnaire did not assess the number of courses the respondents were taking from within their own faculty and from other faculties. Hypothetically, Arts students could be registered in more Science courses than Arts courses, and vice versa for Science students. This may limit the conclusions drawn from this sample.

Third, this study is based on cross-sectional data that sampled students at a single point in time, students registered in the 1996-1997 Regular Session. Consequently, there is no real estimate of changes in students' dispositions over time, even though the theoretical model suggests temporal changes. It would be significant to examine changes

in the quality of life and the social psychological disposition that may occur as students

progress through their programs and/or drop out of programs.

Reported quality of life and social psychological disposition could be a function

of some factor within the university or society during the year that the data were

collected. For example, during the 1995-1996 Regular Session, a faculty strike occurred

at the university, and it may be expected that different results would be observed from

students during that year. Similarly results from a sample of students taken during an

economic recession, a time when expectations of finding jobs would be low, may yield

different results than during economic boom years. The economic conditions may limit

the generalizability of the results.

A fourth limitation is related to the perceived academic control variable, and it is

a limitation with the measurement instrument. By the time students begin university,

perceived academic control is considered a relatively stable personality characteristic.

Consequently, a limitation that researchers who study perceived academic control in

university students are continually faced with is that students who choose to attend

university typically have already developed an internal sense of control. However, this

research is meant only to generalize to other university students, so it is not necessary for

the results to generalize to the general population, and therefore, unnecessary for the

sample to be representative of the provincial population.

A fifth limitation exists in the measurement instrument, specifically the

questionnaire used. One of the reasons this study was undertaken was to help explain

why some students are successful at university. Previously, the argument was made that

factors other than high school academic performance contribute to university students'

educational achievement. Some students with low high school grades are successful in university, and some with higher grades fail university courses. It is argued that this is a result of other variables influencing students' educational achievement. The measurement instrument adequately assesses the social and university background, quality of life, and social psychological variables that are argued to influence students' educational achievement. However, it fails to include an assessment of students' performance in high school. As a result, the conclusions drawn may be limited because it will be still impossible to say if students are successful because of the variables within the model, or simply because of their previous high school performances. Again, the model that was developed is appropriate without this component; however, if it is found to be a useful model, future research should include a measure of students' high school performances.

The final limitation of the study is related to the analyses of the variables within the model. The model that has been created is assumed to be unidirectional. It is likely that the variables that are under investigation in this model do not operate in a unidirectional way, but rather have reciprocal effects. Nevertheless, the unidirectional causal relations are unlikely to seriously compromise the results and interpretations that are presented.

<u>The Overview</u>

This thesis has five chapters. In Chapter 1, I have introduced the study by asserting that universities must be accountable by educating and certifying students that are admitted. I argue that accountability must go beyond accessibility – it means ensuring that most students successfully graduate. When considering factors that may hinder accountability by preventing students from being successful, universities must consider

both individual student personality characteristics and institutional characteristics as risk factors. The problem of the study is explained first by summarizing the social psychological variables, students' perceived academic control, self-esteem, and coping responses, variables that are known to influence students' educational achievement. This is followed by a summary of the quality of life variables, the cognitive and affective experiences students have within their faculty, variables that are known to influence students' social psychological disposition and their educational achievement. This is followed by an explanation of the significance of the study. Six limitations of the study are discussed, and finally, an overview of the thesis is presented.

In Chapter 2, I examine, in much more detail, the theoretical perspectives that guide the study. In the first section, I provide a detailed explanation of Weiner's (1985) Theory of Motivation and Emotion, the theory that guided the development of part of the theoretical model. In the second section, I link Weiner's theory to the social psychological variables in this study and to educational achievement. In the third section, I describe the quality of life variables, which provides another part of the theoretical framework for how the university environmental variables influence students' social psychological disposition and their educational achievement. In the fourth section, I describe social and university background variables that influence the other variables in the model. Finally, in the fifth section, a theoretical model that links the social and university background, quality of life, social psychological variables, and the educational achievement variable is presented.

In Chapter 3, I describe the methodology used in the study. In the first section, I describe the survey methodology used in this study and the sample of students, from the

University of Manitoba, who participated in the study. In the second section, I present the fifteen variables that are used in the study. Each variable is operationally defined and descriptive statistics are included for each. Finally, in the third section, I describe the structural equation modeling procedures used to analyze the relationships between the variables.

In Chapter 4, I present the empirical results of the analyses. First, I describe some of the associations in the correlation matrix. Second, a series of multivariate analyses of the interrelationships between the variables in the model are presented. A number of regression analyses are used to analyze the effects of the independent and intervening variables on the dependent variables. The first set of analyses examines the influence of the social psychological, quality of life, and social and university background variables on educational achievement. The second set examines the influence of the quality of life and social and university background variables on the social psychological variables. Finally, the third set examines the influence of the social and university background variables on the quality of life variables. The chapter concludes with a discussion of the direct, indirect, and total causal effects of all the variables in the model.

Chapter 5 concludes the study by summarizing the previous chapters and discussing the important results. Implications of the findings for both practice and policies are discussed. In particular, the issues discussed are how universities can become more accountable by ensuring more students are successful. Specifically, recommendations are made on the types of programs universities could develop to foster a more positive environment for students, and how to develop positive social

psychological dispositions in students. Finally, the chapter concludes with suggestions for

future research.

Chapter 2

Literature Review

This chapter is divided into five sections and examines the theory that guides the

study. The first section describes Weiner's attribution theory and provides the theoretical

construct that guides the selection of the social psychological variables that have been

included in the model. The second section describes the social psychological variables

that are expected to influence students' educational achievement. The third section

provides theoretical and empirical support for the quality of life variables that are

examined in this study. This section also links students' quality of life with the social

psychological variables and provides the basis for the argument that the former influence

students' social psychological disposition and educational achievement. The fourth

section links social and university background variables to the other variables in the

model. The final section of the chapter provides the theoretical model that links all of the

variables, social and university background, quality of life, social psychological, and

educational achievement in a theoretical model.

<u>Weiner's Attribution Theory of Motivation and Emotion</u>

Considerable research that has examined the impact of social psychological

variables on educational achievement comes from the growing body of literature on

social cognition, a literature that explains students' beliefs about their educational

achievement (Bandura, 1997; Rotter, 1975; Seligman, 1975; & Weiner, 1985). Weiner's

(1985) Attribution Theory of Motivation and Emotion is one of the best developed

theories that attempts to explain how social psychological variables influence students'

educational achievement. The theory is useful in understanding the impact of individual

differences on students' educational achievement; in fact, the theory provides a broad

context within which the research literature fits and guides the development of the model

examined in this study.

Attribution theory, as developed by Weiner (1985), can be described, in simple

terms, as how individuals think about events determines how they feel and how they feel

influences their future actions. Individuals routinely attempt to make personal sense of

their environment by providing explanations for why positive or negative events have

occurred. Specifically, this happens if an event is perceived as unexpected, negative, or if

it is perceived as being important. Weiner argues that individuals make personal sense of

their environment by assigning causal attributions to events. The typical causal

attributions that are identified as having caused a successful or unsuccessful achievement

event include the following: ability, effort, strategy, task difficulty, and luck. In other

words, students who do well on tests ask themselves why this occurred, and the typical

reasons given would be related to their ability, their effort, the strategies they used, the

difficulty of the task they were expected to perform, and to luck. Once a causal

attribution is assigned to the outcome, the students are able to make personal sense of it

by placing the attribution in dimensional space. Weiner argues that causal attributions are

defined, or given meaning, in terms of three dimensions, that every attribution have: 1)

locus of causality, 2) stability, and 3) controllability. Each dimension has cognitive,

affective, and behavioral consequences.

Locus of causality refers to whether students perceive an event as resulting from

internal or external factors. One of the emotions that can be experienced from attributing

an outcome to internal factors is self-esteem: if the outcome is positive, students

experience positive self-esteem, but if the outcome is negative, they experience negative self-esteem. In this conception, self-esteem is only affected if the cause is attributed to internal factors. Positive self-esteem typically leads to people repeating the behaviors they believed to cause the outcome, while negative self-esteem typically leads to people becoming apathetic. In other words, students who develop negative self-esteem often engage in actions that are not supportive of their educational achievement, such as skipping classes or not studying.

Stability, the second dimension of causality, was developed from recognition that explaining causes exclusively in terms of an internal-external dichotomy is not suitable in describing all outcomes. Some events are perceived as being caused by fluctuating factors and others are perceived as being caused by relatively constant factors. This dimension includes a cognitive assessment of the expectancy of success or failure in the future. Stable causal attributions have different psychological and behavioral consequences for students than unstable causal attributions. When students attribute positive outcomes to a stable cause they have expectations of future positive outcomes in similar situations. In these situations, students have a tendency to experience feelings of hopefulness, and positive behavioral consequences follow, which include repeating the behaviors that led to the outcome in the original situation. In contrast, when students attribute positive outcomes to an unstable cause, they have low expectations that the outcome will be repeated. Negative feelings and behaviors representing a loss of control or apathy likely result leading to lower achievement.

Controllability, the final dimension included in Weiner's (1985) theory, suggests that attributes such as mood, fatigue, and effort, all psychological variables that can be

perceived as internal and unstable, differ in terms of controllability. Mood and fatigue are typically not under students' direct control, whereas effort is typically under their control. In Weiner's conception, the perceived control of an attribution results in both affective and behavioral responses that either support or undermine educational achievement. On the one hand, when students perceive themselves as having done poorly on tests and attribute this to their ability, something that is typically perceived as out of their control, feelings of shame are experienced resulting in apathetic behavior. In this case, students believe that nothing they can do will change the outcome, the outcome is completely out of their control. On the other hand, effort as an explanation for failure can have the opposite effect. Effort is typically perceived as within students' control, leading to feelings of guilt when their performance is poor. Guilt, in turn, can serve as an impetus for future action that promotes positive achievement, such as attending classes, studying more, and other types of positive behavior.

The different causal attributions students give to outcomes, and how this influences their affective and behavioral responses, can be illustrated with examples of two of the prominent causal attributions in the achievement domain, effort and ability. When students perform poorly on a test, potentially an unexpected, negative, and important event, they often seek to understand this situation. Students first provide a causal attribution for their poor performance, and every attribution is composed of three dimensions, locus of causality, stability, and controllability. It is these dimensions that give the attribution meaning to the students. For example, when the students assign low effort as the cause, it tends to be perceived as internal, unstable, and controllable. As a consequence, positive affective and behavioral responses will often follow. Although

doing poorly on the test was caused by internal factors, negative impact on self-esteem is minimal because students recognize that change is possible and within their control. Limited impact on self-esteem and feelings of controllability tend to support future action, students recognize that through a change in behavior, their educational achievement can improve. In contrast, attributing ability to failure, an attribution that is typically perceived as internal, stable, and uncontrollable often has a negative impact on affect and behaviors. Attributing poor performance to internal, stable causes often results in students experiencing low self-esteem and low expectations of future success. Furthermore, when students have a perception of uncontrollability negative feelings such as shame tend to follow. Low controllability and negative self-esteem tend to result in negative achievement striving behaviors, such as skipping class and giving up on academic goals, which negatively affect students' educational achievement. Empirical support for Weiner's theory (1985) is included in the next section, which describes in greater detail, the influence of social psychological variables on educational achievement.

<u>The Social Psychological Variables</u>

Within the theoretical perspectives outlined above, the literature identifies a number of risk factors, both cognitive and psychological, that can result in university students performing poorly. A cognitive risk factor could be low grades in high school and a psychological risk factor could be ineffective coping responses. Cognitive variables are generally accepted as having the largest influence on educational achievement, however psychological variables are also considered to play a crucial role. Perry et al., (1998), for example, argue that pre-college aptitude scores usually explain between 16% and 20% percent of the variance in college grades, leaving about 80% of the variance

unaccounted for, suggesting that psychological variables are potentially important factors contributing to students' educational achievement.

Extensive empirical research supports attribution theory by demonstrating that how students explain their performances affects their feelings and behaviors, which, in turn, affects their educational achievement. In fact, over the last two decades, Perry and his colleagues have studied perceived academic control, a concept embedded in attribution theory, as a variable influencing students' performance in university (see Menec, Perry, & Struthers, 1995; Perry, 1991; Perry & Dickens, 1984; Perry & Dickens, 1987; Perry & Magnusson, 1987; Perry & Magnusson, 1989; Perry, Magnusson, Parsonson, & Dickens, 1986; Perry & Penner, 1990; Perry & Tunna, 1988; Perry, et al., 1994; Perry et al., 1998; Schonwetter et al., 1993). Perceived academic control refers to the degree to which students believe they are able to predict and influence their environment, that is their educational achievement. Perry (1991) argues that Weiner's theory is useful because it identifies critical variables and the sequences of associations that affect educational achievement. The critical variables, the sequential associations between the variables and how they relate to the model developed for the current study are examined here.

Students bring to university a myriad of individual characteristics that may positively or negatively affect their educational achievement. Menec and Perry (1995) refer to the variables that may result in poor performance as "risk factors", the most important of which is a maladaptive attributional profile, represented by low levels of perceived academic control, that result in low self-esteem and low levels of achievement. Lack of motivation or apathy is a behavioral consequence of a maladaptive attribution

profile, which results in students' engaging in inappropriate coping responses when faced

with failure. A low sense of control over one's environment has been identified as being

maladaptive for student learning:

> Students with an internal locus are likely to engage in activities
>
> conducive to academic success (Stipek & Weisz, 1981). These
>
> students may attend classes regularly, take notes during classes, or,
>
> if needed, seek help from peers, teaching assistants, or the
>
> instructor. In contrast, students with an external locus of control
>
> are unlikely to exhibit such behaviors, since they believe that they
>
> will be unable to succeed, no matter how hard they try. Such lack
>
> of achievement striving therefore increases the potential for failure
>
> in the future, as evidence by lower GPAs (Stipek & Weisz, 1981).
>
> (Menec et al., 1994, pp. 678).

In this example, students with high levels of perceived academic control engage in

behavior that help them cope more effectively when they experience negative events than

students with low levels of perceived academic control.

A number of studies have found evidence to support the theory that students with

high levels of perceived academic control have higher academic achievement than

students with low levels of perceived academic control. Through a provision of

contingent or noncontingent feedback, Perry and Dickens (1987) manipulated students'

perceived academic control, and found that those who experienced noncontingent

feedback (i.e. low controllability), had the most significant decrease in their performance,

as compared to students who had experienced more controllability. Similarly, Perry and

Magnusson (1987) demonstrated through a manipulation of students' control, that those

who experienced high control had higher levels of achievement on a post-lecture test,

than students who experienced low control. Once again, through a manipulation of

perceived academic control, Perry and Tunna (1988) found that students who experienced

contingent feedback were significantly more likely to attribute their performance to

internal factors, ability and effort, and less likely to attribute performance to external

factors, luck and test difficulty. Additionally, students experiencing contingent feedback,

or perceived academic control, performed significantly better on an achievement test than

students experiencing non-contingent feedback. Additional research by Perry et al. (1986)

found that students who experienced contingent feedback in a simulated college

classroom were more likely to report higher levels of perceived academic control, more

confidence, less hopelessness, and had higher achievement gains than students who had

experienced noncontingent failure. Perry et al. (1994) also found that an internal

attribution profile resulted in higher achievement gains in some students, even when they

were in situations that were considered to have a negative impact on their achievement.

A later study conducted by Schonwetter et al. (1993), examined the effects of

perceived controllability by assessing students actual perception of control, rather than

attempting to manipulate their sense of control. As in the current study, Schonwetter et al.

(1993) conceptualized perceived control as a stable psychological disposition. The

findings were similar to previous studies, students who perceived themselves as being in

control and also as being successful, performed significantly better on an achievement

test than students who perceived themselves as being high or low success students, but

not in control. The generalization that results from this research is that students with an

external locus of control do not continue to try to achieve higher performances, when, at least in their minds, their efforts are not going to make a difference.

The Schonwetter et al. (1993) study also included an assessment of students' affective reactions, specifically their pride and confidence, following feedback on an achievement test. Consistent with Weiner's attribution theory, these researchers found that students with higher degrees of perceived control, as compared to those with lower perceptions of control, experienced more pride and more confidence. Additionally, Perry et al. (1998) found that students high on perceived academic control were more likely to put in more effort to achieve academically by taking better class notes and studying more, than students with lower levels of perceived academic control. These students also outperformed other students as demonstrated by differences in their final grades that were higher by almost one and one-half letter grades.

To counteract the influences of maladaptive attributional profiles on educational achievement, the Perry laboratory has provided attributional retraining to students. Such retraining is designed to change students potentially maladaptive attributions to positively adaptive attributions, with the goal of increasing their motivation and their subsequent performance. Menec et al. (1994) explained that by presenting students with information that depicts the causes of failure as modifiable and/or controllable, attributional retraining is thought to enhance their sense of control, self-esteem, and future performance. In fact, a number of studies provided students, who originally had maladaptive attribution profiles, such as an external sense of control, with information that it is possible for them to succeed if they put in more effort or if they changed their study strategies; as a consequence, their performance improved. Menec et al. (1994) demonstrated that

attributional retraining resulted in a more internal attribution profile and expectations of future success in students with an external locus. Students level of perceived academic control is being modified or increased, in an effort to increase their self-esteem, which subsequently improves their coping responses and their educational achievement.

In essence, perceived academic control has been demonstrated to have an effect on university students' educational achievement. Consequently, this variable is included in the theoretical model I use to analyze the performance of Arts and Science students. In addition, self-esteem was chosen as another social psychological variable because the research has demonstrated that it also affects educational achievement. Finally, coping responses were included because this variable represents the behavioral consequences while perceived academic control and self-esteem represent the cognitive and affective consequence respectively. In sum, each of these variables represents a distinct component of Weiner's (1985) attribution theory, and are illustrated on the right side of Figure 1, which is presented at the end of this chapter, under the heading of social psychological variables. Perceived academic control is conceptualized as the thinking component of the theory, self-esteem is the feeling component, and coping responses is the behavioral component. Students' perceived academic control (how they think), their self-esteem (their feelings), and their coping responses (their behavior), all affect their educational achievement.

The Quality of Life Variables

As noted above, social psychological variables alone cannot sufficiently explain the variability in students' educational achievement. When attempting to explain the educational achievement of students, it is necessary to consider environmental factors

that may contribute to their achievement (Menec et al., 1995; Perry & Magnusson, 1987).

Students' quality of life, as represented by the degree to which they experience challenge

and support within the university, represents some of the environmental factors that

influence their educational achievement (Clifton, 1997; Etcheverry, 1996). It is argued

here that students' quality of life within their faculty affects their psychological

disposition, and both of these, in turn, affect their educational achievement.

Researchers have argued that the cognitive and affective experiences students

have within an institution reflect the quality of their lives (Clifton, 1997; Clifton, et al.,

1996; Etcheverry, 1996; Roberts & Clifton, 1992). Conceptually, the cognitive

experiences of students represents the degree to which they are challenged, and the

affective experiences represents the degree to which they are socially supported by their

significant others, both students and professors. Literature on both the socialization of

students and effective teaching indicate that optimal learning occurs in situations that are

simultaneously cognitively demanding and socially supportive (Roberts & Clifton, 1992).

In fact, Clifton (1997) argued that a combination of challenge and positive social

interactions with professors and fellow students leads to an increase in students' social

and academic integration within the institution. Students who are well integrated and are

more satisfied have higher grades than those who are not well-integrated. Tinto (1985)

argued that experiences that promote students' social and intellectual integration are

likely to strengthen their commitment and therefore reinforce their persistence. Two of

the major reasons students leave university without completing degrees often reflect the

cognitive and affective experiences they have had within their faculty. The first reason is

that students perceive the academic demands as being either too difficult or too easy, and

as a result, they withdraw. The second reason is feelings of isolation that result from limited personal interaction between the students and with other people on campus (Tinto, 1985).

Most students probably expect to be intellectually challenged and socially supported during their university education. In fact, as they move through their degree programs they expect to be challenged at increasingly higher levels. Students who perceive themselves as being challenged at an inappropriate level, however, are likely to experience a loss of control, while those who experience an appropriate level of challenge are likely to be in control. In fact, considerable literature shows that students' perceived academic control can be decreased as a result of transient situational factors, such as complex material, unannounced tests, excessive content, and poor organization on the part of professors (Perry & Magnusson, 1987; Perry & Penner, 1990). An overly demanding environment with professors and fellow students who are unsupportive could result in transient loss of control impeding students' academic performance. Transient loss of control caused by an inappropriately challenging and/or an unsupportive environment may, in turn, cause decreases in perceived academic control, self-esteem and coping responses, which will have a negative impact on students' educational achievement.

As argued in the previous paragraph, to positively influence students' social psychological disposition and their educational achievement, professors need to challenge students at an appropriate level. However, in order for students to benefit from the cognitive challenges of a university environment they must also think that their professors and other university personnel support their efforts. A classroom environment

that allows students to ask questions and test hypotheses is a supportive one. A supportive instructor is expected to promote positive affect, interaction between the students and the professor, and amongst students (Roberts & Clifton, 1992). These behaviors presumably lead to feelings of integration and belongingness and subsequently to higher performance. Astin (1985) demonstrated that students who reported interacting more frequently with faculty members were more likely to express higher levels of satisfaction with all aspects of their institutional experience. Pascarella, Edison, Hagedorn, Nora, and Terenzini (1996), and Pascarella and Terenzini (1991) found that students' perceptions of their teachers' organization, preparation, instructional skill, clarity, and their support, influenced students' internal attribution profile. Additionally, interaction with other students and positive affect have been found to influence students' academic self-concepts, a variable conceptually similar to the self-esteem variable used in this study (Etcheverry, 1996). Kuh (1995) reported that peer interactions were associated with student gains in self-esteem, and contact with faculty was associated with gains in educational achievement. Pascarella and Terenzini (1991) also found that interaction with faculty, both in and out of classrooms, benefited university students' knowledge acquisition. From reviewing the literature, they argued:

> The general results of this body of evidence suggest that net of the effects
>
> of confounding variables, students who reported the greatest cognitive
>
> development were also most likely to (1) perceive faculty as being
>
> concerned with student development, (2) report developing a close,
>
> influential relationship with at least one faculty member, and (3) find their

interactions with peers to have had an important influence on their

development (Pascarella & Terenzini, 1991, p. 150).

The relationship between institutional variables as represented by the degree to

which students report experiencing challenge and support, and the social psychological

variables, and educational achievement is complex. In all likelihood, students enter

universities with the expectation that they will be challenged and supported by the

institution, and they also enter with relatively stable personality characteristics such as

level of perceived academic control. If, on the one hand, their expectations are not met,

their level of control may decrease, self-esteem may decrease, and they may adopt

inappropriate coping responses, negatively affecting their educational achievement. On

the other hand, if expectations of challenge and support are met students' perceived

academic control and self-esteem are likely to be maintained or improved, and the use of

appropriate coping responses will continue, positively affecting their educational

achievement. Therefore, for the purposes of this study the challenge and affective

variables, measuring the quality of university life, are expected to influence the social

psychological variables, and both variables likely influence educational achievement.

The Social and University Background Variables

In addition to the variables that have already been identified as affecting

university students' educational achievement, empirical research has identified a number

of social and university background variables that affect their achievement. In this study,

gender, age, and educational resources represent the social background variable, and

faculty of registration, credit hours enroled in, and, years of university represent the

university background variable (Clifton, 1997; Etcheverry, 1996; Pascarella, et al., 1996,

Pascarella & Terenzini, 1991). The following presents the empirical support for including these variables.

A student's social background is likely to influence the other variables under investigation. In fact, a number of social background variables are included in this study as suggested by other researchers (see Clifton, 1997; Pascarella et al., 1996; Pascarella & Terenzini, 1991), although these variables may have limited influence on university students' experiences and performances. A number of researchers have noted that by the time students are enroled in university, the impact of their social background is mediated by other factors such as their academic ability and performances, their academic and professional goals, and interpersonal support (Astin, 1975; Bidwell, 1989; Pickering, Calliotte, & McAuliffe, 1992). Nevertheless, the three variables chosen to represent the factors that students bring with them to an institution, their gender, age, and the educational resources of their parents, are supported by the empirical literature.

It is necessary to examine the influence of gender on institutional and social psychological variables as noted by Astin (1993), who suggested that males and females develop different social psychological dispositions towards their experiences in university. These differences influence educational achievement. In a review of the literature, Hearn (1987) found that educational attainment differed significantly by gender. Clifton (1997) found that female students, in comparison to males, were more likely to report positive affect and be more motivated, and were more likely to have higher GPAs, than males. In contrast, Etcheverry (1996) found no differences between males and females on quality of life, but females did have higher GPAs than males. Pascarella and Terenzini (1991) noted that women tended to be overrepresented in Arts,

and underrepresented in Science. In this study, there were more females than males (The

University of Manitoba, 1997), however, there were more males than females in the

Faculty of Science, while there were approximately equal numbers of males and females

in the Faculty of Arts.

Including age as a variable impacting on students' quality of life, social

psychological disposition, and educational achievement, is also supported in the

literature. Age has been found to positively influence GPA (Etcheverry, 1996; Kuh,

1995; Ting & Robinson, 1998). Clifton (1997), specifically, found that age had the

second most powerful effect on GPA; older students had significantly higher GPAs than

younger students, even when year of university was controlled. Research by Etcheverry

(1996) supports these findings, older students were found to have a slightly more positive

academic self-concept than younger students. Robson Crump, Hickson, and Laman

(1985) found that older university students tended to have a more internal sense of

control than younger students. Presumably, as people age they begin taking more

responsibility for their own actions and they are more likely to view outcomes as a result

of their behavior. At the time traditional age students enter university, they are entering

another rite of passage, adulthood. As they enter both adulthood and university, they

assume more responsibilities than before, and in time, they adjust to the institution and

begin to take more responsibilities for their actions. Thus, their perceived academic

control increases as they move through the university system and as they age and mature.

The educational resources variable combines both parents' education level to

reflect the resources available to students when they were young. Inconsistencies within

the research on the effect of students' social class, as measured by variables such as

parents' education, on educational achievement exist. Some researchers have found that social class variables have little effect on students' educational achievement. These researchers argue that by the time students reach university the impact of social class has been eliminated. In other words, the social class of students largely affects their academic performances in elementary and secondary school. By the time students progress to post-secondary institutions, representing only about 25% of the cohort who began grade one, the effects of the educational resources of their parents have largely been eliminated. In contrast, other researchers have found that social class variables have an impact. Etcheverry (1996) found that students' educational resources did not influence students' educational achievement, but Astin (1975 & 1985), and Ting and Robinson (1998) found that students who came from low-income families were more likely to drop out of university than those students coming from higher-income families. However, they also noted that this was attributable to a combination of factors including the lower education of their parents, lower ability of the student, their decreased motivation, and a greater concern they had about financing their university education. It was noted that students with more educated parents dropped out less often not solely because they were more able academically. The factors identified were stronger parental pressure to stay in university, as well as the knowledge that the student's parents had already completed their university degrees. It is reasonable to argue that parents who are more educated are more likely to provide the emotional support that students need when attending university. Educational resources, therefore, have been included to determine if, in this study, they affect educational achievement. They are also included to determine if they impact on the students' quality of life and their social psychological dispositions.

In addition to the social background variables, several university background variables are also included. These variables are assumed to influence students' quality of life, social psychological dispositions, and educational achievement. Specifically, students' faculty of registration, the number of credit hours in which they are enroled, and the years of university they have completed are included in the model.

Students' faculty of registration is the first variable within the university background variable that has been demonstrated to influence other variables in the model. An institution's context, referred to by Kuh (1995) as the institution's ethos and other cultural properties, has been found to influence students' learning and personal development. Students may have different experiences in terms of ethos and other cultural properties dependent on the courses they take and the professors they interact with. Subenvironment is a term that has been frequently referred to in the literature as representing the different experiences that occur for students within different faculties. Differences between faculties may exist in instructional methods, classroom environment, opportunities for, and the nature of interaction between students and professors, and students' cognitive preferences and strategies. As well, differences between the types of students that choose specific faculties probably influence their educational achievement. Factors such as gender, individual career goals, and expectations of challenge and support, may influence students' choice of faculties. In fact, faculty of registration at York University was empirically demonstrated, by Grayson (1997), to have an impact on the students' GPAs.

Level of course load has also been demonstrated to impact students' GPAs (Ting & Robinson, 1998). Clifton (1997) argues that students who are well-integrated in their

academic program are more likely to have higher grades than those who are not well-integrated. Arguably, students are more integrated with their academic programs if they are taking more credit hours. Likewise, Etcheverry (1996) found that students who were enroled in more credit hours were more likely to report positive interactions with professors. Total credit hours taken have been demonstrated to be positively associated with internal attribution profiles, and this was found even among first year students (Pascarella et al., 1996). Furthermore, the relationship continued when other variables were held constant, including their attributional profiles before entering university. Astin (1985) argued, for example, that the more involved students are in the institution, the larger their gains are in learning and in personal development. This has been referred to as the principle of involvement, and it reflects the idea that the more physical and psychological energy students commit to their academic programs, the larger their personal gains. The number of credit hours students are registered in can be conceptualized as a measure of involvement too. Students who are more academically involved are more likely to be exposed to other major socialization agents, such as other students and professors, that will help to positively contribute to their quality of life, the control that they have, and their educational achievement (Pascarella & Terenzini, 1991). These findings suggest the existence of a positive relationship between the students' level of course load, as measured by the credit hours they are registered in, on their quality of life, their social psychological dispositions, and their educational achievement. Therefore, it is necessary to include a measure of the impact of credit hours in the theoretical model that is examined in this research.

Years of university completed can also affect students' quality of life, social

psychological disposition, and educational achievement. Adjusting to the university

system takes time. Students entering university are less familiar with the institution's

expectations and norms, as a result, they tend to experience less control, and perceive a

lower quality of life than more experienced students. In fact, Pascarella and Terenzini

(1991) indicate that the length of college attendance affects students' level of internality

on measures of locus of control. From a review of the literature they found that gains in

internality (i. e. greater control) occurred as students went from freshman (1st year) to

senior year (3rd or 4th year). Additionally, evidence exists that such gains in internality

result from university attendance rather than from age. Gains in internality were found to

be greater for students who attended university than for students with similar

backgrounds but who ended their educational experiences at the secondary level

(Pascarella et al., 1996). This suggests that years of university foster increased levels of

perceived academic control. Similarly, Etcheverry (1996) found that years of university

had a significant effect on the interaction students had with other students and on their

self-concept of ability, a variable conceptually similar to the self-esteem variable used in

this study.

Another consideration when examining the impact of years of university is the

specialization in subject areas that occurs as students move through university. Typically,

students go from taking a wide range of general courses, within their first year or two, to

more specialized courses in a limited number of areas in later years. Potentially this could

have a positive or negative impact dependent on the students' area of study (Hearn,

1987). In the faculties of Arts and Science at the University of Manitoba, the upper year

classes typically become more focused, are incremental, and the classes are generally smaller. These circumstances are likely to support positive quality of life experiences in students because challenge and the opportunity for interaction with professors, at least, increases. Furthermore, these experiences support students' social psychological dispositions and their educational achievement. Theoretically, students are exposed to different subenvironments as they move through the educational process. However, if as students move into and through their area of specialization, they do not experience challenge and/or support, they will be less likely to experience a high quality of life. Additionally, students' expectations will tend to diminish, potentially resulting in a negative relationship between years of university and the other variables under examination.

In essence, a number of social and university background variables have been demonstrated to influence the other variables within the current model I am developing. Their influence is not restricted to students' educational achievement, but also affects their quality of life and their social psychological dispositions. The next section, which summarizes the argument developed in this chapter, will describe the theoretical model that has been developed for the study.

<u>The Theoretical Model</u>

In this study, I propose that students and institutions have important effects on students' educational achievement. Figure 1 presents the theoretical model to be tested. Students bring to an institution a number of social psychological variables, some of which are considered adaptive and tend to result in higher educational achievement in comparison to students who have maladaptive social psychological dispositions. The

social psychological dispositions students bring with them to an institution are conceptualized from Weiner's (1985) attribution theory, which argues that how students think, feel, and act, have impacts on their educational achievement. Cognitive and affective experiences within an institution affect students' quality of life. These experiences either support or undermine students' social psychological dispositions, ultimately impacting on their educational achievement. It is argued that when students experience appropriate levels of challenge and support by their institution, they develop positive social psychological dispositions. However, if students do not experience the appropriate level of challenge and support from faculty members and other students, their social psychological disposition may be negatively influenced, in turn, negatively affecting their educational achievement. Finally, social and university background variables, including gender, age, educational resources, faculty of registration, the number of credit hours registered in, and the years of university completed, are assumed to impact on all of the variables within the model. The causal relationships between the variables in this model are assumed to be unidirectional as many previous researchers studying similar models have assumed (see Clifton, 1997). This assumption is not likely to bias the estimate of the variables on the educational achievement variable (see Astin, 1993; Clifton, 1997; Pascarella & Terenzini, 1991).

Reading from right to left in Figure 1, students' social psychological variables represent the final group of variables assumed to affect educational achievement. It is argued that these variables mediate the influence of the other variables, to the left, in the model. The three social psychological variables are perceived academic control, self-esteem, and coping responses. As noted above, considerable research has demonstrated

that these three variables are linked together and that each has an impact on educational

achievement. Students' perceptions of control over their academic performances develop

as they move through the educational system (Stipek & Weisz, 1981). By the time

students enter university, it is assumed that their level of perceived academic control is a

relatively stable personality characteristic that is affected, to a certain degree, by their

faculty, year of study, and their individual characteristics, such as gender and age.

Students differ in the degree to which they believe that they are in control, their level of

self-esteem, and their coping responses. Perceived academic control, positive self-esteem,

and positive coping responses, are all supportive of educational achievement.

Quality of life experienced by students in the institution, as represented by both

cognitive and affective experiences, is expected to influence their social psychological

dispositions and their educational achievement. In fact, quality of life has been

demonstrated to influence students' educational achievement as measured by GPA

(Clifton, 1997; Etcheverry, 1996). The two groups of variables that are included to

measure quality of life are the cognitive and affective experiences, representing the

perceived challenges and support that students experience in university. Each of the

variables, measuring the cognitive and affective experiences of students, will be

examined separately and in relation to each other in terms of how they influence the

social psychological variables and the educational achievement variable.

The cognitive component of the quality of life variable includes structure and

function dimensions as separate variables. The structural dimension represents less

complex cognitive skills of knowledge and comprehension, using Bloom's taxonomy of

educational objectives, and the functional dimension represents the more complex skills

of being able to apply, analyze, synthesize, and evaluate information (Bloom, Engelhard,

Furst, Hill, & Krathwohl, 1956). Being expected to remember facts, interpret meanings,

apply theories and ideas to problems is assumed to challenge students and will result in

achievement striving behaviors, on their part, and is expected to lead to positive

educational achievement. For theoretical reasons this is anticipated despite Etcheverry's

(1996) findings, she found that the challenge variables had a negative affect on students'

GPAs, particularly when the affective variables were controlled. However, it will not be

completely surprising if the challenge variables in this study are found to have negative

effects on students' GPAs, replicating Etcheverry's findings. Additionally, it is expected

that the perception of challenge will impact on students' social psychological

dispositions. By perceiving an environment that is not challenging, students' expectations

are not being met. This experience may result in transient loss of control, low self-

esteem, and inappropriate coping responses, all resulting in negative affects on students'

educational achievement.

Affect, the second component of the quality of life, is represented by three

variables: positive affect, interaction with students, and interaction with professors. This

measure is included to assess students' perceptions of support within their faculty.

General enjoyment, positive feelings, and liking their faculty are being measured by the

positive affect variable. The quality of interaction between students, both in and outside

the classroom, and the degree to which students' perceive other students as easy to get to

know, help them understand themselves, and accept them, is represented by the

interaction with students variable. Perceptions that professors are fair, just, and take a

personal interest in their work, are measured by the final variable in the affective domain,

interaction with professors (Roberts & Clifton, 1992). Students experiencing a challenging environment must also feel that there is support to face the challenges. It is proposed that students who report that they are supported, also report experiencing higher educational gains, as measured by GPA, than students who do not perceive a supportive environment. Similar to the cognitive component, if students experience an environment that is not supportive, their social psychological dispositions are likely affected. In this respect, students may experience transient loss of control, lower self-esteem, engage in inappropriate coping responses, and their educational achievement will suffer. It is proposed that students reporting an environment that is not supportive will have lower perceived academic control, lower self-esteem, engage in maladaptive coping responses, and consequently they will have lower GPAs, than those students who report experiencing a positive environment.

The next variables, to the left in Figure 1, are the social and university background variables. These variables are included because they may influence the other variables, to their right, in the model. The three social background variables included are gender, age, and educational resources. Gender is included because it has been demonstrated to influence students' quality of life (Clifton, 1997), social psychological dispositions (Robson Crump et al., 1985), and educational achievement (Clifton, 1997). Likewise, it has been shown that age influences the social psychological variables under examination (Clifton, 1997; Pascarella et al., 1996; Sigmon, Stanton, & Snyder, 1995; Swanson & Lease, 1990), and educational achievement (Clifton, 1997; Etcheverry, 1996; Ting & Robinson, 1998). Finally, educational resources are included because they may impact on students' quality of life, social psychological variables, and educational

achievement. Students who have higher levels of educational resources in their homes likely become more quickly socialized to the expectations of university and they likely have the support needed to adjust to the expectations than those students with limited educational resources. Students' quality of life, social psychological dispositions, and educational achievement may be influenced by these social background variables.

The university background variables are the final set of variables, and are of particular interest because they represent the degree to which the students are committed to their education. The three measures are faculty, credit hours, and years of university. Faculty of registration is included because of substantial differences that exist in quality of lives between the students in the faculties of Arts and Science. Pascarella and Terenzini (1991) described the different environments students experience, which ultimately result in differences in their educational achievement. Students in the two faculties may also express differences in their social psychological dispositions as described by Menec and Perry (1995).

Credit hours and years of university represent, at least to some degree, the commitment students have made to their education. As credit hours and years of university increase, students become more involved with their education (Astin, 1985). It is expected that students who are registered in more credit hours and who have completed more years of university, experience a higher quality of life. These students presumably have been socialized to the expectations of the university, and consequently they express a higher degree of perceived academic control, higher self-esteem, have the ability to cope effectively with failure, and ultimately they have higher GPAs. Students who enter university with high perceived academic control but who are unfamiliar with the

expectations of the university, may temporarily experience a loss of control, lowered levels of self-esteem, engage in inappropriate coping responses, and have lower educational achievement. With time, students complete more years of university, they become socialized to the institution, become familiar with the expectations, and the quality of their lives improve. Students' sense of control returns, their self-esteem improves, coping responses become more positive, and their educational achievement improves. Similarly, students who take more credit hours are expected to adjust to university more quickly than those who take fewer credit hours. Exposure and commitment to the institution helps students become integrated and this positively influences the variables to the right of this variable in the model. It is expected that credit hours and years of university will be both positively related to students' quality of life, social psychological dispositions, and educational achievement

The next chapter will describe the measurement of the variables included in this model. Description of these variables is preceded by a description of the questionnaire and the sample of students who participated in this study. Following the description of the variables, the procedures used to analyze the data in the theoretical model are presented.

Figure 1   The Theoretical Model

SOCIAL AND UNIVERSITY   QUALITY OF LIFE   SOCIAL PSYCHOLOGICAL   EDUCATIONAL
BACKGROUND VARIABLES   VARIABLES   VARIABLES   ACHIEVEMENT

Gender (M=1 F=2)

Age

Educational Resources

COGNITIVE
- structure
- function
AFFECTIVE
- positive affect
- interaction with students
- interaction with professors

Perceived Academic Control
Self-esteem
Coping Responses

GPA

Years of University

Credit Hours

Faculty (Arts =1 Science=2)
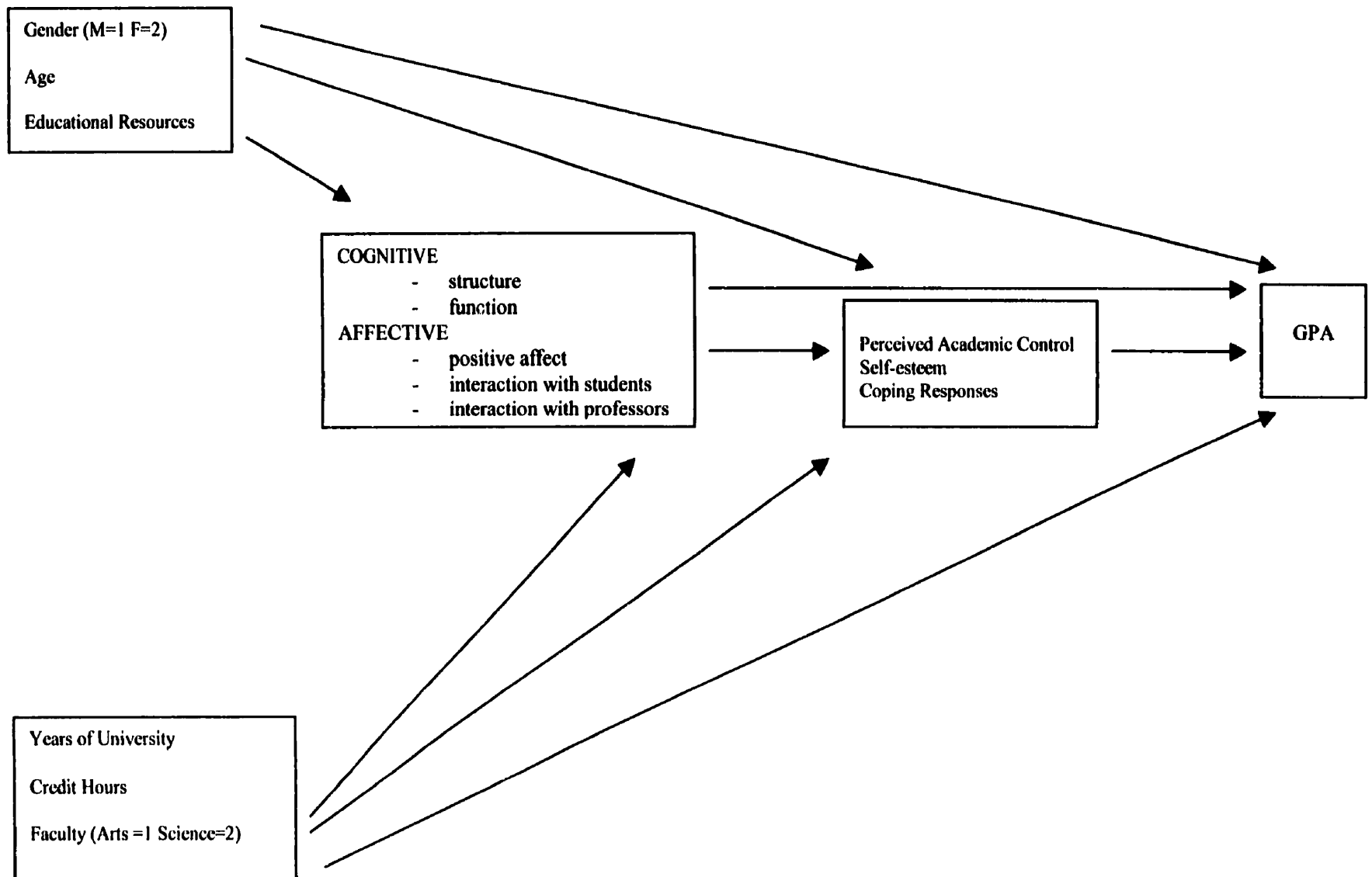
Chapter 3

Methodology

This chapter is divided into three sections and describes the methodology used in

the study. The first section describes the questionnaire, the data collection procedures,

and the sample of university students who participated in the study. A questionnaire was

distributed to a random sample of undergraduate students in the Faculties of Arts and

Science at the University of Manitoba to collect data on the various factors that influence

their educational achievement. The second section describes the measurement of the

fifteen variables examined in this study. All of the variables are operationally defined,

and descriptive statistics are provided for them. The final section describes the statistical

procedures used to analyze the data. The theoretical model presented in Chapter 2 guided

the selection of variables and the structural equation modeling procedures used for the

analyses.

<u>Survey Instrument and Sample</u>

In 1996, a research team, including R. A. Clifton, L. W. Roberts, and R. P. Perry,

created a questionnaire entitled *Quality of Life in the Faculties of Arts and Science* (see

Appendix A). It was developed from a previous questionnaire, *The Quality of Student*

Life Questionnaire, which was created in 1991 by a research team including, R. A.

Clifton, L. W. Roberts, J. C. Welsh, E. Etcheverry, S. Hasinoff, and D. Mandzuk, to

assess Faculty of Education students' perceived quality of life within their faculty. The

instrument used in this study was developed from that research. The questions included in

the new questionnaire included a number of the same questions used to assess students'

perceived quality of life in the original questionnaire, and additional questions were

added to assess students' social psychological disposition, including their perceived

academic control, self-esteem, and coping responses. Students' perceived quality of life

within their educational environment and their social psychological dispositions have

both been previously demonstrated to influence their educational achievement. The study

was designed, in part, to determine which of the two groups of variables had stronger

effects on students' educational achievement. The questionnaire underwent ethics review

procedures in May 1996, and was administered to the sample of students in March 1997.

From the Student Records Office, it was determined that there were 9092 students

enroled in the Faculties of Arts and Science during the 1996-1997 Regular session

(approximately 60% Arts and 40% Science). A systematic random sample of 1000 Arts

and 1000 Science students were mailed a copy of the instrument, a return envelope, and a

covering letter. The covering letter requested that the student complete the questionnaire,

it also explained that responses would be confidential, and students were invited to

contact one of the researchers with questions they may have had about the study.

Additionally, the covering letter explained that there was an incentive for students to

participate in the study; if students returned the questionnaire by April 10, approximately

one-month later, they would be entered to win a $350.00 gift certificate from the

university bookstore. A total of 864 questionnaires were completed and returned, and a

total of 113 were returned due to incorrect mailing addresses. Therefore, the response rate

was 46% (864/1887).

As noted, the participants in this study were 854 students registered during the

1996-1997 Regular Session at the University of Manitoba, a large mid-western Canadian

university, who completed the questionnaire. The original sample that responded to the

questionnaire was 864 students, but for the purposes of the current study the sample is

composed of 854 of the 864 students, 99.2% of the original sample. The ten students who

were dropped from the study reported being registered in faculties other than the

Faculties of Arts and Science, and the purpose of this study was to examine the quality of

life of students in these two faculties.

Table 1 presents the percentages for the faculty of registration for the sample.

Almost equal numbers of students are registered in Arts and Science, with 425

respondents reporting being registered in Arts, and 429 reporting being registered in

Sciences. Arts students were coded "1" and Science students "2". Included in Table 1 are

the frequency statistics for the distribution of the total population of students in the

Faculties of Arts and Science during the 1996-1997 Regular Session. The sample

population was slightly different from the general population in terms of number students

in the two faculties. The sample population was composed of approximately 50% Arts

students, and 50% Science students, while the general population of Arts and Science

students was composed of approximately 60% Arts students and 40% Science students.

The descriptive statistics for the gender breakdown within the two faculties for

both the sample and the general University of Manitoba population is presented in Table

2. The total sample breakdown in gender is equal to the general University of Manitoba

population, with 45% of the respondents being male compared to 46% in the general

population, and 55% of the respondents being female compared to 54% in the general

population. However, the percentage of males registered in the Faculty of Arts was less

than the general population; 39% of the students reporting being registered in Arts were

males, while registration in Science was higher with 52% of the students reporting as

males. Of course, the opposite was true for females; 61% of the students registered in

Table 1

Percentages for Faculty of Registration (General Population vs. Survey Population)

Faculty	General UM population Arts and Science Students	Survey Population
Arts	60	49.8
Science	40	50.2
Total	100	100
N	9092	854

Table 2

Percentages for Gender Breakdown within Faculties (General Population vs Survey Population)

	General U of M Population			Survey Population		
	All Faculties	Arts	Science	Total	Arts	Science
Male	46	44	57	45	38.6	51.5
Female	54	56	43	55	61.4	48.5
Total	100	100	100	100	100	100
N	21833	5479	3613	854	425	429

Arts were females, and 48% of the students registered in Sciences were female. While

this representation is not equal to the general population, the breakdown is consistent in

that in both the sample and general population there are more females than males in the

Faculty of Arts and there are more males than females in the Faculty of Science. The next

section will describe the questionnaire, the data collection procedures, and the variables

examined in this study.

<div align="center">Measurement of the Variables</div>

The questionnaire has eight parts; this study examined responses to questions in

six of the eight parts. The first part asked students about their affective experiences

within their faculty, the degree to which they experienced positive affect, interaction with

students, and interaction with professors. Questions from the second part asked students

to report the degree of challenge they experienced within their faculty. The third part

asked students questions about their beliefs in relation to their experiences in their

courses and in their lives. From this part, questions related to students' perceived

academic control and their self-esteem were selected for analysis. The fifth part asked

students about the ways they coped following failure. The sixth and seventh parts asked

students about their social and university backgrounds, including their grade point

averages. As indicated in the theoretical model (see Figure 1), the purpose of this study is

to examine the effects of two main groups of variables, specifically their social

psychological dispositions and the quality of their lives on their educational achievement.

Also, as noted, social and university background variables are taken into account in the

assessment of these effects.

Fifteen variables were obtained from the questionnaire to test the theoretical model outlined in Chapter 2. Each of these variables is operationally defined in this section, descriptive statistics, and the item response rate for each variable are included. Single-item variables that initially were not normally distributed have been recoded so that they are normally distributed. This was done because the main analyses are regression analyses, and one of the assumptions of regression analyses is that the data be normally distributed (Pedhauzer, 1983; Tabachnick & Fidell, 2001). Recoding procedures are described in the text and are included on the frequency tables.

The fifteen variables in the study are composed of one single-item variable, educational achievement and four multiple-item variables: social psychological, quality of life, social background, university background variables, and. Some of the multiple-item variables slightly violate the assumption of normality for regression analyses. In each case, recoding procedures were considered, and tested, but in no case were significant differences obtained between the recoded data and the original data. Therefore, the original data was used despite the slight violations of the normality assumption. This course of action was taken because, as argued by Tabachnick and Fidell (2001), regression analysis is fairly robust to violations of the assumption of normality. They point out that in large samples, a variable with some degree of skewness and/or kurtosis often does not deviate enough from a normal distribution to make meaningful differences in the results. Furthermore, all of the multiple-item variables have been used by previous researchers and they all have been shown to be valid and reliable scales. Nevertheless, I have reported the alpha reliability coefficients found for each scale in this study.

<u>Educational Achievement</u>

The primary purpose of this study is to examine the influence of a number of

variables on students' educational achievement. An effective measure of students'

educational achievement is their grades. Therefore, the dependent variable in this study is

students' GPA, grade point averages. Question 84 asked students: "What is your

cumulative grade point average? **Check one box.**" Students were given the following

eight options:

4.0 – 4.5
3.5 – 3.9
3.0 – 3.4
2.5 – 2.9
2.0 – 2.4
1.5 – 1.9
1.0 – 1.4
0.0 – 0.9

Table 3 presents the frequencies and percentages, and Table 4 presents the

descriptive statistics for educational achievement. These tables illustrate the data are

somewhat flat, but are fairly normally distributed. The distribution of the original data set

was slightly negatively skewed, therefore data have been recoded in order to normalize

the distribution. No students reported GPAs between 0 and 0.9, so this category was

dropped. The next two lowest choices, "1.0 – 1.4" and "1.5 – 1.9" were combined into

one category, because of low response rates in these two ranges.

Table 3 illustrates that the largest portion of students report having GPAs between

3.0 – 3.4, with approximately 26% of the students reporting grades in this range.

Approximately 44% of the students report GPAs below 3.0, and 30% report GPAs above

3.4. Table 4 shows that the mean GPA is 3.72, reflecting a mean on the high end of the

Table 3

Frequencies and Percentages for Cumulative GPA

Code	Grade Point Average*	Frequencies	Percentages
1	1.0 –1.9	35	4.3
2	2.0 –2.4	119	14.5
3	2.5 – 2.9	208	25.3
4	3.0 – 3.4	214	26.0
5	3.5 – 3.9	173	21.0
6	4.0 – 4.5	74	9.0
Total		823	100.00

*Recodes 0 – 0.9 was dropped, 1.0 – 1.4 & 1.5 – 1.9 were combined

Table 4

Descriptive Statistics for Cumulative GPA

Mean	3.72	Standard Deviation	1.31
Kurtosis	-.709	Skewness	-.079

range between 2.5 – 2.9, with a standard deviation of 1.31. Data are missing for 31

students.

The Social Psychological Variables

The primary focus of this study is to examine the influence of fifteen variables on

students' educational achievement, one set of which is students' social psychological

dispositions. As discussed in Chapter 2, the main theory that guided the development of

the theoretical model was Weiner's (1985) theory. The premise of Weiner's theory is that

how students think about an event affects how they feel and how they behave, which

affects their educational achievement. Therefore, variables that represent the thinking

portion, the feeling portion, and the behaving portion of Weiner's theory are included in

the study. This is represented by the three social psychological variables: perceived

academic control is a measure of the degree to which students believe outcomes to be

within their control; self-esteem is a measure of how they feel about themselves; and

coping responses is a measure of how students act when they experience failure. These

three variables reflect students' social psychological disposition.

Perceived Academic Control. Students' perceived academic control was assessed

with the following 10 statements in Part III of the questionnaire, which is similar to a

scale used by Perry, et al. (1998). Students were asked to indicate the extent to which

they agree with the statements on 4-point Likert scales that range from strongly disagree

to strongly agree:

1. I have a great deal of control over my academic performance in my courses.
2. The more effort I put into my courses, the better I do in them.
3. No matter what I do, I can't seem to do well in my courses.
4. I see myself as largely responsible for my performance throughout my university career.
5. How well I do in my courses is often the "luck of the draw".

6. There is little I can do about my performance in university.
7. When I do poorly in a course, it's usually because I haven't given it my best effort.
8. It is important to me to be able to control how well I do in my courses.
9. My grades are basically determined by things beyond my control and there is little I can do to change that.
10. Being able to determine my academic performance in my university courses is important to me.

Some items were recoded because they were stated in a negative form, while the other items were stated in a positive form. Specifically, items 3, 5, 6, 9 were reverse coded. Table 5 presents the inter-item correlations and factor loadings for the perceived academic control variable. The inter-item correlations range from .124 to .557, and the factor loadings range from .379 to .745 indicating that the items are strongly related to the factor. The alpha reliability coefficient for perceived academic control is .69.

Possible scores on this scale range from 10 to 40. The higher the scores, the greater the students' perception of control over their academic performance. Reported scores range from 19 to 38. Table 6 presents the frequencies and percentages, and Table 7 presents the descriptive statistics for perceived academic control. These tables illustrate that the data are fairly normally distributed. The mean score is 31.35 with a standard deviation of 3.27, and data are missing for 13 respondents.

Self-Esteem. Students' self-esteem was assessed with the following 10 statements in Part III of the questionnaire, which are based on Rosenberg's (1965) Self-Esteem Scale. Students were asked the extent to which they agree with the statements on 4-point Likert scales, ranging from strongly disagree to strongly agree:

1. I feel that I'm a person of worth, at least on equal plane with others.
2. I feel that I have a number of good qualities.
3. All in all, I'm inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do **not** have much to be proud of.

Table 5

Inter-Item Correlations and Factor Loadings for Perceived Academic Control

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Factor Loadings
1.	1.00										.692
2.	.485	1.00									.717
3.	.438	.394	1.00								.666
4.	.457	.516	.328	1.00							.709
5.	.351	.348	.493	.317	1.00						.649
6.	.403	.437	.475	.457	.463	1.00					.742
7.	.327	.437	.244	.379	.248	.317	1.00				.556
8.	.217	.191	.093	.256	.124	.228	.111	1.00			.379
9.	.407	.422	.460	.458	.523	.557	.319	.217	1.00		.745
10.	.195	.194	.135	.233	.125	.219	.135	.479	.190	1.00	.380

Eigenvalue = 4.064

Percent of Common Variance = 40.64

Table 6

Frequencies and Descriptive Statistics for Perceived Academic Control

Scale Scores	Frequencies	Percentages
19	3	.4
21	1	.1
22	3	.4
23	7	.8
24	6	.7
25	11	1.3
26	20	2.4
27	44	5.2
28	54	6.4
29	105	12.5
30	85	10.1
31	88	10.5
32	95	11.3
33	89	10.6
34	67	8.0
35	71	8.4
36	48	5.7
37	43	5.1
38	1	.1
Total	841	100.0

Table 7

Descriptive Statistics for Perceived Academic Control

Mean	31.35	Standard Deviation	3.27
Kurtosis	.136	Skewness	-.366

6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

Similar to the perceived academic control variable, some items were recoded

because they were stated in a negative form, while the other items were stated in a

positive form. Specifically, questions 3, 5, 8, 9, 10 were reverse coded. Table 8 presents

the inter-item correlations and factor loadings for the self-esteem variable. The inter-item

correlations range from .256 to .757, and the factor loadings range from .643 to .837

indicating that the items are strongly related to the factor. The alpha reliability coefficient

for self-esteem is .90.

Possible scores on this scale range from 10 to 40. The higher the scores, the higher

the students' self-esteem. Reported scores range from 11 to 40. Table 9 presents the

frequencies and percentages, and Table 10 presents the descriptive statistics for self-

esteem. These tables illustrate that the data are normally distributed. The mean score is

31.34 with a standard deviation of 5.24, and data are missing for 20 respondents.

Coping Responses. Students' ability to cope was assessed with the following 10

statements in Part V of the questionnaire, which is similar to a scale used by Struthers,

Perry, and Menec (2000). Students were asked the extent to which they experienced the

events on 5-point Likert scales, ranging from "not at all..." to "a great deal":

After having done poorly in a course at university...
1. I try a different study strategy.
2. I reduce the amount of effort I put into solving the problem.
3. I seek the help of a tutor.
4. I talk to someone about how I feel.
5. I read my textbook before the professor covers the material in class.
6. I try to get emotional support from friends and relatives.
7. I skip class.

Table 8
Inter-Item Correlations and Factor Loadings for Self-Esteem

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Factor Loadings
1.	1.00										.716
2.	.696	1.00									.706
3.	.485	.451	1.00								.765
4.	.516	.509	.440	1.00							.643
5.	.491	.489	.706	.452	1.00						.805
6.	.534	.553	.586	.506	.631	1.00					.837
7.	.505	.510	.525	.433	.583	.757	1.00				.804
8.	.350	.324	.419	.301	.487	.522	.494	1.00			.670
9.	.279	.256	.434	.280	.469	.471	.471	.509	1.00		.658
10.	.371	.383	.516	.329	.535	.528	.529	.544	.683	1.00	.738

Eigenvalue = 5.432

Percent of Common Variance = 54.32

Table 9
Frequencies and Percentages for Self-esteem

Scale Scores	Frequencies	Percentages
11	1	.1
13	2	.2
16	1	.1
17	5	.6
18	5	.6
19	3	.4
20	4	.5
21	6	.7
22	17	2.0
23	18	2.2
24	20	2.4
25	26	3.1
26	32	3.8
27	44	5.3
28	46	5.5
29	60	7.2
30	78	9.4
31	66	7.9
32	58	7.0
33	42	5.0
34	48	5.8
35	48	5.8
36	38	4.6
37	53	6.4
38	38	4.6
39	34	4.1
40	41	4.9
Total	834	100.0

Table 10
Descriptive Statistics for Self-esteem

Mean	31.34	Standard Deviation	5.24
Kurtosis	.042	Skewness	-.409

8. I routinely review my notes after class.
9. I discuss my feelings with someone.
10. I give up trying to reach my academic goals.

Some items were recoded because they were stated in a negative form, while the other items were stated in a positive form. Specifically, items 2, 7, and 10 were reverse coded. Table 11 presents the inter-item correlations and factor loadings for the coping responses variable. The inter-item correlations range from -.030 to .813, and the factor loadings range from .361 to .694 indicating that the items are relatively strongly related to the factor. The alpha reliability coefficient for coping responses is .75.

Possible scores on this scale range from 10 to 50. The higher the scores, the more likely the students were to engage in positive coping responses following failure. Reported scores range from 14 to 50. Table 12 presents the frequencies and percentages, and Table 13 presents the descriptive statistics for coping responses. These tables illustrate that the data are normally distributed. The mean score is 32.93 with a standard deviation of 6.56, and data are missing for 21 respondents.

The Quality of Life Variables

The second major area of interest is the influence of a set of quality of life variables on the educational achievement of students. As argued in Chapter 2, students' quality of life has been demonstrated as influencing both their social psychological dispositions and their educational achievement. Therefore, two sets of variables measuring the cognitive and affective domains of the quality of life are included. The first set measures students' cognitive experiences within their faculty, or the challenge they experience, which was assessed by two variables. The first variable, the structural dimension represents the perception that students are challenged to remember and

Table 11

Inter-Item Correlations and Factor Loadings for Coping Responses

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Factor Loadings
1.	1.00										.525
2.	.245	1.00									.361
3.	.245	.114	1.00								.489
4.	.130	.012	.253	1.00							.694
5.	.276	.192	.226	.163	1.00						.566
6.	.137	.015	.176	.696	.177	1.00					.666
7.	.246	.294	.146	.019	.247	.009	1.00				.405
8.	.355	.205	.279	.132	.523	.097	.315	1.00			.586
9.	.157	.001	.192	.813	.140	.774	-.030	.151	1.00		.693
10.	.239	.437	.118	.035	.221	.050	.404	.259	.017	1.00	.422

Eigenvalue = 3.055

Percent of Common Variance = 30.55

Table 12

Frequencies and Percentages for Coping Responses

Scale Scores	Frequencies	Percentages
14	1	.1
15	1	.1
16	2	.2
17	3	.4
18	4	.5
19	4	.5
20	9	1.1
21	11	1.3
22	15	1.8
23	15	1.8
24	18	2.2
25	25	3.0
26	31	3.7
27	39	4.7
28	43	5.2
29	50	6.0
30	35	4.2
31	45	5.4
32	43	5.2
33	39	4.7
34	55	6.6
35	43	5.2
36	51	6.1
37	35	4.2
38	33	4.0
39	38	4.6
40	35	4.2
41	26	3.1
42	22	2.6
43	18	2.2
44	18	2.2
45	10	1.2
46	7	.8
47	5	.6
49	2	.2
50	2	.2
Total	833	100.0

Table 13

Descriptive Statistics for Coping Responses

Mean	32.93	Standard Deviation	6.56
Kurtosis	-.426	Skewness	-.068

interpret new facts and terms, and the second variable, the functional dimension,

represents the perception that students are challenged to apply, analyze, synthesize, and

evaluate information (Clifton et al., 1996). These scales are similar to scales developed

by Clifton et al. (1996). The second set used to assess students' affective experiences, or

the social support they experience, are represented by three variables. The first is positive

affect, measuring the general enjoyment students have within their faculty. Interaction

with students is the second, and it measures positive interactions with other students. The

final variable is interaction with professors, and it measures students' perceptions that

their professors support them, and are approachable. The scales used to measure students'

affective experiences are similar to scales developed by Roberts and Clifton (1992).

Structure. Students' perception of the structural dimension of challenge was

assessed with the following six statements in Part II of the questionnaire. Students were

asked the extent to which they experienced the events on 4-point Likert scales, ranging

from strongly disagree to strongly agree:

In My Faculty (Arts or Sciences) I have been challenged to...
1. remember an extensive number of new terms.
2. recall a substantial number of new concepts.
3. interpret the meaning of new facts and terms.
4. remember an extensive number of facts.
5. recall a significant number of facts.
6. remember complex facts.

Table 14 provides the inter-item correlations and factor loadings for the structure

variable. The inter-item correlations range from .317 to .799, and the factor loadings

range from .594 to .859 indicating that the items are strongly related to the factor. The

alpha reliability coefficient for structure is .81.

Table 14

Inter-Item Correlations and Factor Loadings for Structure

Items	1.	2.	3.	4.	5.	6.	Factor Loadings
1.	1.00						.731
2.	.563	1.00					.775
3.	.344	.426	1.00				.594
4.	.522	.534	.394	1.00			.859
5.	.474	.536	.405	.799	1.00		.852
6.	.468	.505	.317	.621	.615	1.00	.777
						Eigenvalue =	3.554
					Percent of Common Variance =		59.24

Possible scores on this scale range from 6 to 24. The higher the scores, the greater

the students' perceptions of being challenged to remember, recall, and interpret

information. Reported scores range from 8 to 24. Table 15 presents the frequencies and

percentages, and Table 16 presents the descriptive statistics for structure. These tables

illustrate that the data are slightly negatively skewed and the distribution is relatively flat.

I recoded the data in an attempt to normalize the distribution. After I did this, I

recalculated the Pearson Product Moment Correlations between this recoded variable and

all the other variables in the model. Recoding the variable did not make any significant

differences in the correlations. The average difference was .004. Therefore, I choose to

use the values from the original distribution. The mean score is 19.55 with a standard

deviation of 3.00, and data are missing for 10 respondents.

Function. Students' perception of the functional dimension of challenge was

assessed with the following 11 statements in Part II of the questionnaire. Students were

asked the extent to which they experienced the events on 4-point Likert scales, ranging

from strongly disagree to strongly agree:

In My Faculty (Arts or Sciences) I have been challenged to...
1. demonstrate how theories are useful in real life.
2. identify organizing principles in my courses.
3. use theories to address practical questions.
4. analyze complex interrelationships between concepts.
5. develop new ideas based on theories.
6. apply theories to new situations.
7. make original contributions to classroom discussions.
8. identify the strengths and weakness of arguments.
9. apply theoretical principles in solving problems.
10. organize ideas in new ways.
11. identify bias in written material.

Table 17 presents the inter-item correlations and factor loadings for the function

variable. The inter-item correlations range from .059 to .568, and the factor loadings

Table 15
Frequencies and Percentages for Structure

Scale Scores	Frequencies	Percentages
8	1	.1
10	1	.1
11	1	.1
12	5	.6
13	10	1.2
14	27	3.2
15	36	4.3
16	42	5.0
17	52	6.2
18	181	21.4
19	96	11.4
20	57	6.8
21	74	8.8
22	70	8.3
23	92	10.9
24	99	11.7
Total	844	100.0

Table 16
Descriptive Statistics for Structure

Mean	19.55	Standard Deviation	3.00
Kurtosis	-.460	Skewness	-.252

Table 17

Inter-Item Correlations and Factor Loadings for Function

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Factor Loadings
1.	1.00											.657
2.	.403	1.00										.640
3.	.565	.414	1.00									.715
4.	.349	.397	.482	1.00								.648
5.	.371	.364	.397	.360	1.00							.659
6.	.449	.378	.504	.382	.471	1.00						.703
7.	.240	.201	.213	.191	.281	.264	1.00					.532
8.	.266	.267	.263	.272	.322	.291	.568	1.00				.608
9.	.305	.291	.450	.482	.278	.459	.112	.181	1.00			.577
10.	.271	.375	.337	.313	.412	.377	.378	.410	.358	1.00		.663
11.	.225	.308	.201	.184	.276	.191	.401	.518	.059	.384	1.00	.510

Eigenvalue = 4.385

Percent of Common Variance = 39.86

range from .510 to .715 indicating that the items are strongly related to the factor. The

alpha reliability coefficient for function is .84.

Possible scores on this scale range from 11 to 44. The higher the scores, the

greater the students' perception of being challenged to apply, analyze, synthesize, and

evaluate information. Reported scores range from 12 to 44. Table 18 presents the

frequencies and percentages, and Table 19 presents the descriptive statistics for function.

These tables illustrate that the data are slightly positively skewed and the distribution is

slightly peaked. I recoded the data in an attempt to normalize the distribution. After I did

this, I recalculated the Pearson Product Moment Correlations between this recoded

variable and all the other variables in the model. Recoding the variable did not make any

significant differences in the correlations. The average difference was .005. Therefore, I

choose to use the values from the original distribution. The mean score is 30.96 with a

standard deviation of 4.94, and data are missing for 29 respondents.

Positive Affect. Students' perception of positive affect within their faculty was

assessed with the following 13 statements in Part I of the questionnaire. Students were

asked the extent to which they have experienced the events on 4-point Likert scales,

ranging from strongly disagree to strongly agree.

My Faculty (Arts or Sciences) is a place where...
1. things I learn are important to me.
2. people look up to me.
3. I really get involved in my work.
4. I like learning.
5. I enjoy being.
6. I have acquired skills that will be of use to me.
7. the things I learn will help me in my life.
8. I am given the chance to do work that really interests me.
9. the things I am taught are worthwhile learning.
10. I really like to go each day.
11. the work I do is good preparation for my future.

Table 18
Frequencies and Percentages for Function

Scale Scores	Frequencies	Percentages
12	1	.1
13	1	.1
18	2	.2
19	7	.8
20	1	.1
21	11	1.3
22	6	.7
23	22	2.7
24	16	1.9
25	27	3.2
26	47	5.7
27	40	4.8
28	64	7.8
29	68	8.2
30	72	8.7
31	81	9.8
32	72	8.7
33	80	9.7
34	39	4.7
35	34	4.1
36	34	4.1
37	22	2.7
38	14	1.7
39	13	1.6
40	17	2.1
41	7	.7
42	10	1.2
43	7	.8
44	10	1.2
Total	825	100.0

Table 19
Descriptive Statistics for Function

Mean	30.96	Standard Deviation	4.94
Kurtosis	.537	Skewness	.144

12. I have learned to work hard.
13. I find that learning is a lot of fun.

Table 20 presents the inter-item correlations and the factor loadings for the positive affect variable. The inter-item correlations for positive affect range from .169 to .634, and the factor loadings range from .407 to .703 indicating that the items are strongly related to the factor. The alpha reliability coefficient for positive affect is .88.

Possible scores on this scale range from 13 to 52. The higher the scores, the more positive the students' general enjoyment, feelings, and liking of their faculty. Reported scores range from 19 to 52. Table 21 presents the frequencies and percentages, and Table 22 presents the descriptive statistics for positive affect. These tables illustrate that the data are normally distributed. The mean score is 38.35 with a standard deviation of 5.52, and data are missing for 48 respondents.

Interaction with Students. Students' perceptions of interactions with other students in the faculty was assessed with the following five statements in Part I of the questionnaire. Students were asked the extent to which they experienced the events on 4-point Likert Scales, ranging from strongly disagree to strongly agree.

My Faculty (Arts or Sciences) is a place where...
1. I find it easy to get to know other students.
2. mixing with other students helps me to understand myself.
3. students think a lot of me.
4. other students accept me as I am.
5. I get on well with the other students in my class.

Table 23 reports the inter-item correlations and factor loadings for the interaction with students variable. The inter-item correlations range from .303 to .510, and the factor loadings range from .655 to .769 indicating that the items are strongly related to the factor. The alpha reliability coefficient for interaction with students is .75.

Table 20

Inter-Item Correlations and Factor Loadings for Positive Affect

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	Factor Loadings
1.	1.00													.648
2.	.252	1.00												.407
3.	.371	.277	1.00											.651
4.	.453	.202	.457	1.00										.697
5.	.366	.278	.417	.514	1.00									.675
6.	.441	.307	.333	.359	.325	1.00								.693
7.	.403	.231	.288	.368	.379	.634	1.00							.689
8.	.407	.208	.428	.428	.428	.424	.397	1.00						.703
9.	.441	.169	.326	.409	.357	.459	.502	.557	1.00					.694
10.	.367	.213	.434	.453	.494	.273	.315	.412	.380	1.00				.649
11.	.336	.274	.329	.285	.355	.578	.599	.366	.458	.352	1.00			.659
12.	.264	.217	.510	.307	.270	.312	.269	.269	.232	.317	.296	1.00		.524
13.	.336	.201	.415	.553	.433	.339	.325	.474	.425	.468	.329	.333	1.00	.671

Eigenvalue = 5.461

Percent of Common Variance = 42.01

Table 21

Frequencies and Percentages for Positive Affect

Scale Scores	Frequencies	Percentages
19	1	.1
21	2	.2
22	1	.1
23	2	.2
24	2	.2
25	4	.5
26	6	.7
27	7	.9
28	7	.9
29	11	1.4
30	21	2.6
31	20	2.5
32	20	2.5
33	37	4.6
34	46	5.7
35	50	6.2
36	48	6.0
37	62	7.7
38	68	8.4
39	71	8.8
40	54	6.7
41	35	4.3
42	38	4.7
43	43	5.3
44	39	4.8
45	33	4.1
46	25	3.1
47	13	1.6
48	8	1.0
49	18	2.2
50	6	.7
51	7	.9
52	1	.1
Total	806	100.0

Table 22

Descriptive Statistics for Positive Affect

Mean	38.35	Standard Deviation	5.52
Kurtosis	.097	Skewness	-.165

Table 23

Inter-Item Correlations and Factor Loadings for Interaction with Students

Items	1.	2.	3.	4.	5.	Factor Loadings
1.	1.00					.728
2.	.394	1.00				.655
3.	.428	.377	1.00			.717
4.	.425	.340	.426	1.00		.713
5.	.357	.303	.367	.510	1.00	.769
					Eigenvalue =	2.572
					Percent of Common Variance =	51.45

Possible scores on this scale range from 5 to 20. The higher the scores, the higher the quality of interaction between students both in and outside classrooms, and the degree to which they perceive other students as easy to get to know, help them understand and accept themselves. Reported scores range from 6 to 20. Table 24 presents the frequencies and percentages, and Table 25 presents the descriptive statistics for interaction with students. These tables illustrate that the data are normally distributed. The mean score is 14.01 with a standard deviation of 2.26, and data are missing for 45 respondents.

Interaction with Professors. Students' perceptions of their interactions with professors was assessed with the following nine statements in Part I of the questionnaire. Students were asked the extent to which they experienced the events on 4-point Likert Scales, ranging from strongly disagree to strongly agree:

My Faculty (Arts or Sciences) is a place where...
1. professors treat me fairly.
2. professors give me the marks I deserve.
3. I achieve a satisfactory standard in my work.
4. professors care about what I think.
5. professors take a personal interest in helping me with my work.
6. I am treated with respect.
7. professors help me to do my best.
8. professors are fair and just.
9. professors listen to what I say.

Table 26 reports the inter-item correlations and factor loadings for the interaction with professors variable. The inter-item correlations range from .155 to .623, and the factor loadings range from .378 to .767 indicating that the items are strongly related to the factor. The alpha reliability coefficient for interaction with professors is .85.

Possible scores on this scale range from 9 to 36. The higher the scores, the higher the students' perception that their professors are fair, just, and take a personal interest in their work. Reported scores range from 11 to 36. Table 27 presents the frequencies and

Table 24

Frequencies and Percentages for Interaction with Students

Scale Scores	Frequencies	Percentages
6	1	.1
7	3	.4
8	4	.5
9	12	1.5
10	36	4.4
11	47	5.8
12	77	9.5
13	140	17.3
14	155	19.2
15	147	18.2
16	88	10.9
17	44	5.4
18	32	4.0
19	20	2.5
20	3	.4
Total	809	100.0

Table 25

Descriptive Statistics for Interaction with Students

Mean	14.01	Standard Deviation	2.26
Kurtosis	.261	Skewness	-.123

Table 26

Inter-Item Correlations and Factor Loadings for Interaction with Professors

Items	1.	2.	3.	4.	5.	6.	7.	8.	9.	Factor Loadings
1.	1.00									.680
2.	.500	1.00								.620
3.	.373	.321	1.00							.378
4.	.332	.288	.588	1.00						.760
5.	.421	.318	.461	.465	1.00					.738
6.	.351	.295	.510	.614	.452	1.00				.706
7.	.592	.568	.424	.391	.434	.421	1.00			.733
8.	.396	.334	.623	.515	.510	.529	.483	1.00		.748
9.	.227	.263	.222	.216	.207	.231	.200	.155	1.00	.767

Eigenvalue = 4.294

Percent of Common Variance = 47.71

percentages, and Table 28 presents the descriptive statistics for interaction with professors. These tables illustrate that the data are slightly negatively skewed, and the distribution is slightly peaked. I recoded the data in an attempt to normalize the distribution. After I did this, I recalculated the Pearson Product Moment Correlations between this recoded variable and all the other variables in the model. Recoding the variable did not make any significant differences in the correlations. The average difference was .002. Therefore, I choose to use the values from the original distribution. The mean score is 25.60 with a standard deviation of 3.66, and data are missing for 36 respondents.

The Social and University Background Variables

As noted, the primary focus of this study is to examine the influence of the quality of life and the social psychological variables on educational achievement. It is also important to consider other variables, as outlined in Chapter 2, which have been demonstrated to influence students' educational achievement. Therefore, included in this study are social and university background variables that have been associated with educational achievement. Three social background variables are included. The first is gender, the second is age, and the final variable is educational resources. Three university background variables are also included. The first is faculty of registration, the second is credit hours, and the final variable is years of university.

Gender. Question 74 asked students to identify their gender. As noted previously, males are coded as "1" and females are coded as "2". Table 2 presents the frequencies and descriptive statistics for gender. The table illustrates that the data are fairly evenly distributed. Respondents included 385 males and 469 females. That is, approximately

Table 27

Frequencies and Percentages for Interaction with Professors

Scale Scores	Frequencies	Percentages
11	1	.1
12	2	.2
15	3	.4
16	1	.1
17	12	1.5
18	12	1.5
19	18	2.2
20	20	2.4
21	32	3.9
22	42	5.1
23	62	7.6
24	64	7.8
25	91	11.1
26	107	13.1
27	153	18.7
28	74	9.0
29	28	3.4
30	33	4.0
31	21	2.6
32	11	1.3
33	10	1.2
34	10	1.2
35	5	.6
36	6	.7
Total	818	100.0

Table 28

Descriptive Statistics for Interaction with Professors

Mean	25.60	Standard Deviation	3.66
Kurtosis	1.028	Skewness	-.206

45% of the respondents are male and 55% are females. This distribution is reflective of the undergraduate enrolment at the University of Manitoba during the year of the study (University of Manitoba, 1997). The table also provides the breakdown of females and males within the two faculties. There are slightly more females than males in the Faculty of Arts; approximately 64% of the respondents from the Faculty of Arts are female and 38% are male. The distribution is spread more equally in the Faculty of Science where approximately 52% of the respondents are male and 48% are female.

Age. Question 75 asked students to report their ages. Table 29 presents the frequencies percentages, and Table 30 presents the descriptive statistics for age. These tables illustrate that the data are fairly normally distributed. The original data set was slightly positively skewed and peaked, therefore the data have been recoded in order to normalize the distribution, while, at the same time maintaining the natural distribution of the ages as reported by the students. Specifically, as reported in the footnote to Table 29, the age 18 represents responses for ages 17 and 18; 23 represents ages 23 and 24; 25 represents ages 25 to 29; and 30 represents ages 30 to 71.

Students range in age from 17 to 71. The great majority of the students, however, report being between the ages of 17 and 22, with approximately 73% reporting that they were within this range. The largest group reported being 20 years of age, representing approximately 18%. The mean age is 21.68 with a standard deviation of 3.54, and data are missing for 5 respondents.

Educational Resources. Questions 76 and 77 asked students the highest level of education that their mothers and fathers received respectively. Students were presented with 9 options to indicate the education their parents received:

Table 29

Frequencies and Percentages for Age

Age*	Frequencies	Percentages
18	121	14.3
19	140	16.5
20	151	17.8
21	123	14.5
22	86	10.1
23	76	9.0
25	78	9.2
30	74	8.7
Total	849	100.0

*Recodes 18(17-18); 23(23-24); 25(25-29); 30(30-71)

Table 30

Descriptive Statistics for Age

Mean	21.68	Standard Deviation	3.54
Kurtosis	.394	Skewness	1.205

1. Elementary School
2. High School
3. Completed High School
4. Some technical, vocational training
5. Completed community college
6. Some university
7. Completed a Bachelor's degree (e.g. B.Ed., B. A.)
8. Some education at the graduate level
9. Completed graduate degree (e.g. M.Ed., Ph. D.)

Data were recoded so that highest reported education level received by each

student's mother was added to the highest level of education for each student's father,

forming a variable presumably reflecting the educational resources available to the

students when they were young. Combined scores range from 2.00 to 18.00. The higher

the score, the higher the combined education level of the students' parents. Table 31

presents the frequencies and percentages, and Table 32 presents the descriptive statistics

for educational resources. These tables illustrate that the data are fairly normally

distributed.

Approximately 33% of the scores for parents' education level was 12.00 or

higher, indicating that at least one parent had some university education. The mean score

is 9.46, with a standard deviation of 4.19. Additionally, for 50% of the respondents, at

least one parent had some post-secondary education -- some technical, vocational

training, some community college, some university, completed a Bachelor's degree or

some education at the graduate level. Data are missing for 10 respondents.

Faculty. As discussed previously, the sample of students selected were from the

faculties of Arts and Science. It was possible that students other than those registered in

the Faculties of Arts and Science received a copy of the questionnaire, therefore,

Question 83 asked, "What Faculty are you registered in?" Only students who reported

Table 31

Frequencies and Percentages for Educational Resources

Scale Score	Frequencies	Percentages
2	22	2.6
3	25	3.0
4	74	8.8
5	52	6.2
6	78	9.2
7	57	6.8
8	73	8.6
9	58	6.9
10	74	8.8
11	52	6.2
12	42	5.0
13	45	5.3
14	76	9.0
15	31	3.7
16	55	6.5
17	10	1.2
18	20	2.4
Total	844	100.0

Table 32

Descriptive Statistics for Educational Resources

Mean	9.46	Standard Deviation	4.19
Kurtosis	-.999	Skewness	.167

being registered in the Faculties of Arts and Science were included. In fact, only 10

students reported being registered in other faculties. The sample consisted of 425 Arts

students, and 429 Science students.

Credit Hours. Question 82 asked students "How many credit hours of university

work are you taking this academic year (Sept.-April)?" Table 33 presents the frequencies

and percentages, and Table 34 presents the descriptive statistics for credit hours. These

tables illustrate that the data are slightly negatively skewed and flat. In attempt to

normalize the distribution, data have been recoded into 3 credit hour distinctions while at

the same time maintaining the natural distribution of the reported credit hours. Three

credit hour distinctions were chosen because almost all courses in the faculties of Arts

and Science, at this university, are designated as 3 or 6 credit hours. The footnote to

Table 33 describes specifically what is reflected by the recoded data.

Reported credit hours range from 3 to 33 credit hours. Twenty-seven percent of

the students reported being enroled in 30 credit hours, which is considered a full course

load in these two faculties. Approximately 75% of the students reported being enroled in

more than 18 credit hours, which is considered full-time study within the faculties. The

mean is 21.92 credit hours with a standard deviation of 8.27, and data are missing for 26

respondents.

Years of University Completed. Question 81 asked students "How many years of

university education have you completed? (If you have been a part-time student, then

estimate the number of equivalent full-time years.)" Table 35 presents the frequencies

and percentages, and Table 36 presents the descriptive statistics for years of university.

These tables illustrate that the data are slightly positively skewed and flat. In attempt to

Table 33

Frequencies and Percentages for Credit Hours

Number of Credit Hours*	Frequencies	Percentages
3	31	3.7
6	50	6.0
9	25	3.0
12	46	5.6
15	36	4.3
18	98	11.8
21	52	6.3
24	170	20.5
27	61	7.4
30	231	27.9
33	28	3.4
Total	828	100.0

* Recodes: 3 (0-4); 6 (5-6); 9 (8-10); 18 (18-20); 24 (24-26); 33 (33-36)

Table 34

Descriptive Statistics for Credit Hours

Mean	21.92	Standard Deviation	8.27
Kurtosis	-.440	Skewness	-.768

Table 35
Frequencies and Percentages for Years of University Completed

Years of University Completed*	Frequencies	Percentages
0	107	12.6
1	218	25.7
2	201	23.7
3	165	19.5
4	107	12.6
5	49	5.8
Total	847	100.0

*Recodes: 5 (5 – 12)

Table 36
Descriptive Statistics for Years of University Completed

Mean	2.11	Standard Deviation	1.40
Kurtosis	-.768	Skewness	.305

normalize the distribution, data have been recoded. Specifically, as reported in the footnote to Table 35, respondents who indicated that they had attended university for between 5 and 12 years were collapsed to form one response, 5 years of university and more.

After recoding the data, students' previous education at the university level ranged from 0 to 5 years and more. Approximately 13% of the students reported that they had completed less than a year of university. Approximately 82% reported that they had completed between 1 and 4 years of university, the largest group, approximately 26%, reported that they had completed one year. Less than 6% reported that they had completed more than 5 years of university. The mean is 2.11 years of university with a standard deviation of 1.4, and data are missing for 7 respondents.

<u>Procedures</u>

The theoretical, causal, model I proposed is based on theoretical and empirical research, and the research procedures are used to explain the degree to which different variables (social psychological, quality of life, social, and university background) influence students' educational achievement. In fact, all of these variables have been empirically demonstrated to influence students' educational achievement. To test the theoretical model, structural equation modeling procedures are used. I chose this method because it allows for an examination of both the direct and indirect effects of variables on the dependent variables. Furthermore, according to Pedhauzer (1983), structural equation modeling is an appropriate method to study causal models of the type proposed in this study. Structural equation modeling is a form of standard multiple regression, where at each stage in the model, a new variable is treated as a dependent variable that is regressed

on the independent variables that are assumed to influence it (Pedhauzer, 1983). These analyses allow me to examine the influence of the variables through changes in the size of regression coefficients, with and without certain variables entered into the equation (Tabachnick & Fidell, 2001).

The first step in testing the model is to calculate the Pearson Product Moment Correlation coefficients between all the variables in the model. This is done, as recommended by Tabachnick and Fidell (2001) and Pedhauzer (1983), to gain preliminary information on the strength of the relationships between the variables. The second step is to perform standard multiple regression analyses on the variables, following the logic inherent in the theoretical model, which provides information on the relationships between the independent and dependent variables when other variables are controlled.

The basic assumptions of the multiple regression analyses have been met. All variables in the model, except for gender and faculty of registration, are measured at the interval and ordinal levels, and are, more or less, normally distributed. Gender and faculty of registration are both nominal variables, and both are dummy coded. As long as they are close to being evenly distributed, which they are, multiple regression analyses procedures are sufficiently robust for this type of data (Pedhauzer, 1983; Tabachnick & Fidell, 2001). As previously discussed, the nonnormality of the structure, function, and interaction with professors variables, are not serious problems for the structural equation modeling procedures.

Standardized and unstandardized regression coefficients are reported to illustrate the effects of the independent variables on the dependent variables. The standardized

coefficients are reported in Chapter 4 and the unstandardized coefficients are reported in Appendix B. The coefficients reflect the expected amount of change in a dependent variable in relation to a unit of change in an independent variable when other variables are controlled. Standardized regression coefficients convert all variables so that the mean is 0 and the standard deviation is 1, while unstandardized regression coefficients are computed from the raw data. Standardized coefficients allow for comparisons across variables within a single sample, while unstandardized regression coefficients allow for comparisons across samples (Pedhauzer, 1983).

Summary

In summary, this chapter has presented three aspects of the methodology used in this study. The first section described the questionnaire and the sample of students. Included in this section was a summary of the development of the *Quality of Life in the Faculties of Arts and Sciences* questionnaire, the data collection procedures, and a summary of the students who participated in the study. The second section describes the measurement of the variables. The questionnaire is described in detail, and the fifteen variables used in the study are operationally defined. The frequencies, percentages, and descriptive statistics, for the variables were provided. For the multiple-item variables, inter-item correlations, factor loadings, and alpha reliability coefficients were also provided. The third section describes the procedures used to analyze the data. Structural equation modeling procedures are used to assess the relationships between the independent and dependent variables as outlined in the theoretical model. Chapter 4, the next chapter provides the results of the empirical examination of the theoretical model.

Chapter 4

Results

This chapter is divided into three sections and provides the analyses of the variables in the theoretical model. The first section presents the correlations between all pairs of variables and the second provides a series of regression analyses that examine the interrelationships among the social and university background, quality of life, social psychological variables and the educational achievement variable. The first set of analyses examines the effect of each set of independent variables on students' educational achievement, the second set examines the effect of each set of independent variables on the social psychological variables, and the third examines the effect of the social and university background variables on the quality of life variables. The third section provides the final sets of analyses, which examines the direct, indirect, and total causal effects for each of the independent variables on each of the dependent variables.

The Correlation Matrix

The correlation coefficients between all pairs of variables in the model are reported in Table 37. The variables are presented in the matrix in the order that the model was presented at the end of Chapter 2, but the discussion in this chapter begins with the social psychological variables, followed by the quality of life variables, and finally the social and university background variables. The coefficients provide clear evidence that there are a number of statistically significant and interesting associations between the variables in the model. While there are many statistically significant relationships identified, I will only discuss a few of them.

Table 37

Correlation Coefficients for Variables in the Theoretical Model

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. GENDER	1.00														
N	854														
2. AGE	-.126**	1.00													
N	849	849													
3. EDRES	.033	-.248**	1.00												
N	844	839	844												
4. YRSU	-.055	.453**	.017	1.00											
N	847	842	837	847											
5. CRHRS	.073*	-.481**	.220**	-.209**	1.00										
N	828	823	818	822	828										
6. FACULTY	-.130**	-.263**	.088*	-.004	.191**	1.00									
N	854	849	844	847	828	854									
7. STRUC	.110**	-.079*	-.032	.009	.166**	.173**	1.00								
N	844	839	835	837	818	844	844								
8. FUNC	.090**	.104**	-.046	.108**	.050	-.161**	.353**	1.00							
N	825	821	817	818	801	809	818	825							
9. POSAFF	.080*	.210**	-.063	.147**	.062	-.052	.293**	.540**	1.00						
N	806	802	801	799	784	806	799	793	806						
10. INTSTU	.058	-.073*	.006	.030	.149**	.094**	.226**	.356**	.474**	1.00					
N	809	805	801	802	785	809	801	799	784	809					
11. INTPROF	.039	.152**	.000	.067	.014	-.146**	.102**	.429**	.525**	.355**	1.00				
N	818	814	811	812	794	818	811	800	786	791	818				
12. CNTR	.030	.070*	.042	.060	-.011	-.033	.165**	.263**	.425**	.231**	.443**	1.00			
N	841	837	831	835	815	841	832	813	796	799	808	841			
13. SELEST	-.040	.112**	-.061	.075*	-.048	-.052	.139**	.235**	.365**	.378**	.268**	.373**	1.00		
N	834	829	826	828	808	834	827	810	794	796	804	828	834		
14. COPING	.271**	.111**	-.040	-.007	-.001	-.076*	.158**	.272**	.376**	.288**	.230**	.278**	.364**	1.00	
N	833	828	823	828	809	833	823	809	791	793	802	821	814	833	
15. GPA	.037	.072*	.175**	.098**	.111**	.060	.037**	.082**	.268**	.171**	.283*	.324**	.196**	.301**	1.00
N	823	818	813	816	800	823	813	794	778	779	789	810	803	804	823
Means	1.55	21.68	9.46	2.11	21.92	1.50	19.55	30.96	38.35	14.01	25.60	31.35	31.34	32.93	5.72
Standard Deviations	.50	3.54	4.19	5.40	8.27	.50	3.00	4.94	5.52	2.26	3.66	3.27	5.24	6.56	1.31

*p≤.05   **p≤.01

(EDRES = Educational Resources; YRSU = Years of University; CRHRS = Credit Hours; POSAFF = Positive Affect; INTSTU = Interaction with Students; INTPROF = Interaction with Professors; STRUC = Structure; FUNC = Functional; CNTR = Control; SELEST = Self-esteem)

The first set of associations of interest are between the social psychological variables and educational achievement. Perceived academic control, self-esteem, and coping responses are all positively correlated with students' educational achievement (GPA, CNTR = .324, p ≤ .001), (SELFEST) (.196, p ≤ .001), and (COPING) (.301, p ≤ .001). Not surprisingly, students with perceived academic control, positive self-esteem, and those who report engaging in positive coping responses are more likely to report higher GPAs than other students.

The next set of interesting associations are between the quality of life variables, the social psychological variables, and educational achievement. One of the challenge variables, function, is significantly correlated with each of the social psychological variables and educational achievement. Students who report experiencing the highest level of challenge (FUNC) are more likely to report they perceive that they are in control (CNTR) (.263, p ≤ .001), have higher levels of self-esteem (SELFEST) (.235, p ≤ .001), and they engage in positive coping responses (COPING) (.272, p ≤ .001). Additionally, students who report experiencing the highest level of challenge (FUNC), are also more likely to have higher educational achievement (GPA) (.082, p ≤ .05), than students who do not report experiencing such challenging experiences. This suggests that the higher the expectations professors have for students, the more they are likely to report that they are in control, have positive self-esteem, effectively cope with the challenges, and have higher educational achievement.

The affective measures of perceived quality of life are all also significantly correlated with each of the social psychological variables and with the educational achievement variable. Positive affect (POSAFF) is positively correlated with perceived

academic control (CNTR) (.425, p ≤ .001), self-esteem (SELFEST) (.365, p ≤ .001), and

coping responses (COPING) (.376, p ≤ .001). Interaction with students (INTSTU) is

positively correlated with perceived academic control (CNTR) (.231, p ≤ .001), self-

esteem (SELFEST) (.378, p ≤ .001), and coping responses (COPING) (.288, p ≤ .001).

Similarly, interaction with professors (INTPROF) is positively correlated with perceived

academic control (CNTR) (.443, p ≤ .001), self-esteem (SELEST) (.268, p ≤ .001), and

coping responses (COPING) (.230, p ≤ .001). These results are not surprising, the more

likely students are to report positive experiences within their faculty, the more likely they

are to report that they are in control, have positive self-esteem, and they are positively

coping with their academic work. Furthermore, the affective variables are positively

correlated with educational achievement (GPA). Students who report positive affect

(POSAFF) (.268, p ≤ .001), positive interactions with students (INTSTU) (.171, p ≤

.001), and positive interactions with their professors (INTPROF) (.283, p ≤ .001), are

more likely to have higher GPAs than those students with less positive experiences.

The next set of associations of interest are between the social background

variables and the quality of life, the social psychological, and the educational

achievement variables. Gender is positively correlated with both the lowest level of

challenge (STRUC) (.110, p≤ .001), and the highest level of challenge (FUNC) (.090, p ≤

.01), and with coping responses (COPING) (.271, p ≤ .001). These correlation

coefficients suggest that females are more likely than males to experience intellectual

challenge in their faculties, and they are more likely to engage in positive coping

responses. Age (AGE) is positively correlated with positive affect (POSAFF) (.210, p ≤

.001), and positive interactions with professors (INTPROF) (.152, p ≤ .001). Also

noteworthy is the fact that age (AGE) is positively correlated with self-esteem

(SELFEST) (.112, p ≤ .001) and coping responses (COPING) (.111, p ≤ .001). Not

surprisingly, these results suggest that older students are more likely to report positive

affective experiences, positive interactions with professors, higher levels of self-esteem,

and more positive coping responses, than younger students. Age (AGE) is also slightly

correlated with students' educational achievement (GPA) (.072, p ≤ .05), suggesting that

older students have slightly higher GPAs than younger students.

The final associations of interest are between the university background variables

and the quality of life, social psychological, and the educational achievement variables.

Years of university (YRSU) is positively correlated with the highest level of intellectual

challenge (FUNC) (.108, p ≤ .001) and positive affect (POSAFF) (.147, p ≤ .001),

suggesting that as years of university increase, students are more likely to experience

more challenging intellectual work within their classes and they report more positive

feelings and enjoyment in their work. Years of university (YRSU) is also positively

correlated with educational achievement (GPA) (.098, p ≤ .001), suggesting that GPAs

tend to increase as students complete more years of university. The number of credit

hours (CRHRS) in which students are enroled is also positively correlated with structure

(STRUC) (.166, p ≤ .001) and with interaction with students (INTSTU) (.149, p ≤ .001).

As the number of credit hours students are enroled increase, the more likely they are to

report that they are challenged at the lower level and the more they report that they

engage in positive interactions with other students. The number of credit hours (CRHRS)

students are enroled in is also positively associated with their educational achievement

(GPA) (.111, p ≤ .001). The more credit hours students are registered in, the more likely

they are to have higher GPAs. This may seem somewhat surprising, but as argued

previously, credit hours is probably a measure of the students' commitment to their

education (see Astin, 1985), that leads to positive gains in educational achievement.

Finally, faculty of registration (FACULTY) is positively correlated with the experience

of structure, the lowest level of intellectual challenge (STRUC) (.173, $p \leq .001$), and

negatively correlated with the experience of function, the highest level of intellectual

challenge (FUNC) (-.161, $p \leq .001$). These correlations suggest that Arts students

perceive a higher degree of challenge within their classes than Science students. Faculty

of registration (FACULTY) is also positively correlated with interaction with students

(INTSTU) (.094, $p \leq .01$), but negatively correlated with interaction with professors

(INTPROF) (-.146, $p \leq .001$), which suggests that Science students are more likely than

Arts students to report positive experiences with other students in their faculty, while Arts

students are more likely than Science students to perceive faculty members to be fair,

just, and as taking a personal interest in their work.

The correlation coefficients simply illustrate the basic relationships between pairs

of variables. The next section discusses the multivariate analyses for the dependent and

intervening variables. The multivariate analyses are used to present the relationships

between variables when a number of other variables are controlled.

Multivariate Analyses for the Dependent and Intervening Variables

The theoretical model examined in this study, presented in Chapter 2, links

student social psychological variables, quality of life experiences, and social and

university background to educational achievement. A number of separate analyses are

conducted, each contributing to an increasingly complex examination of the model

presented in Figure 1. Each analysis introduces the relevant independent and intervening

variables in incremental steps, allowing for the direct and indirect effects to be computed.

The first section examines the effects of each set of independent variables on the

educational achievement variable, the second section examines the effects of the

independent variables on the social psychological variables, and the third section

examines the effects of the social and university background variables on the quality of

life variables.

<u>Educational Achievement</u>

This set of analyses examines the effects of each of the independent variables in

the theoretical model on the final dependent variable, educational achievement, as

measured by students' GPAs. Each set of analyses is increasingly complex; each attempts

to explain the variance in students' educational achievement and to identify the degree to

which the independent variables influence educational achievement. The first analysis

examines the effects of the social psychological variables on educational achievement,

the second set examines the effects when the quality of life variables are added, and the

third set examines the effects when the social and university background variables are

added.

As discussed in Chapter 2, the theoretical construct that guided the development

of the model was Weiner's (1985) Theory of Motivation and Emotion. The theory argues

that how students think about events determine how they feel and their future behaviors.

Therefore, variables were created to represent the thinking, feeling, and behaving

portions of the theory, reflecting students' social psychological disposition, and

representing their perceived academic control, self-esteem, and coping responses. It is

expected that students with higher perceived academic control, self-esteem, and who report engaging in positive coping responses will have higher GPAs than students with lower levels of perceived academic control, self-esteem, and inappropriate coping responses.

This first analysis, reported in Table 38, examines the effects of the social psychological variables on the educational achievement variable, GPA. This is a simple multiple regression analysis, where the relative effects of the social psychological variables on educational achievement are examined. The results indicate that students' perceived academic control (.251, p ≤ .001), and coping responses (.225, p ≤ .001) positively affect their educational achievement. Surprisingly, self-esteem has little effect (.017) on educational achievement. In total, these variables explain slightly over 15% of the variance in educational achievement (R^2 = .151). These results are, to some extent, expected. It is reasonable that students who perceive that they have control over their environment have higher GPAs because they know that their success or failure is a direct result of their own behaviors. Additionally, students who engage in positive coping responses have higher GPAs. It is surprising, however, that self-esteem is not significantly associated with educational achievement. This is contradictory to some previous researchers' findings (Craparo et al., 1981; Etcheverry, 1996; Shavelson & Bolus, 1982.).

The next set of analyses involves two-steps, the first examines the effects of the quality of life experiences on educational achievement and the second step adds the social psychological variables, which have been previously examined. This is done in order to assess the effects of the quality of life variables on educational achievement

Table 38

Effects of the Social Psychological Variables on Educational Achievement

Independent Variables	Dependent Variable
	GPA
Perceived academic control	.251***
Self-esteem	.017
Coping Responses	.225***
R^2	.151

* p ≤   .05

**p ≤   .01

***p≤ .001

when the effects of the social psychological variables are controlled. It is expected that students who report a higher quality of life will have higher GPAs than students who report that they have not been challenged and not been socially supported. It is also expected that the effects of the quality of life variables on educational achievement will decrease when the social psychological variables are considered because the latter will mediate, to a certain degree, the effects of the quality of life variables on educational achievement. The first step in these analyses, reported in Table 39, examines the effect of the quality of life variables on students' educational achievement. The results indicate that the perception of function has a negative affect on educational achievement (-.141, p $\leq$ .001), suggesting that students who perceive that they are challenged at the functional level, the higher level in Bloom's taxonomy, have lower GPAs than students who perceive they are challenged at the lower level. Not surprisingly, the experience of positive affect (.237, p $\leq$ .001) and positive interactions with professors (.215, p $\leq$ .001) both positively affect students' educational achievement. These findings suggest that students who report general enjoyment, positive feelings, and liking for their faculty, and students who perceive that their professors are fair, just, and take a personal interest in their work, are more likely to have higher GPAs. The remaining two quality of life variables, structure and interaction with students, however, have relatively little affect on students' educational achievement. In total, these variables explain approximately 12% of the variance in GPA (R^2 = .116).

The second step in the analysis of the effect of the quality of life variables on educational achievement involves adding the social psychological variables into the regression analysis. The effect of only two of the variables, positive affect and interaction

Table 39

Effects of the Quality of Life and the Social Psychological Variables on Educational Achievement

Independent Variables	Dependent Variable	
	GPA	
	Step 1	Step 2
Structure	-.007	-.024
Function	-.141***	-.143***
Positive Affect	.237***	.119**
Interaction with Students	.028	-.006
Interaction with Professors	.215***	.159***
Perceived Academic Control		.187***
Self-esteem		.015
Coping Responses		.217***
R^2	.116	.187

* p ≤ .05
**p ≤ .01
***p≤ .001

with professors, change significantly with the addition of the social psychological

variables. Specifically, the effect of positive affect on students' educational achievement

drops from .237 to .119 (p ≤ .01), suggesting that approximately 50% of the effect is

mediated by the three social psychological variables. Additionally, a significant portion

of the interaction with professors variable is mediated by the social psychological

variables. In the previous analysis, the effect of the interaction with professors variables

was .215, and when the social psychological variables are considered the effect drops to

.159 (p, ≤ .001), which is a decrease of over 25%. Additionally, both coping responses

(.217, p ≤ .001), and perceived academic control (.187, p ≤ .001) have significant effects

on educational achievement. In total, the addition of the social psychological variables

increases the variance explained by more than 7% by explaining close to 19% of the

variance in GPA (R^2 = .187).

The results were expected. Students who report experiencing a positive

environment and positive interactions with their professors have higher GPAs than

students who do not experience such positive environments and positive interactions with

their professors. Not surprisingly, the effects of the positive affect and interaction with

professors decreases somewhat with the addition of the social psychological variables

into the regression analyses. It is likely that students who experience positive affect and

positive interactions with their professors are likely to have positive social psychological

dispositions, and therefore the variables added at Step 2 are mediating the variables

considered at Step 1. Again, not surprisingly the variance explained increases when the

social psychological variables are added.

Considerable previous research has demonstrated that students' educational achievement is influenced by their social and university background variables. However, it seems likely that the effects of these variables will be relatively small, particularly the effect of the social background variables, because by the time students enter university the effects of their social background on their educational achievement has probably been minimized as a result of other experiences they have had (Astin, 1975). Moreover, it is expected that the intervening variables, the quality of life and the social psychological variables, mediate a large part of the effects of the social and university background variables. Therefore, this next set of analyses involves three steps, the first analyzes the effect of students' social and university background on their educational achievement by themselves; the second adds the quality of life variables to the analysis; and the third adds the social psychological variables.

The first step in these analyses, reported in Table 40, examines the effect of the social and university background variables on students' educational achievement. The results indicate that, in Step 1, age (.210, $p \leq .001$), credit hours (.177, $p \leq .001$), and educational resources (.171, $p \leq .01$) positively affect students' educational achievement. Not unexpectedly, the more credit hours students are registered in, the older they are, and the greater their educational resources, the higher their educational achievement. Faculty of registration (.078, $p \leq .05$) also has a slight effect on students' educational achievement. Specifically, Faculty of Science students have slightly higher GPAs than Faculty of Arts students. In total, these six variables, by themselves, explain only 7% of the variance in GPA ($R^2 = .072$). Step 2 involves adding the quality of life variables into the regression analysis, which has some interesting effects. The strength of the effect of

Table 40

Effects of the Social and University Background, the Quality of Life, and the Social Psychological Variables on Educational Achievement

Independent Variables	Dependent Variable		
	GPA		
	Step 1	Step 2	Step 3
Gender	.058	.063	.012
Age	.210***	.081	.070
Educational Resources	.171**	.163***	.154***
Years	.049	.083*	.080*
Credit Hours	.177***	.132***	.152***
Faculty	.078*	.081*	.083*
Structure		-.044	-.066
Function		-.135***	-.134***
Positive Affect		.221***	.106*
Interaction with Students		.026	-.028
Interaction with Professors		.209***	.156***
Perceived Academic Control			.169***
Self-esteem			.027
Coping Responses			.233***
R^2	.072	.171	.243

* $p \leq$ .05

** $p \leq$ .01

*** $p \leq$ .001

years of university increases considerably from Step 1 (.049) to Step 2 (.083), an increase

of 41%, suggesting that the effect of the years of university variable on students'

educational achievement is suppressed when the quality of life variables are not

controlled. The effects of credit hours at Step 2 (.132, $p \leq .001$) decreases slightly from

Step 1 (.177, $p \leq .001$), suggesting that the effects of credit hours on students' educational

achievement is mediated by the quality of life variables. Specifically 25% of the effect of

credit hours is mediated by students' quality of life. The effect of faculty of registration

stays about the same from Step 1 (.078, $p \leq .05$) to Step 2 (.081, $p \leq .05$), suggesting

Faculty of Science students have slightly higher GPAs than Faculty of Arts students. The

most significant effect of adding the quality of life variables is to age, the variable that

had the strongest effect at Step 1 (.210, $p \leq .001$), decreases substantially to (.081), and is

no longer significant. This finding suggests that a large portion of the effect of age,

almost 61%, on educational achievement is mediated by students' quality of life

experiences. The effects of the educational resources variable drops slightly from Step 1

(.171, $p \leq .001$) to Step 2 (.163, $p \leq .001$). In sum, it seems reasonable to suggest that the

quality of life variable mediate the effects of the social and university background

variables on students' educational achievement to some degree. The exception to this is

the years of university variable, for which the effects are suppressed for some reason

when the quality of life variables are not considered.

Three of the quality of life variables significantly affect students' educational

achievement. Students perceptions of positive affect (.221, $p \leq .001$) and positive

perceptions of their interactions with professors (.209, $p \leq .001$) positively affect their

educational achievement, whereas students' experience of the functional level of

challenge, the more cognitively complex level of challenge, (-.135, p ≤ .001) negatively

affects their educational achievement. It is not surprising that the experience of positive

affect and positive interactions with professors supports students' educational

achievement. Students who are enjoying their experiences, and feel that their professors

care about them, are more likely to engage in behaviors supportive of educational

achievement. The finding that the experience of the functional level of challenge

negatively affects students' GPAs is somewhat surprising. Based on theoretical reasons,

it was anticipated that students' experience of challenge within their faculties would

positively influence their educational achievement. For students, being challenged would

promote positive achievement-striving behaviors. However, despite the positive

correlation found between the challenge variables and the educational achievement

variable, the analysis indicated a negative relationship between the variables. This is

similar to findings by Etcheverry (1996) where when the effect of function, assessed on

its own, had a small negative effect on students' educational achievement. However,

when the affective variables were controlled, the effect of function decreased 60% from

(-.10) to (-.16, p ≤ .05). In the current study, preliminary analyses of the data included an

examination of the effects of the cognitive variables directly on students' educational

achievement, without controlling for the affective variables. The analysis indicated that

the function variable had a fairly strong positive effect on students' educational

achievement (082, p ≤ .05). It was not until the affective variables were controlled did the

effects of the function variable become negative. This finding suggests that there is a

complex relationship between the cognitive and affective variables, resulting in function

having a negative impact on students' educational achievement. In total, the social and

university background variables, and the quality of life variables explain approximately

17% of the variance in students' educational achievement ($R^2 = .171$).

The final step in the model, Step 3, involves adding the social psychological

variables into the regression analysis. The addition of these variables does not change the

influence of the social and university background variables from, Step 2 to Step 3, very

much. The years of university variable remains about the same from Step 2 (.083, $p \leq$

.05) to Step 3 (.080, $p \leq$ .05). Similarly, the faculty of registration variable remains about

the same from Step 2 (.081, $p \leq$ .05) to Step 3 (.083, $p \leq$ .05). It is interesting to note that

while the addition of the quality of life variables results in a decrease in the effect of the

credit hours variable from Step 1 (.177, $p \leq$ .001) to Step 2 (.132, $p \leq$ .001), Step 3 results

in an increase in the effect (.152, $p \leq$ .001). This finding suggests that the addition of the

quality of life variables suppresses the effects of credit hours on students' educational

achievement. Finally, the effect of age decreases slightly at Step 3 (.070), as did the effect

for educational resources (.154, $p \leq$ .001).

The addition of the social psychological variables does not result in a large

change in the effects of the cognitive quality of life variables. Function is the only

variable that is significant at Step 2 (-.135, $p \leq$ .001), and it remains virtually unchanged

at Step 3 (-.134, $p \leq$ .001). Again these findings are somewhat unexpected. It was

anticipated that the social psychological variables would mediate the effects of the

experience of challenge, but these findings suggest they have no effect on students'

perception of challenge. However, the two affective variables that have significant effects

at Step 2 continue to have positive effects at Step 3, but both decrease considerably.

Positive affect at Step 2 was (.221, $p \leq$ .001), and drops to (.106, $p \leq$ .05) at Step 3, and

interaction with professors at Step 2 was (.209, $p \leq .001$) and drops to (.156, $p \leq .001$) at Step 3. These findings suggest students' social psychological disposition mediates about 50% of the influence of positive affect, and about 25% of the influence of interaction with professors, on students' educational achievement.

Finally, the social psychological variables have relatively large effects on students' educational achievement. The coping responses variable (.233, $p \leq .001$) and the perceived academic control variable (.169, $p \leq .001$) have the largest effects of any of the variables on students' educational achievement. This is not surprising, students will only be successful if they engage in appropriate achievement striving behaviors, which is what the coping responses variable is measuring. Students who skip class, for example, do not do well academically. Additionally, students' with perceived academic control believe they are responsible for their own successes. Regardless of everything else that may be going on in their lives, these students still know that they are responsible for their educational achievement and are, therefore, going to do whatever is necessary to succeed. In total, the social and university background, quality of life variables, and the social psychological variables explain approximately 24% of the variance in educational achievement ($R^2 = .243$).

To this point in the analyses, the results were, to a considerable degree, expected. For the most part, at each step in the model the effects of the social background variables on students' educational achievement were relatively small, while some of the university background variables, surprisingly, had relatively large effects, particularly the credit hours variable. The largest effects, as expected, came from the quality of life variables,

particularly function, positive affect, and interaction with professors, and the social psychological variables, particularly perceived academic control and coping responses.

The Social Psychological Variables

The next set of analyses examines the effects of each of the independent variables on the social psychological variables, students' perceived academic control, self-esteem, and coping responses. There are two sets of analyses, and the second is more complex than the first. Each analysis attempts to explain the variance in students' social psychological disposition and identifies the degree to which the independent and intervening variables influence these variables. The first analysis examines the effects of the quality of life variables on the social psychological variables, and the second analysis examines the effects when the social and university background variables are added.

As previously discussed, the theoretical model (Figure 1) links the quality of life variables to the social psychological variables. In this study, five variables represent the students' quality of life within their faculty, the students' experiences of structure, function, positive affect, interaction with students, and interaction with professors. It is expected that students who perceive their classroom environment as both cognitively challenging (as measured by structure and function) and socially supportive (as measured by positive affect, interaction with students, and interaction with professors), have higher levels of perceived academic control, more positive self-esteem, and they engage in positive coping behaviors.

The analysis reported in Table 41 examines the effects of the quality of life variables on the social psychological variables. The experience of positive affect (.265, p $\leq$ .001) and positive interaction with professors (.300, p $\leq$ .001) have large positive

Table 41

Effects of the Quality of Life Variables on the Social Psychological Variables

Independent Variables	Dependent Variables		
	Perceived Academic Control	Self-esteem	Coping Responses
Structure	.077*	.015	.021
Function	-.046	-.003	.094*
Positive Affect	.265***	.192***	.250***
Interaction with Students	.002	.271***	.144***
Interaction with Professors	.300***	.061	-.009
R^2	.234	.185	.159

* $p \leq$ .05

**$p \leq$ .01

***$p \leq$ .001

effects on students' perceived academic control. Additionally, the experience of structure has a small, but significant effect on students' perceived academic control (.077, p ≤ .05). These findings suggest that students who are enjoying their experiences within their faculty, who perceive their professors as being fair, just, and taking a personal interest in their work, and students who experience the lower level of challenge, are more likely to report that they are in control of their educational achievement. In total, these variables explain slightly over 23% of the variance in students' perceived academic control ($R^2 =$ .234). Similarly, the experience of positive affect (.192, p ≤ .001) and interaction with students (.271, p ≤ .001) have large positive effects on students' self-esteem, suggesting that students who are in a supportive environment, where they enjoy being, and where it is easy to get to know other students, are more likely to feel positive about themselves. In total, these variables explain slightly more than 18% of the variance in the self-esteem ($R^2 = .185$). Finally, positive affective experiences (.250, p ≤ .001) and positive interaction with students (.144, p ≤ .001) have fairly large significant effects on students' coping responses, suggesting that students who experience supportive environments, where they enjoy being, and where it is easy to get to know other students, are more likely to engage in positive coping responses. Additionally, the experience of function (.094, p ≤ .05) has a positive effect on students' coping responses, suggesting that when students are faced with more complex cognitive challenges, such as being expected to apply theories in practical situations, they are more likely to engage in positive coping responses than students who are challenged to a lesser degree. In total, these variables explain almost 16% of the variance in students' coping responses ($R^2 = .159$). The results are, to some extent, expected. It seems reasonable that students who experience a

supportive environment, where they enjoy being, and where they perceive that their professors are approachable, fair, and just, and where they perceive other students as friendly and supportive report positive social psychological dispositions, as measured by perceived academic control, positive self-esteem, and positive coping responses.

As mentioned, the theoretical model also links students' social and university background to their quality of life, and then these variables are linked to the social psychological variables. This next set of analyses involves two-steps, the first examines the effects of the social and university background variables on the social psychological variables and the second step adds the quality of life variables. It is expected that the social and university background variables will explain only a small portion of the variance in the social psychological variables and their effects will decrease in the second step when the quality of life variables are included.

The first step in these analyses, reported in Table 42, examines the effects of the social and university background variables on the social psychological variables. As suggested, the effects of the social and university background variables on students' perceived academic control is minimal at Step 1. In fact, the largest effect, and the only one that reaches significance, is the effect of age on perceived academic control (.092, p $\leq$ .05). This finding is not surprising because it has been demonstrated numerous times that students who are older are more likely to perceive that they have greater control over their lives (see, for example, Robson Crump et al., 1985). Older students are more experienced, more mature, and they are more likely to realize that their performance is the result of their own behavior. In total, these variables only explain a very small amount, less than 1%, of the variance in the social psychological variables (R^2 = .004).

Table 42

Effects of the Social and University Background and the Quality of Life Variables on the Social Psychological Variables

Independent Variables	Dependent Variables					
	Perceived Academic Control		Self-esteem		Coping Responses	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Gender	.039	-.003	-.046	-.107***	.291***	.245***
Age	.092*	-.047	.078	-.029	.207***	.116**
Educational Resources	.047	.079	-.036	.008	-.013	.008
Years	.026	.034	.045	.061	-.071	-.065
Credit Hours	.037	-.052	.026	-.066	.064	-.003
Faculty	-.016	.010	-.033	-.070*	.020	.011
Structure		.080*		.049		.017
Function		-.040		-.025		.062
Positive Affect		.275***		.208***		.235***
Interaction with Students		.010		.298***		.158***
Interaction with Professors		.301***		.048		-.014
R^2	.004	.242	.009	.208	.095	.220

* $p \leq$ .05
** $p \leq$ .01
*** $p \leq$ .001

The addition of the quality of life variables in Step 2 results in some changes in the effects of the social and university background variables on the social psychological variables in Step 2. Of particular interest is the drop in effect that age has on perceived academic control from Step 1 (.092, $p \leq .05$) to Step 2 (-.047). Similar to previous analyses, interaction with professors (.301, $p \leq .001$), positive affect (.275, $p \leq .01$), and structure (.080, $p \leq .01$) positively affect students' perceived academic control. This means that students have a greater sense of control when their classroom experience and their interaction with professors are positive. In addition, students have a greater sense of control when they have courses that are at the structural level, representing the two lowest levels of cognitive skills in Bloom's taxonomy. In total, the addition of the quality of life variables increases the variance explained by approximately 24%, explaining slightly more than 24% of the variance in perceived academic control ($R^2 = .242$).

Surprisingly, none of the social and university background variables have significant effects on students' self-esteem in Step 1. The largest effect, however not significant, is for age (.078), suggesting that older students have slightly higher self-esteem scores than younger students. In total, these variables explain only 0.9% of the variance in self-esteem ($R^2 = .009$). The addition of the quality of life variables in Step 2 results in some changes in effects of the social and university background variables on the self-esteem variable. Specifically, students' faculty of registration has a negative effect (-.070, $p \leq .05$), suggesting that students registered in the Faculty of Arts are slightly more likely than those registered in the Faculty of Science to have higher self-esteem. The second significant finding is the effect of gender (-.107, $p \leq .001$), which suggests that males are slightly more likely to have higher self-esteem scores than

females. Similar to previous analyses, the quality of life variables significantly influence students' self-esteem. Particularly, interaction with students (.298, p ≤ .001) and positive affect (.208, p ≤ .001) both have relatively large positive effects on the self-esteem of students. In total, the addition of the quality of life variables increases the variance explained by almost 20% from less than 1% to almost 21% (R^2 =.208).

The social and university background variables have stronger effects on students' coping responses than the previous two social psychological variables. Step 1 shows that gender (.291, p ≤ .001) and age (.207, p ≤ .001) are the two variables that positively affect students' coping responses, which suggests that females and older students are more likely to adopt adaptive coping responses than males and younger students. This finding is not surprising given the previous research on the coping responses of university students (see for example Sigmon et al., 1995). In total, the social and university background variables explain almost 10% of the variance in students' coping responses (R^2 = .095).

The addition of the quality of life variables (Step 2), results in some changes in effects of the social and university background variables on the coping responses variable. However, gender (.245, p ≤ .001) and age (.116, p ≤ .01) remain as the two most important background variables. The effect of gender drops slightly from Step 1 (.291) to Step 2 (.245). Similarly, the effect of age drops, about 44%, from Step 1 (.207) to Step 2 (.116), suggesting that some of the effects of both gender and age are mediated by the quality of life variables. Similar to previous analyses in this section, the two quality of life variables that have the largest effects on students' coping responses are positive affect (.235, p ≤ .001) and interaction with students (.158, p ≤ .001). In other words,

students who perceive a positive environment and those who have positive relationships with other students are more likely to engage in coping behaviors that are supportive of educational achievement. In total, the addition of the quality of life variables increases the variance explained by almost 12% from about 10% to 22% (R^2 = .220).

Again, these findings are not unexpected. Similar to other research, the social and university background variables have relatively small effects on students' social psychological disposition. It is interesting to note, but not surprising, the rather strong effects that gender and age have on students' coping responses. Females tend to have more positive coping skills than males (Sigmon et al., 1995), and it seems reasonable that older students, as compared to younger students, have more positive coping skills. Additionally, it is clear that the quality of life variables have the most significant effects on the social psychological variables. Particularly, positive affect, interaction with professors, and the experience of the structural level of challenge have significant positive effects on students' perceived academic control. On the other hand, positive affect and interaction with other students have large positive effects on students' self-esteem and coping responses, which is not surprising. However, what may be surprising is that the interaction students have with their professors and the challenges they experience in their courses, as measured by structure and function, have almost no effect on students' self-esteem and coping responses. In essence, the quality of life variables explain a considerable amount of the variance in the social psychological variables. The question now becomes: What explains variation in the quality of life of students?

The Quality of Life Variables

The last set of analyses examines the effects of the social and university

background variables on the quality of life variables, structure, function, positive affect,

interaction with students, and interaction with professors. There is only one analysis for

each dependent variable because the theoretical model links the six social and university

background variables directly to the five quality of life variables. Previous researchers

have demonstrated that the social and university background variables can influence

students' perceptions of their quality of lives, the cognitive and affective experiences they

have within their faculty (Clifton, 1997; Etcheverry, 1996; Hearn, 1997; Ting &

Robinson, 1998). The effects of these variables on the students' quality of life are,

however, not expected to be large.

The analyses are reported in Table 43. As discussed previously, it has been argued

that for students to achieve at their optimal level, they must be intellectually challenged

and socially supported (Clifton, 1997). Two measures of challenge are included in the

study and they are derived from Bloom's taxonomy of educational objectives (Bloom et

al., 1956). The first measure, structure, represents a low level of challenge, and the

second, function, represents a high level of challenge. Three of the independent variables,

faculty of registration (.171, $p \leq .001$), credit hours (.161, $p \leq .001$), and gender (.140, $p \leq$

.001), positively affect students' perception of structure. These findings suggest that

students registered in the Faculty of Science, those who are enroled in more credit hours,

and females are more likely to report being challenged at the lower level than other

students. In total, the social and university background variables explain approximately

7% of the variance in structure ($R^2 = .070$). Four of the social and university background

Table 43

Effects of the Social and University Background Variables on the Quality of Life Variables

Independent Variables	Dependent Variables				
	Structure	Function	Positive Affect	Interaction with Students	Interaction with Professors
Gender	.140***	.086**	.096**	.068	.026
Age	.011	.065	.274***	-.030	.186***
Educ Res	-.094	-.065	-.051	-.043	.021
Years	.042	.115***	.052	.072	.005
Credit Hours	.161***	.142***	.197***	.148***	.120***
Faculty	.171***	-.151***	-.005	.071	-.114***
R^2	.070	.056	.082	.030	.040

* $p \leq$ .05

**$p \leq$ .01

***$p \leq$ .001

variables, faculty of registration (-.151, p ≤ .001), credit hours (.142, p ≤ .001), years of

university (.115, p ≤ .001), and gender (.086, p ≤ .01) affect students' perception of

function, the higher level of challenge based on Bloom's taxonomy. This finding suggests

that students registered in the Faculty of Arts, those enroled in more credit hours, students

with more years of university, and females are more likely to report that they have been

challenged at the higher level. In total, the social and university background variables

explain almost 6% of the variance in function (R^2 = .056). It seems reasonable that the

perception of function, the more cognitively demanding measure, would be higher

amongst students in upper years of university. Additionally, students who are enroled in

more credit hours are more likely to experience higher levels of both structure and

function because they are taking more courses and may realize the integration that exists

between their courses. It is not surprising that the Faculty of Science students report

being expected to learn material at the structural level while Faculty of Arts students

report being expected to learn material at the functional level. To generalize, the type of

material presented in the Faculty of Science is often concrete and incremental, whereas

the material presented in the Faculty of Arts is often abstract and overlapping.

As previously discussed, for students to be able to take advantage of a challenging

environment they must also experience social support within their faculty (Roberts &

Clifton, 1992). To measure students' experience of social support, three measures were

included, positive affect, interaction with students, and interaction with professors. Three

of the independent variables, age (.274, p ≤ .001), credit hours (.197, ≤ .001), and gender

(.096, ≤ .01) positively affect students' experience of positive affect. These findings

suggest that older students, those who are enroled in more credit hours, and females, are

more likely to report general enjoyment, positive feelings, and liking for their faculty, than other students. In total, the social and university background variables explain slightly more than 8% of the variance in positive affect ($R^2 = .082$). The credit hours variable (.148, $\leq$ .001) positively affects the interaction with students variable, which suggests that students enroled in more credit hours are more likely to report experiencing positive interactions with other students than students registered in fewer credit hours. Not surprisingly, students who are enroled in more credit hours interact with more students. In total, the social and university background variables explain only 3% of the variance in interaction with students ($R^2 = .030$). Finally, three of the independent variables, age (.186, $p \leq .001$), credit hours (.120, $p \leq .001$), and faculty (-.114, $p \leq .001$), affect the interaction students have with professors, which suggests that older students, those enroled in more credit hours, and those enroled in the Faculty of Arts, are more likely to report positive interactions with their professors, than younger students, those enroled in fewer credit hours, and students enroled in the Faculty of Science. In total, the social and university background variables explain 4% of the variance in interaction with professors ($R^2 = .040$).

In total, these findings are not unexpected. The effects of the social and university background variables on the quality of life variables are relatively small. Students who are enroled in more credit hours are more likely to report positive affect, positive interaction with both students and professors, than students enroled in fewer credit hours. Students who are enroled in more credit hours are more committed to their education (Astin , 1985). Faculty of Arts students are more likely to report more positive interactions with their professors than Faculty of Science students. In fact, many of the

Faculty of Arts courses involve participation in class discussions and debates, which are particularly conducive to developing positive relationships amongst students and with professors. Finally, older students are more likely to report positive affect and positive interaction with their professors. Older students have lived longer, fuller lives, they are more mature, and are more confident, therefore, they are more likely to evaluate their experiences more positively and they are able to talk more easily with their professors.

Basically, the results to this point suggest that the theoretical model explains a fairly large amount of variance in students' educational achievement. Furthermore, the variables in the model influence and mediate each other largely as expected. The social and university background variables are mediated by the quality of life variables, and the quality of life variables are mediated by the social psychological variables, all of which influence students' educational achievement. The variables of particular importance in influencing students' educational achievement, are perceived academic control, coping responses, positive affect, interaction with professors, and the number of credit hours students are taking. The next section will examine the direct, indirect, and total causal effects of all of the independent variables on the dependent variables.

The Direct, Indirect, and Total Causal Effects

This section provides the final set of analyses to be discussed. The effect parameters for the full theoretical model are presented in Table 44, which summarizes all the analyses that have been discussed to this point in the chapter. To provide a greater understanding of the effects of each of the independent variables on the dependent variables, Table 45 provides the direct, indirect, and total causal effects for all of the variables in the model.

Table 44

Standardized Regression Coefficients for all the Variables in the Model

	Structure	Function	Quality of Life			Social Psychological Variables						Educational Achievement GPA		
			Positive Affect	Interaction with Students	Interaction with Profs	Perceived Academic Control		Self-esteem		Coping Responses				
						Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 3
Gender	.140***	.086**	.096**	.068	.026	.039	-.003	-.046	-.107***	.291***	.245***	.058	.063	.012
Age	.011	.065	.274***	-.030	.186***	.092*	-.047	.078	-.029	.207***	.116**	.210***	.081	.070
Educ Res	-.094	-.065	-.051	-.043	.021	.047	.079**	-.036	.008	-.013	.008	.171***	.163***	.154***
Years	.042	.115***	.052	.072	.005	.026	.034	.045	.061	-.071	-.065	.049	.083*	.080*
Credit Hours	.161***	.142***	.197***	.148***	.120***	.037	-.052	.026	-.066	.064	-.003	.177***	.132***	.152***
Faculty	.171***	-.151***	-.005	.071	-.114***	-.016	.010	-.033	-.070*	.020	.011	.078*	.081*	.083*
Structure							.080**		.049		.017		-.044	-.066
Function							-.040		-.025		.062		-.135***	-.134***
Positive Affect							.275***		.208***		.235***		.221***	.106*
Int with Students							.010		.298***		.158***		.026	-.028
Int with Profs							.301***		.048		-.014		.209***	.156***
Perceived Academic Control														.169***
Self-esteem														.027
Coping Responses														.233***
R²	.070	.056	.082	.030	.040	.004	.242	.009	.208	.095	.220	.072	.171	.243

* $p \leq$ .05

**$p \leq$ .01

***$p \leq$ .001

Table 45

Direct, Indirect, and Total Effects for the Quality of Life, the Social Psychological, and the Educational Achievement Variables

Dependent Variables	Independent Variables	Direct Effects	Indirect Effects via		Total Effects
			Quality of Life Variables	Social Psychological Variables	
Perceived academic control					
	GENDER	-.003	.036		.039
	AGE	-.047	.139		.092
	EDRES	.079	-.032		.047
	YRSU	.034	-.008		.026
	CRHRS	-.052	.089		.037
	FACULTY	.010	-.026		-.016
	STRUC	.080			.080
	FUNC	-.040			-.040
	POSAFF	.275			.275
	INTSTU	.010			.010
	INTPROF	.301			.301
Self-esteem					
	GENDER	-.107	.061		-.046
	AGE	-.029	.107		.078
	EDRES	.008	-.044		-.036
	YRSU	.061	-.016		.045
	CRHRS	-.066	.092		.026
	FACULTY	-.070	.037		-.033
	STRUC	.049			.049
	FUNC	-.025			-.025
	POSAFF	.208			.208
	INTSTU	.298			.298
	INTPROF	.048			.048
Coping Responses					
	GENDER	.245	.046		.291
	AGE	.116	.091		.207
	EDRES	.008	-.021		-.013
	YRSU	-.065	-.006		-.071
	CRHRS	-.003	.067		.064
	FACULTY	.011	.009		.020
	STRUC	.017			.017
	FUNC	.062			.062
	POSAFF	.235			.235
	INTSTU	.158			.158
	INTPROF	-.014			-.014
Educational Achievement					
	GENDER	.012	-.005	.051	.058
	AGE	.070	.129	.011	.210
	EDRES	.154	.008	.009	.171
	YRSU	.080	-.034	.003	.049
	CRHRS	.152	.045	-.020	.177
	FACULTY	.083	-.003	-.002	.078
	STRUC	-.066		.022	-.044
	FUNC	-.134		-.001	-.135
	POSAFF	.106		.115	.221
	INTSTU	-.028		.054	.026
	INTPROF	.156		.053	.209
	CNTR	.169			.169
	SELFEST	.027			.027
	COPING	.233			.233

(EDRES = Educational Resources; YRSU = Years of University; CRHRS = Credit Hours; STRUC = Structure; FUNC = Function; POSAFF = Positive Affect; INTSTU = Interaction with Students; INTPROF = Interaction with Professors; CNTR = Perceived academic control; SELFEST = Self-esteem; COPING = Coping Responses)

As presented in Table 45, the effect parameters indicate that in each analysis the effects of age are consistently mediated by the quality of life variables. The indirect effects of students' age on their perceived academic control is the strongest (.139), followed by educational achievement (.129), self-esteem (.107), and coping responses (.091). These findings suggest that the reason older students tend to have higher perceived academic control, self-esteem, and coping responses, is because they are more likely to perceive the quality of their lives within their faculties as being more positive. In addition, age has a strong positive effect mediated through the quality of life variables on educational achievement. This seems reasonable, older students have many more life experiences to draw upon in working cooperatively, and this affects their social psychological dispositions and their educational achievement. Older students are also more mature and may feel more comfortable in taking risks than younger students; as a result, older students probably develop more positive relationships with other students and with professors.

Interesting results are also found for credit hours. The credit hours variable has a fairly large indirect effect on students' self-esteem via the quality of life variables (.092) suggesting that the reason students who are enroled in more credit hours experience higher self-esteem is, in part, because of their cognitive and affective experiences within their faculty. Additionally, credit hours have a fairly large total effect (.177) on students' educational achievement, an effect that is mediated only to a small degree by the other variables in the model. Students who are enroled in more credit hours have higher GPAs. While this may seem contradictory, the finding is not surprising. As argued in Chapter 2, students who are enroled in more credit hours are more likely to be committed to their

education (Astin, 1985), they are more likely to be involved in university life, and they are less likely to be involved in activities outside the university that would distract them from their studies. Consequently, their grades are higher.

Table 45 also illustrates that gender influences students' coping responses. When looking at the total effects of gender on students' coping responses (.291), females are more likely to engage in positive coping responses. Only a small portion of this effect is mediated by students' quality of life experiences as shown by the direct effects of students' gender on their coping responses (.245) when the quality of life variables are considered. As discussed in Chapter 2, females have been found to be more likely than males to engage in positive coping responses (Sigmon et al., 1995). Additionally, females are more likely than males to have lower self-esteem. Consequently, females are more likely to cope in university, but they are less likely than males to feel they are competent.

Faculty of registration is found to have a small, but interesting, effect on students' educational achievement. The total effect of faculty of registration on educational achievement is .078, but this effect is not mediated by either the quality of life variables or the social psychological variables. The finding suggests that Faculty of Science students have slightly higher GPAs than Faculty of Arts students. This could result from the perception that Science courses are more difficult than Arts courses, and students who choose the Faculty of Science are slightly better than students who choose the Faculty of Arts.

Finally, the educational resources variable has a fairly large, and unexpected, effect on students' educational achievement. The total effect of students' educational resources, measured by parental education, on their children's educational achievement is

fairly large (.171), and it is only mediated to a small degree by the students' quality of

life and their social psychological disposition as illustrated by the value of the direct

effect (.154). It was expected that by the time students reach university, the effects of

their educational resources would be relatively small. Nevertheless, these findings

suggest that students with higher educational resources appear to have an advantage, at

least for GPAs.

The quality of life variables, particularly the affective variables, have some

interesting effects on the social psychological variables and the educational achievement

variable. The positive affect variable has positive direct effects on all three social

psychological variables: perceived academic control (.275), self-esteem (.208), and

coping responses (.235). Additionally, positive affect has a fairly large total effect on

students' educational achievement (.221). However, as the indirect effect of positive

affect on educational achievement via the social psychological variables (.115) illustrates,

the effects are mediated to a considerable degree by the social psychological variables.

Part of the reason students reporting positive affect have higher GPAs is because the

positive environment influences their social psychological disposition, which in turn

influences their educational achievement.

Students who report positive interactions with professors are more likely to report

higher levels of perceived academic control (.301). Whereas, students who report positive

interactions with students are more likely to report higher levels of self-esteem (.298),

and engaging in more positive coping responses (.158). Not unexpectedly, professors

who are perceived as being fair, just, and taking a personal interest in their students foster

a sense of perceived academic control in their students. On the other hand, environments

that foster positive experiences among students result in them experiencing higher self-esteem scores and engaging in more positive coping responses. Interestingly, the only other quality of life variable that is statistically significant is interaction with professors, which influences students' educational achievement as illustrated by the total effects (.209). The effect of interaction with professors is, however, mediated slightly by the social psychological variables, which suggests that students who perceive that their professors care about them, develop more positive social psychological dispositions, and together these two variables increase the students' GPAs.

The final noteworthy finding regarding the quality of life variables is that both measures of challenge - structure and function - negatively influence students' educational achievement. This is particularly true for function, the higher level of challenge. Surprisingly, the effect of function on GPA is not mediated by students' social psychological disposition. It was expected that students with more positive social psychological dispositions would cope with challenges better than other students, and that the effects of challenge variable, would, therefore, be mediated by the social psychological variables. It was also expected that experiencing challenge would positively influence students' educational achievement. However, as mentioned previously, there is a complex (but unanalyzed) relationship between the challenge and affective variables, resulting in the challenge variables having a negative effect on students' educational achievement.

Finally, as anticipated, the social psychological variables have fairly large effects on students' educational achievement. Students' coping responses has the largest total effect of any of the variables that influence educational achievement (.233). Additionally,

students' perceived academic control has a fairly large effect on their educational achievement (.169). Ultimately, to be successful students must engage in adaptive coping responses, therefore the large effect of coping responses on educational achievement is not at all surprising. As discussed in Chapter 2, perceived academic control has been empirically demonstrated by a number of researchers to be adaptive for student learning. Students with a sense of academic control, realize that success or failure is largely within their own control and not entirely the result of external factors, such as luck or their professors ability to teach. Therefore, they take responsibility for their own success, which ultimately positively influences their educational achievement.

In summary, the findings presented in this chapter suggest that the quality of life and the social psychological variables (plus a few others) explain students' educational achievement in university. Particularly, students' coping responses, their perceived academic control, perceptions of positive affect, and interactions with their professors, were demonstrated to be important variables contributing to students' GPAs. Additionally, the quality of life variables were demonstrated to influence students' social psychological dispositions, particularly the experience of positive affect, and students' interactions with other students and with their professors. The importance of these findings, both practically and theoretically, are discussed in the next chapter.

Chapter 5

Conclusion

As outlined in Chapters 1 and 2, the primary purpose of this study is to examine

the factors that influence university students' educational achievement. Basically, this

study is an examination of the effects of quality of life variables and social psychological

variables on students' educational achievement. The results, reported in Chapter 4,

suggest some expected and some unexpected findings. In this chapter, the conclusion,

there are three sections, the first section summarizes the first four chapters and the most

important findings are discussed in relation to the theories guiding the study. The second

section of the chapter provides practical implications for dealing with the problems

identified in Chapter 1. The final section provides suggestions for future research.

Discussion

In recent years, demand for university educated Canadians has proliferated as has

a demand for universities to be accountable by providing accessibility to university

education for Canadians of both genders, all races, and all levels of income. Canadian

universities have responded by increasing their enrolment levels and by adopting less

restrictive admission policies. Nevertheless, just because universities are admitting more

students, this does not mean that they are providing accountability to the citizens who

support them. Considerable evidence suggests that a significant number of students

admitted to universities are not successful as measured by degree completion. I argue that

because students attending Canadian universities are paying significant tuition fees and

the government, and therefore the Canadian taxpayers, are granting universities

significant amounts of money, accountability goes beyond relaxed admission

requirements. For universities to be accountable they must ensure the success of the students, success being, at least for the students and perhaps, in the future, for their employers, graduating with university degrees. Many students who are entering universities are not successful because they are not completing university degrees. Specifically, it is estimated that somewhere between 10% and 50% of students leave universities without graduating (Astin, 1975; Lewington, 1996). In part, the reasons students leave university without completing a degree are either because they have been forced to do so because of poor grades and/or because they are dissatisfied with the experience (Noel, 1985; Tinto, 1985).

For this study, the problem is that there are many factors that contribute to students' educational achievement. In Canada, typically universities only examine students' past performance when determining admissibility. However, evidence suggests that past performance explains only between 20% and 30% of the variance associated with students' educational achievement, and it is obviously not the only factor that may contribute to their educational achievement. Furthermore, the students who are not succeeding in university range from those admitted with low high school averages, close to the admission cutoff, to those who have received entrance scholarships. It is argued here that this is happening because, in addition to past performance, numerous social psychological, institutional, and demographic variables contribute to students' educational achievement.

In this study, I tested the effects of two main sets of variables, a set of social psychological variables and a set of quality of life variables, on students' educational achievement, as measured by their GPAs, a variable that is, in fact, highly predictive of

graduation. The social psychological variables represent students' disposition as measured by three variables: their perceived academic control, self-esteem, and coping responses. The quality of life variables represent students' cognitive and affective experiences within the institution as measured by five variables: both structure and function measure their cognitive experiences, and positive affect, interaction with students, and interaction with professors measure their affective experiences.

The social psychological variables are based on Weiner's Theory of Motivation and Emotion (1985). Weiner's model includes cognitive, affective, and behavioral components. Students' perceived academic control represents the cognitive component, and it measures the degree to which students believe outcomes are within their own control. Self-esteem represents the affective component, and it measures how good students feel about themselves. Coping responses represents the behavioral component, and it measures the types of behaviors students engage in when they are faced with failure. These three variables, particularly students' perceived academic control, have been previously empirically demonstrated to influence students' educational achievement.

The quality of life variables have been recently conceptualized in the literature (see Clifton et al., 1996; Roberts & Clifton, 1992). Previous theoretical work suggests that for students to achieve at the optimum level they must be both cognitively challenged and emotionally supported. In other words, the cognitive and affective experiences students have within their classes influence their educational achievement. Students' cognitive experiences are measured by structure, a measure of lower-level challenges, and function, a measure of higher-level challenges. Students' affective experiences are

measured by students' experiences of positive affect, interaction with students, and interaction with professors. Theoretically, students who are challenged at a higher level and socially supported, by other students, professors, and other people, are more likely to have higher educational achievement than students who are not challenged and not socially supported (Roberts & Clifton, 1992).

The theoretical model (Figure 1) guiding this study has fifteen variables, and is presented in Chapter 2. The final variable in the model is students' educational achievement as measured by their GPAs. The next set of variables in the model, when reviewing it from right to left, are the social psychological variables. These variables were expected to mediate the effects of some of the other variables to the left on students' educational achievement. The next set of variables are the quality of life variables, which were expected to mediate the effects of some of the variables that precede them, and they were expected to influence students' social psychological disposition and their educational achievement. The final set includes measures of students' social and university backgrounds. These variables were expected to influence, to a minor degree, all of the other variables in the model.

The methodology is described in Chapter 3. Discussions of the survey instrument, the sample of students who participated in the study, and of the statistical procedures used to analyze the data are included. The study is based on data collected from a questionnaire designed to assess students' social psychological disposition and their quality of life in the Faculties of Arts and Sciences at the University of Manitoba. A random sample of 1000 Faculty of Arts students and 1000 Faculty of Science students, registered during the 1996-1997 Regular Session, were mailed a copy of the

questionnaire. Eight hundred and sixty-four questionnaires were completed and returned. However, only 854 responses are included because 10 students report being registered in other faculties. Approximately equal numbers of students reported being in the Faculty of Arts (425 respondents) and the Faculty of Science (429 respondents). In the second section, the fifteen variables that were used to measure students' educational achievement, social psychological dispositions, their quality of life experiences, and their social and university backgrounds were presented. Finally, the chapter concludes by explaining the structural equation modeling procedures that were used to analyze the data.

Chapter 4 presents the results of the study. The first section presents the correlation matrix that provides the correlations between all of the variables in the model. The correlation matrix demonstrated that there are a number of statistically significant relationships among the variables in the model, which set the stage for more advanced multivariate analyses. A number of regression analyses were used to analyze the effects of the independent and intervening variables on the dependent variables.

The first hypothesis of the study was that all of the variables in the model would positively influence students' educational achievement. The regression analyses illustrate that students' social psychological disposition, particularly their coping responses and perceived academic control, influenced their educational achievement. In fact, students' ability to cope was found to have the largest effect of any of the variables on their educational achievement. Not surprisingly, coping responses represents the actual behaviors in which students engage. If students engage in inappropriate coping responses, such as skipping class or giving up in the face of failure, it is unlikely they are going to be

successful in university. This finding is supported by Struthers et al., (2000), who demonstrated that students' ability to cope with academic stressors affects their educational achievement. More specifically, he showed that students' ability to cope by engaging in problem-focused coping strategies has a positive influence on their educational achievement.

Consistent with previous research, perceived academic control was demonstrated to influence students' educational achievement. In numerous studies, a high sense of control has been shown to be adaptive for student learning, and a low sense of control as being maladaptive (see Menec et al., 1995; Perry, 1991; Perry & Dickens, 1984; Perry & Dickens, 1987; Perry & Magnusson, 1987; Perry & Magnusson, 1989; Perry, et al., 1986; Perry & Penner, 1990; Perry et al., 1994; Perry & Tunna, 1988; Perry et al., 1998; Schonwetter et al., 1993). Students who perceive themselves as being in control of their educational achievement know that they are responsible for their own success, and they are more likely to engage in behavior that facilitates educational achievement. Students who perceive that they have limited control over their educational achievement are unlikely to engage in behavior supportive of their educational achievement. If, in their own minds, success is completely out of their own control, why would they bother putting time and effort in attempting to be successful when success has nothing to do with their effort?

Surprisingly, students' self-esteem was found to have little effect on their educational achievement. A possible explanation for this finding was the scale used to measure students' self-esteem measured general self-esteem and was not a measure that was specific to academic work; suggesting, perhaps, it would have been more appropriate

to use a scale measuring academic self-esteem. The social psychological variables, on their own, explained a considerable amount of variance in students' educational achievement, which is largely the result of students' coping responses and their perceived academic control.

Additionally, students' quality of life experiences were found to influence their educational achievement. Particularly important were the experiences of the functional level of challenge, positive affect, and positive interactions with professors. Surprisingly, the experience of function, the higher level of challenge, was found to negatively influence students' educational achievement. As argued in Chapter 2, at least theoretically, the experience of a cognitively demanding environment would support students' educational achievement (Roberts & Clifton, 1992). Tinto (1985), in fact, argued that a major reason students leave university without completing a degree is because the cognitive challenges are either too weak or too strong. On the other hand, students' experience of positive affect and positive interaction with their professors positively affects their educational achievement, a finding that is consistent with previous research. Kuh (1995), for example, reported that contact with faculty is associated with gains in students' educational achievement and Pascarella and Terenzini (1991) reported that interaction with faculty, both in and out of classrooms, benefits university students' knowledge acquisition. Additionally, Tinto (1985) showed that one of the major reasons students leave universities prior to completing their degrees is because of their isolation from other students and their professors. On their own, the quality of life variables explained a fairly large amount of variance in students' educational achievement.

Finally, some of the social and university background variables were found to influence students' educational achievement. Of particular importance were students' educational resources, the number of credit hours in which they were registered, their faculty of registration, and the number of years of university they completed, all of which positively influenced their educational achievement. Somewhat surprisingly, students' educational resources were found to have the largest effect on their educational achievement. This variable is a measure of students' social class, which by the time students reach university is typically found to have little affect on their educational achievement (Astin, 1975; Etcheverry, 1996). This finding may be specific to the University of Manitoba, which is an open-access university. On the other hand, not surprisingly, students' credit hours and their years of university positively influenced their educational achievement. As argued in Chapter 2, credit hours and years of university represent the commitment students have made to their education, and the more committed students are the more likely they are to have higher GPAs. The fact that students are able to register in more credit hours suggests that they are not distracted by other obligations, jobs and family responsibilities, for example, that may negatively affect their achievement. Additionally, students who are registered in more credit hours and who have completed more years of university are likely to have been socialized to the expectations of university and they are more likely to know what they need to do to be successful. One of the reasons years of university positively influences students' educational achievement could be that, over the years, only students who are academically able are continuing their education at the university, slightly inflating the effect of years of university on their educational achievement. Remember that these data

are from a panel study, and therefore it is impossible to discount the attrition of poor students from year to year. Finally, the findings suggested that students registered in the Faculty of Science have slightly higher GPAs than students registered in the Faculty of Arts. This could result from a perception that the Faculty of Science is more academically challenging than the Faculty of Arts, suggesting that there are fewer weaker students who even begin a Science degree. Additionally, the Faculty of Science tends to be where students study their prerequisite courses/degrees for many professional faculties, such as Dentistry, Medicine, and Pharmacy, which are all highly competitive faculties. Students with these goals in mind may be more motivated to perform at the highest possible levels than students without such goals. Nevertheless, without a measure of previous performance, or future goals, this reasoning cannot be confirmed.

In essence, this study found that students' social psychological disposition, their quality of life experiences, and their social and university backgrounds influence their educational achievement. Of particular importance in predicting students' educational achievement is their coping responses, their perceived academic control, the experience of the functional level of challenge, positive affect, interactions with their professors, and several of the social and university background variables. The entire model explained a fairly large amount of variance in students' educational achievement.

The second hypothesis of the study was that each set of variables would influence the variables that follow them, and that each set of variables would mediate the effects of other variables on students' educational achievement. As anticipated, the social psychological variables were influenced by some of the quality of life variables and they also mediated the effects of some of those variables on students' educational

achievement. The cognitive demanding variables in the quality of life group seem to have minor effects on students' social psychological disposition, and their effects on educational achievement were not mediated by the social psychological variables. As discussed in Chapter 2, transient situational factors such as complex material can, in fact, alter students' perceived academic control (Perry & Magnusson, 1987; Perry & Penner, 1990), but in this study, the function variable does not negatively affect students' social psychological disposition. The largest effect of the function variable, and the only one that reaches significance, is positive, and it is on students' ability to cope, suggesting that as challenges increase, students' ability to cope increases, which should, theoretically, support educational achievement. Function positively influencing coping responses was consistent with the Struthers et al. (2000) study, where the effects of greater academic stress positively influenced the students' ability to cope. However, contrary to the current study, Struthers et al. (2000) found students' coping responses mediated the negative effects of greater academic stress on their educational achievement.

The hypothesis is confirmed for students' affective experiences, which were found to influence students' social psychological disposition to a considerable degree. Positive affective experiences were found to influence students' perceived academic control, self-esteem, and their coping responses. This is not surprising. Conceptually, the positive affect variable seems to be measuring students' happiness, and whether they really like being a student. If students are unhappy, and not enjoying their experiences, and they really do not want to be there, they are probably going to have low perceived academic control. Additionally, positive affect could influence their self-esteem; if students are unhappy about their situations, it will be difficult for them to have a positive

sense of self. Finally, coping responses will be affected because unhappy students are unlikely to engage in behavior that is supportive of educational achievement, probably because they do not care if they succeed or not.

Students' interaction with their professors was found to influence their perceived academic control. This variable was measuring students' belief that their professors are fair, just, and take a personal interest in their work. Professors that display these characteristics are likely to foster a belief that success or failure is within the students' control. Professors that do not display these characteristics may lead students to believe that external factors, luck or how much the professor likes them, for example, determines their success or failure. Additionally, if professors do not display these characteristics, they may not seem approachable, students may feel that they cannot go to professors for help, limiting their perceived academic control, which results in a belief that there is nothing they can do to be successful.

It is not surprising that interaction with students was found to influence students' self-esteem and their coping responses. Being accepted by their peers, and having an opportunity to see that many other students run into similar academic difficulties as they do, seems to bolster their self-esteems. Additionally, interacting with other students and seeing others engage in behaviors to facilitate their success result in individual students engaging in coping responses that facilitate success. When students talk, they often discuss their classes, which may promote a healthy amount of competition among them. In this sense, students may not want to look incompetent to their peers, and therefore peer-interactions may help them engage in positive coping responses.

Additionally, the effects of the affective variables on students' educational achievement were mediated by the social psychological variables; this is particularly the case for positive affect and interaction with professors. This suggests that part of the reason students who experience positive affect and positive interactions with professors have higher GPAs is because these experiences foster positive social psychological dispositions in students, which in turn positively influence their educational achievement. These findings support previous research that suggests that socially supportive environments influence students' internal attribution profile (Pascarella et al., 1996; Pascarella & Terenzini, 1991).

The social and university background variables also influenced students' social psychological dispositions, their quality of life experiences, and their educational achievement. Only a couple of the social and university background variables were found to affect the social psychological variables. Specifically, male students were found to have higher self-esteems than females, but only when the quality of life variables were controlled, suggesting that by not controlling for the quality of life variables the effects of gender on self-esteem were suppressed. On the other hand, female students were found to engage in more positive coping responses than males. These findings are consistent with previous researchers (see Sigmon et al., 1995). Age was the only other variable found to have an affect on students' social psychological disposition; specifically, it was found to positively influence students' perceived academic control and their coping responses. Older students, compared with younger students, are more likely to take responsibility for their own actions, and as a result have higher perceived academic control and engage in more positive coping responses.

The quality of life variables were influenced to a greater degree by students'

social and university backgrounds. Specifically, female students were found to be more

likely than males to have higher levels of both challenge and positive affect.

Additionally, older students, in comparison with younger students, were more likely to

report positive affect and positive interaction with professors. Students who have

completed more years of university were more likely to report higher levels of challenge,

that is, function. This is not particularly surprising, as it would seem likely that in

advanced classes, students would be expected to perform more challenging academic

work. Students' registered in more credit hours were more likely to experience all five of

the quality of life experiences to a greater degree than those registered in fewer credit

hours. Previous researchers have demonstrated that students enroled in more credit hours

are often more academically involved (Pascarella & Terenzini, 1991). As a result, these

students are more likely to be exposed to other major socialization agents, such as other

students and professors, which help to positively contribute to their quality of life

(Pascarella & Terenzini, 1991). Faculty of registration was also found to positively

influence the experience of structure, whereas it negatively influences the experience of

function. These results suggest that Faculty of Science students are expected to perform

less complex cognitive tasks than Faculty of Arts students. This could be the result of the

nature of the material students are learning within the two faculties. The material

presented in the Faculty of Science, at least to me, tends to be concrete and measurable,

whereas the material presented in the Faculty of Arts tends to be more abstract,

conceptual, and subjective. Finally, the effects of social and university background

variables on educational achievement were mediated, to a substantial degree, by the

quality of life variables, and, only to a small degree, by the social psychological variables.

In summary, this study found that students' educational achievement is influenced by institutional environmental variables, referred to as the quality of life variables, and by students' social psychological dispositions. Of particular importance are students' perceived academic control, and their coping responses, their experience of positive affect, and opportunities for positive interactions with their professors. Additionally, students' quality of life experiences are found to influence their social psychological disposition and, as a result, these variables provide students with opportunities to interact with their peers. The final two sections of this chapter will provide practical implications based on these findings and suggestions for future research.

<u>Practical Implications</u>

There are several important practical implications to be derived from the findings of this study. It is argued that universities are accountable to their students, the government, and the taxpayers, and they have a responsibility to attempt to ensure the success of the students they admit. Nevertheless, often students are unsuccessful at university and leave without completing a degree. This study demonstrates that students' quality of life, particularly their affective experiences, and their social psychological disposition, particularly their perceived academic control and their coping responses, are important variables that positively influence their educational achievement. The study offers at least part of an explanation for why some seemingly good students leave the university prior to completing their degrees. Additionally, these findings offer universities some practical solutions that could be adopted in order to ensure that more

students succeed and that they meet their own goals of being accountable to their students, the government, and the citizens. Simply stated, universities could make it a priority to improve the environment for their students and to help their students develop positive social psychological dispositions.

Students' quality of life experiences are demonstrated to have very important effects on their social psychological dispositions and their educational achievement. This finding, alone, suggests that it is important for universities to provide a positive environment for their students, particularly for their first year students. While universities, including the University of Manitoba, have made important steps during the past decade to improve the academic and social environment for their students, additional steps need to be taken. The findings of this study demonstrated that the two most important quality of life experiences that influence students' educational achievement were the experience of positive affect within classrooms and positive interactions with their professors. Some ways to improve the environment including teaching faculty members how their behavior negatively and positively influence their students' social psychological dispositions and how their behavior can negatively and positively affect their educational achievement. Consequently, it is important to teach them more positive ways of interacting with their students. Mandatory professional development for new faculty members, for example, could be implemented. In addition, rewards for departments could be developed when positive student-teacher evaluations are received. Implementing incentives for good teaching would ensure that departments would be more likely to place faculty members who are good teachers where they are most effective. Peer reviews may be another way to develop more positive classroom environments.

Currently much of what goes on in classrooms is behind closed doors, and by requiring peer reviews, the doors are opened and professors become more accountable for their behavior, at least to their colleagues. Finally, the current system of rewarding faculty members, both financially and in terms of career progress, is largely based on research and publications, while being a good teacher seems to have minimal rewards for professors (Hum, 2000). To encourage professors to be good teachers there needs to be financial rewards and opportunities for career progression based on teaching. This said, it is, of course, not completely up to professors to ensure students succeed in university, and programs could be implemented to help students help themselves.

Attributional retraining is a technique that has been developed from the perceived control research that has been designed to help students with maladaptive attributional profiles adapt to university. This study suggests that students with maladaptive attributional profiles have limited perceived academic control and engage in negative coping strategies. Attributional retraining has been demonstrated to result in increases of more than one-letter grade for students who originally had maladaptive attributional profiles (Menec et al., 1994; Perry & Struthers, 1994). This technique teaches students to think about their successes or failures as being within their own control, and that by putting in a little more effort or by trying new study strategies, they too can be successful. Additionally, because it is important for students to engage in appropriate coping responses, included within the attributional retraining program, students could be taught effective ways to deal with higher academic challenges. It seems to me that attributional retraining is something that universities should make a priority, especially for first-year students.

Additionally, attributional retraining could be something professors are taught to use within their own classrooms in order to help their own students develop a sense of academic control and appropriate coping responses. Professors should be taught the effects that these strategies can have on their students' social psychological dispositions. Rather than attempting to generate success in students by creating fear, by for example, professors saying such words as "only one in three of you will be successful in this course", professors should be encouraged and rewarded for developing students' positive social psychological dispositions. In essence, this study suggests that the environment professors provide has important effects on their students' social psychological dispositions and their educational achievement. In addition to these important practical implications, there are also some implications for future research.

Research Implications

There are at least three implications for future research that arise from this study. First, further research is needed to determine whether or not the findings are unique to this sample of students. Second, further research is needed in order to determine the effects of the social psychological and quality of life variables in a longitudinal study, probably with additional measures of success. Finally, further research is needed to examine additional variables, and additional analyses of the variables, which may further contribute to our overall understanding of the variability in students' educational achievement.

It is important to acknowledge that the results of this study are derived from only one relatively homogenous sample of students registered in the Faculties of Arts and Science at the University of Manitoba, a university with an open-access policy.

Consequently, some of the findings may be unique to this university and this sample of students. Examination of the effects of the variables in this study in other groups of students could provide evidence to validate or refute these findings. In my opinion, the findings of this study are important, but obviously it would be valuable to collect data using the same variables from students in other faculties and in other universities.

Secondly, a longitudinal study would allow for an examination of the social psychological and quality of life variables over time and additional measures of success, such as attrition and graduation rates, could be added. In this respect, longitudinal studies would allow for a much deeper understanding of the importance of the quality of life and the social psychological variables on the educational achievement of students. Additionally, a longitudinal analysis would allow for the responses of students who left the university prior to degree completion, as well as those who eventually graduate. Such a study would be very important and could determine which variables were the most significant in predicting successful graduation.

Finally, to develop a deeper understanding of the variables that influence students' educational achievement, it would be appropriate to include other variables in the model and to perform some additional analyses. Specifically, it is argued in Chapter 1 and 2 that previous performances, particularly high school grades, are responsible for explaining a considerable amount of the variance in students' educational achievement in university. Consequently, it is important to include a measure of past performance in order to determine how it would affect the other variables in the model.

Future research could also consider altering the analyses of some of the existing variables in the model, particularly the coping responses variable. The coping responses

variable was composed of questions that were representative of both problem-focused and emotion-focused coping responses. Struthers et al., (2000), using a similar scale, found that only the problem-focused coping responses influenced students' educational achievement. The previous section argues that one of the important practical and policy implications is to teach students appropriate coping responses; therefore, it is necessary to conduct further analyses using the coping responses variable to determine which behaviors, specifically, were most supportive of their educational achievement.

To develop a more sophisticated understanding of how the variables affect each other would be interesting, and perhaps educational, and would lead to some additional analyses. In the future, analyses that developed our understanding of the relationship between the cognitive and affective variables and their effects on students' educational achievement would be appropriate. Additionally, an analysis of reciprocal effects between some of the variables could be examined. Conceptually, it is possible that the social psychological variables influence the quality of life variables, which in turn, affect the students' educational achievement. These analyses, however, are very complex and beyond the scope of the present study. Such analyses are, however, possible.

In conclusion, universities that are truly interested in being accountable to their students, the government, and the citizens, can, and should, develop programs based on the theoretical reasoning and the empirical findings of this study. This study demonstrates that institutional environmental variables and individual social psychological variables undoubtedly influence students' educational achievement. All of these variables can, and should, be controlled by the institution. Universities, professors, students, and administrators can do a number of things to ensure the success of more students by

providing more positive environments and helping them develop more positive social

psychological dispositions. Rather than just talking about these policies, however,

universities need to take action and become truly accountable to their students, the

government, and the taxpayers.

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THE UNIVERSITY OF MANITOBA

QUALITY OF LIFE IN THE FACULTIES OF ARTS AND SCIENCES

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This questionnaire is about your life in, and your attitudes toward, your faculty. There are no right or wrong answers - we are just trying to find out how students feel about their experiences. We are interested in your honest opinions. This information will be used for research purposes only and will not be used for any other purposes. We appreciate the time you are giving to this study.

PART I

Each item below says that your **Faculty (Arts or Sciences)** is a place where some particular thing happens to you or you feel a particular way. We would like you to respond to each statement by checking one of the response categories provided.

Please read each item carefully and check the answer which best describes how you feel. Keep in mind that the phrase "My Faculty (Arts or Sciences) is a place where..." applies to each item. **Check one box for each statement.**

My Faculty (Arts or Sciences) is a place where...

	Strongly Agree	Agree	Disagree	Strongly Disagree
... the things I learn are important to me	☐	☐	☐	☐
... people look up to me	☐	☐	☐	☐
... professors treat me fairly	☐	☐	☐	☐
... I feel depressed	☐	☐	☐	☐
... I find it easy to get to know other students	☐	☐	☐	☐
... I really get involved in my work	☐	☐	☐	☐
... I like learning	☐	☐	☐	☐
... I enjoy being	☐	☐	☐	☐
... I feel restless	☐	☐	☐	☐
... professors give me the marks I deserve	☐	☐	☐	☐
... I have acquired skills that will be of use to me	☐	☐	☐	☐
... I achieve a satisfactory standard in my work	☐	☐	☐	☐
... professors care about what I think	☐	☐	☐	☐
... professors take a personal interest in helping me with my work	☐	☐	☐	☐
... I am treated with respect	☐	☐	☐	☐
... mixing with other students helps me to understand myself	☐	☐	☐	☐
... the things I learn will help me in my life	☐	☐	☐	☐
... students think a lot of me	☐	☐	☐	☐
... professors help me to do my best	☐	☐	☐	☐
... I get upset	☐	☐	☐	☐
... I am given the chance to do work that really interests me	☐	☐	☐	☐
... the things I am taught are worthwhile learning	☐	☐	☐	☐
... professors are fair and just	☐	☐	☐	☐
... I really like to go each day	☐	☐	☐	☐
... I feel worried	☐	☐	☐	☐
... the work I do is good preparation for my future	☐	☐	☐	☐
... other students accept me as I am	☐	☐	☐	☐
... I have learned to work hard	☐	☐	☐	☐
... I get on well with the other students in my class	☐	☐	☐	☐
... I find that learning is a lot of fun	☐	☐	☐	☐
... professors listen to what I say	☐	☐	☐	☐

PART II

Different people have different ideas about the overall quality of education received in their Faculty. Listed below are some things that students and professors have said are important.

Please assess each statement by checking the response which best describes your experience. Remember that the phrase **"In My Faculty (Arts or Sciences) I have been challenged to..."** applies to each item. **Check one box for each statement.**

In My Faculty (Arts or Sciences) I have been challenged to...

	Strongly Agree	Agree	Disagree	Strongly Disagree
... remember an extensive number of new terms	☐	☐	☐	☐
... demonstrate how theories are useful in real life	☐	☐	☐	☐
... identify organizing principles in my courses	☐	☐	☐	☐
... recall a substantial number of new concepts	☐	☐	☐	☐
... use theories to address practical questions	☐	☐	☐	☐
... analyze complex interrelationships between concepts	☐	☐	☐	☐
... interpret the meaning of new facts and terms	☐	☐	☐	☐
... develop new ideas based on theories	☐	☐	☐	☐
... remember an extensive number of facts	☐	☐	☐	☐
... recall a significant number of facts	☐	☐	☐	☐
... apply theories to new situations	☐	☐	☐	☐
... make original contributions to classroom discussions	☐	☐	☐	☐
... identify the strengths and weakness of arguments	☐	☐	☐	☐
... remember complex facts	☐	☐	☐	☐
... apply theoretical principles in solving problems	☐	☐	☐	☐
... organize ideas in new ways	☐	☐	☐	☐
... identify bias in written material	☐	☐	☐	☐

Students have different kinds of social experiences at the university. Based on your **general experience at** the University of Manitoba, assess each of the following statements. **Check one box for each statement.**

The University of Manitoba is a place where...

	Strongly Agree	Agree	Disagree	Strongly Disagree
... I regularly interact with my professors.	☐	☐	☐	☐
... I regularly interact with students in my classes.	☐	☐	☐	☐
... I regularly interact with friends outside of class.	☐	☐	☐	☐
... I spend a considerable amount of time interacting with my professors.	☐	☐	☐	☐
... I spend a considerable amount of time interacting with other students in my classes.	☐	☐	☐	☐
... I spend a considerable amount of time interacting with friends outside of class.	☐	☐	☐	☐
... I feel a close relationship with my professors.	☐	☐	☐	☐
... I feel a close relationship with students in my classes.	☐	☐	☐	☐
... I feel a close relationship with friends I have outside of classes.	☐	☐	☐	☐
... I can trust professors to treat me fairly.	☐	☐	☐	☐
... I can trust professors to provide me with the support I need.	☐	☐	☐	☐
... I can trust other students to treat me fairly.	☐	☐	☐	☐
... I can trust other students to provide me with the support I need.	☐	☐	☐	☐

PART III

The following statements concern your beliefs about experiences in your courses and in your life. Although some of the items are similar, there are differences between them and you should treat each one as a truly separate question. The best approach is to **answer each item fairly quickly**. That is, don't try to count up the number of times you felt a certain way, but rather choose the alternative that seems to reflect your view most closely.

	Strongly Agree	Agree	Disagree	Strongly Disagree
My greatest personal accomplishments have come from hard work and persistence. . .	☐	☐	☐	☐
I have a great deal of control over my academic performance in my courses.	☐	☐	☐	☐
Much of what happens in my life is beyond my control.	☐	☐	☐	☐
The more effort I put into my courses, the better I do in them.	☐	☐	☐	☐
It would be desirable to have complete control over what happens in my courses. . . .	☐	☐	☐	☐
No matter what I do, I can't seem to do well in my courses.	☐	☐	☐	☐
What matters most is that I can influence what happens to me.	☐	☐	☐	☐
Life is what you make of it.	☐	☐	☐	☐
I see myself as largely responsible for my performance throughout my university career.	☐	☐	☐	☐
I often feel that my life is determined by others.	☐	☐	☐	☐
How well I do in my courses is often the "luck of the draw.".	☐	☐	☐	☐
I have little interest in controlling how things unfold in my life.	☐	☐	☐	☐
Whether you try or not makes little difference in the grand scheme of things.	☐	☐	☐	☐
There is little I can do about my performance in university.	☐	☐	☐	☐
Things that happen in my life are largely determined by me.	☐	☐	☐	☐
When I do poorly in a course, it's usually because I haven't given it my best effort.	☐	☐	☐	☐
I enjoy having control over the various things I do in my life.	☐	☐	☐	☐
It is important to me to be able to control how well I do in my courses.	☐	☐	☐	☐
There is little you can do to avoid life's calamities.	☐	☐	☐	☐
My grades are basically determined by things beyond my control and there is little I can do to change that.	☐	☐	☐	☐

	Strongly Agree	Agree	Disagree	Strongly Disagree
I have a lot of influence over things in my life.	☐	☐	☐	☐
Getting good grades is often the result of knowing what courses to take.	☐	☐	☐	☐
Being able to determine my academic performance in my university courses is important to me.	☐	☐	☐	☐
Much of what has happened in my life so far is my own doing.	☐	☐	☐	☐
I start each school term highly motivated, and I stay that way.	☐	☐	☐	☐
I am excited about the courses I take.	☐	☐	☐	☐
I enjoy learning.	☐	☐	☐	☐
I think that what I learn in my university courses is interesting.	☐	☐	☐	☐
I am motivated to do well in my courses.	☐	☐	☐	☐
I feel that I'm a person of worth, at least on an equal plane with others.	☐	☐	☐	☐
I feel that I have a number of good qualities.	☐	☐	☐	☐
All in all, I'm inclined to feel that I am a failure.	☐	☐	☐	☐
I am able to do things as well as most other people.	☐	☐	☐	☐
I feel I do not have much to be proud of.	☐	☐	☐	☐
I take a positive attitude toward myself.	☐	☐	☐	☐
On the whole, I am satisfied with myself.	☐	☐	☐	☐
I wish I could have more respect for myself.	☐	☐	☐	☐
I certainly feel useless at times.	☐	☐	☐	☐
At times I think I am no good at all.	☐	☐	☐	☐
In uncertain times, I usually expect the best.	☐	☐	☐	☐
If something can go wrong for me, it will.	☐	☐	☐	☐
I always look on the bright side of things.	☐	☐	☐	☐
I'm always optimistic about my future.	☐	☐	☐	☐
Things never work out the way I want them to.	☐	☐	☐	☐
I'm a believer in the ideal that "in every cloud, there is a silver lining.".	☐	☐	☐	☐
I rarely count on good things happening to me.	☐	☐	☐	☐
I expect to do very well this year in courses involving my major.	☐	☐	☐	☐
I expect to do very well overall at university this year.	☐	☐	☐	☐
In comparison to other university students, I consider myself to be very successful.	☐	☐	☐	☐

PART IV

A number of statements which people have used to describe themselves are given below. Read each statement and then check the appropriate box to the right of the statement to indicate how you **generally feel**. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	Almost Never	Sometimes	Often	Almost Always
I feel pleasant	☐	☐	☐	☐
I feel nervous and restless	☐	☐	☐	☐
I feel satisfied with myself	☐	☐	☐	☐
I wish I could be as happy as others seem to be	☐	☐	☐	☐
I feel like a failure	☐	☐	☐	☐
I feel rested	☐	☐	☐	☐
I am "calm, cool, and collected"	☐	☐	☐	☐
I feel that difficulties are piling up so that I cannot overcome them	☐	☐	☐	☐
I worry too much over something that really doesn't matter	☐	☐	☐	☐
I am happy	☐	☐	☐	☐
I have disturbing thoughts	☐	☐	☐	☐
I lack self-confidence	☐	☐	☐	☐
I feel secure	☐	☐	☐	☐
I make decisions easily	☐	☐	☐	☐
I feel inadequate	☐	☐	☐	☐
I am content	☐	☐	☐	☐
Some unimportant thought runs through my mind and bothers me	☐	☐	☐	☐
I take disappointment so keenly that I can't put them out of my mind	☐	☐	☐	☐
I am a steady person	☐	☐	☐	☐
I get in a state of tension or turmoil as I think over my recent concerns and interests	☐	☐	☐	☐

PART V

Take a moment to imagine yourself doing **poorly** in a course at university, and then respond to the following questions.

After having done poorly in a course at university...	not at all...				a great deal
... I try a different study strategy	☐	☐	☐	☐	☐
... I seek sympathy and understanding from someone.	☐	☐	☐	☐	☐
... I reduce the amount of effort I put into solving the problem	☐	☐	☐	☐	☐
... I seek the help of a tutor.	☐	☐	☐	☐	☐
... I talk to someone about how I feel	☐	☐	☐	☐	☐
... I drop out of the course(s) I'm doing poorly in.	☐	☐	☐	☐	☐
... I read my textbook before the professor covers the material in class	☐	☐	☐	☐	☐
... I try to get emotional support from friends and relatives.	☐	☐	☐	☐	☐
... I skip class	☐	☐	☐	☐	☐
... I routinely review my notes after class.	☐	☐	☐	☐	☐
... I discuss my feelings with someone	☐	☐	☐	☐	☐
... I give up trying to reach my academic goals.	☐	☐	☐	☐	☐

PART VI

In this part of the questionnaire, we ask for some factual information about your social background. Your answers to all of the questions are confidential and the names of individual students will not be identified in our research reports. We need this information in order to make statistical comparisons between students with different backgrounds.

What gender are you?   Male ☐   Female ☐

How old are you? _____

What was the highest level of education that your parents received?
Check one box for each parent.

	Mother	Father
Elementary school	☐	☐
Some high school	☐	☐
Completed high school	☐	☐
Some technical, vocational training	☐	☐
Completed community college	☐	☐
Some university	☐	☐
Completed a Bachelor's degree (e.g. B.Ed., B.A.)	☐	☐
Some education at the graduate level	☐	☐
Completed graduate degree (e.g. M.Ed., Ph.D.)	☐	☐

What are your parents' occupations? (if they are retired or deceased, please indicate the occupations they held.) **Check one box for each parent.**

	Mother	Father
Self-employed professional (e.g. architect, dentist, engineer, M.D.)	☐	☐
Employed professional (e.g. accountant, school teacher, university professor)	☐	☐
High level manager (e.g. president, vice-president, financial manager)	☐	☐
Semi-professional (e.g. cameraman, musician, photographer)	☐	☐
Technician (e.g. engineering technologist, life sciences technician)	☐	☐
Middle manager in business or government	☐	☐
Supervisor	☐	☐
Skilled clerical, sales, and service (e.g. insurance agent, salesperson)	☐	☐
Skilled crafts and trades (e.g. cabinet maker, painter, plumber)	☐	☐
Farmer	☐	☐
Semi-skilled clerical, sales, and service (e.g. office clerk, library file clerk) ..	☐	☐
Semi-skilled manual (e.g. bus driver, cook, taxi driver)	☐	☐
Unskilled clerical, sales, and service (e.g. mail carrier, nursing aide, orderly) .	☐	☐
Unskilled manual (e.g. chambermaid, elevator operator, janitor)	☐	☐
Farm labourer	☐	☐
Other	☐	☐

please describe _____

PART VII

In this part of the questionnaire, we ask for some factual information about your university education. We need this information in order to make statistical comparisons between students in different programs.

Do you have an undergraduate university degree?   Yes ☐   No ☐

How many years of university education have you completed? (If you have been a part-time student, then estimate the number of equivalent full-time years.) _____

How many credit hours of university work are you taking this academic year (Sept.-April)? _____

What Faculty are you registered in?

Arts ☐	Education ☐	Human Ecology ☐	Nursing ☐	Social Work ☐	
Sciences ☐	Management ☐	Engineering ☐	Music ☐	Phys Ed/Recreation ☐	
other ☐					

What is your cumulative grade point average? **Check one box.**

4.0-4.5 ☐   2.5-2.9 ☐   1.0-1.4 ☐
3.5-3.9 ☐   2.0-2.4 ☐   0.0-0.9 ☐
3.0-3.4 ☐   1.5-1.9 ☐

PART VIII

Thank you very much. We really appreciate the time and effort you have given in answering our questions. If you have any comments about your experience in your faculty, please take a few minutes to jot them down.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please continue on the back of this page if necessary.

If you would like to receive a short report of this study, please check the box. ☐

Appendix B
Unstandardized Regression Coefficients for all Variables in the Model

| | | | Quality of Life | | | Social Psychological Variables | | | | | | Educational Achievement | | |
| | Structure | Function | Positive Affect | Interaction with Students | Interaction with Professors | Perceived Academic Control | | Self-esteem | | Coping Responses | | GPA | | |
						Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 3
Gender	.831	.851	1.059	.307	.193	.257	-.002	-.480	-1.115	3.846	3.246	.151	.167	.003
Age	.000	.009	.445	-.002	.197	.009	-.005	.116	-.005	.393	.227	.008	.003	.003
Educ Res	-.007	-.008	-.007	-.002	.002	.004	.006	-.004	.001	-.002	.001	.005	.005	.005
Years	.009	.401	.205	.115	.001	.006	.008	.171	.229	-.332	-.307	.005	.008	.008
Credit Hours	.006	.009	.135	.004	.005	.002	-.002	.002	-.004	.005	-.000	.003	.002	.003
Faculty	1.012	-1.481	-.005	.317	-.837	-.106	.097	-.347	-.730	.269	.143	.204	.214	.218
Structure							.009		.009		.004		-.002	-.003
Function							-.003		-.003		.008		-.004	-.004
Positive Affect							.165		.200		.286		.005	.003
Int with Students							.002		.699		.467		.002	-.002
Int with Profs							.271		.007		-.003		.007	.006
Perceived Academic Control														.007
Self-esteem														.000
Coping Responses														.005
R²	.070	.056	.082	.030	.040	.004	.242	.009	.208	.095	.220	.072	.171	.243