

**SOCIAL CAPITAL:
A RESOURCE FOR THE HUMAN CAPITAL DEVELOPMENT OF
UNIVERSITY STUDENTS**

by

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in Partial Fulfilment of the Requirement
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DOCTOR OF PHILOSOPHY

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ABSTRACT

The objective of this study is to examine the relationship between social capital and human capital pertaining to students in the context of the university. It is proposed that an educational environment that students perceive to be challenging and supportive is a social capital resource that stimulates them to acquire human capital resources of knowledge, skills, and attitudes.

The study was conducted in the faculty of education at the University of Manitoba. Data from The Quality of Student Life Questionnaire developed in 1991 and completed in February 1992 by 269 undergraduate students who were selected using a stratified random cluster sampling technique, are analyzed. Students were asked about their social and university backgrounds, their perceptions of being challenged and supported in the faculty, their academic self-concepts, their time use, their grade point averages, and their educational expectations. A theoretical model outlines proposed linkages between social capital and the human capital development of students, and guides the structural equation modeling procedures used to analyze the interrelationships between the 15 variables in the model.

Several findings in this study support the idea that social capital is a resource that can significantly contribute to the human capital development of

students. Overall, within the context of the fifteen variables in the theoretical model, the social capital variables, in particular the support variables, *interaction with professors*, *interaction with students* and *positive affect*, are shown to add to the amount of variance that is explained in both of the student effort variables and in all three of the human capital variables. One support variable, *interaction with students*, has a direct positive effect on two human capital variables, *self-concept of ability* and *GPA*. Two of the social capital support variables, *interaction with students* and *positive affect*, have a positive effect on students' *time planning*, which, in turn, has a positive effect on *GPA*. Interestingly, the social capital challenge variables, that assess students perceptions of challenges they experience in the educational environment, have little effect on the student effort or the human capital variables. The *function* dimension of challenge, however has significant positive effects on all of the social capital support variables. Also the empirical findings of this study show that stability and closure in the educational environment, in the form of years of university experience and credit hours of enrolment, enhance the development of new knowledge , skills and attitudes in students.

It is concluded that planners in the faculties and professional schools of universities can use the concept of “social capital” as an important indicator of accountability related to their primary goal of developing the human capital of

students. Also the concept can be used to guide the development of policies and practices that intentionally attend to social-structural relations within the educational environment.

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TABLE OF CONTENTS

| | |
|-------------------------------|-----------|
| ABSTRACT | i |
| ACKNOWLEDGEMENTS | iv |
| LIST OF FIGURES | ix |
| LIST OF TABLES | x |

CHAPTER

| | |
|-----------------------------------------------|-----------|
| 1. INTRODUCTION | 1 |
| THE THEORETICAL RATIONALE | 7 |
| RELEVANCE | 14 |
| LIMITATIONS | 16 |
| OVERVIEW OF THE DISSERTATION | 18 |
| | |
| 2. REVIEW OF THE LITERATURE | 21 |
| HUMAN CAPITAL AND THE UNIVERSITY | 21 |
| THEORIES OF SOCIAL ACTION | 28 |
| SOCIAL CAPITAL | 35 |
| THE THEORETICAL MODEL | 45 |

| | |
|----------------------------------------------------------|-----------|
| 3. METHODOLOGY | 56 |
| SURVEY INSTRUMENT AND SAMPLE | 56 |
| MEASUREMENT OF THE VARIABLES | 60 |
| University and Social Background Variables. | 61 |
| Credit Hours | 61 |
| Years of University | 63 |
| Gender | 65 |
| Age | 65 |
| Parents' Education | 67 |
| Social Capital Variables | 69 |
| Structure | 70 |
| Function | 73 |
| Interaction with Professors | 77 |
| Interaction with Students | 78 |
| Positive Affect | 84 |
| Student Effort Variables | 86 |
| Time attitudes | 86 |
| Time planning | 93 |
| Human Capital Variables | 97 |
| Self-concept of ability | 97 |

| | | |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----|
| | Grade Point Average | 98 |
| | Educational Expectations | 102 |
| | PROCEDURE | 102 |
| | SUMMARY | 106 |
| 4. RESULTS | | 107 |
| | CORRELATION MATRIX | 107 |
| | MULTIVARIATE ANALYSES | 113 |
| | Effects of University and Social Background Variables on the Social Capital Variables | 113 |
| | Structure | 115 |
| | Function | 118 |
| | Interaction with Professors | 121 |
| | Interaction with Students | 124 |
| | Positive Affect | 127 |
| | Effects of University Background, Social Background, and Social Capital Variables on Student Effort Variables | 131 |
| | Time Attitudes | 132 |
| | Time Planning | 135 |
| | Effects of University Background, Social Background, Social Capital and Student Effort Variables on Human | |

| | |
|-----------------------------------------------|-----|
| Capital Variables | 139 |
| Self-Concept of Ability | 140 |
| Grade Point Average | 147 |
| Educational Expectations | 157 |
| 5. CONCLUSION | 166 |
| DISCUSSION | 166 |
| POLICY AND PRACTICE IMPLICATIONS | 186 |
| RESEARCH IMPLICATIONS | 196 |
| REFERENCES | 200 |
| APPENDIX A | 210 |

LIST OF FIGURES

| Figure | | Page |
|---------------|------------------------------------------------------------------------|-------------|
| 1. | Coleman's Social Capital | 36 |
| 2. | Closed and Open Social Networks | 41 |
| 3. | Social Capital in the University: A Context Specific View | 47 |
| 4. | The Theoretical Model | 51 |

LIST OF TABLES

| Table | Page |
|--------------------------------------------------------------------------------------------------|-------------|
| 1. Sample and Return Rate by Year | 59 |
| 2. Frequencies and Percentages for Credit Hours | 62 |
| 3. Descriptive Statistics for Credit Hours | 62 |
| 4. Frequencies and Percentages for Years of University | 64 |
| 5. Descriptive Statistics for Years of University | 64 |
| 6. Frequencies and Percentages for Age | 66 |
| 7. Descriptive Statistics for Age | 66 |
| 8. Frequencies and Percentages for Parents' Education | 68 |
| 9. Descriptive Statistics for Parents' Education | 68 |
| 10. Inter-Item Correlations and Factor Loadings for Structure | 71 |
| 11. Frequencies and Percentages for Structure | 72 |
| 12. Descriptive Statistics for Structure | 72 |
| 13. Inter-Item Correlations and Factor Loadings for Function | 74 |
| 14. Frequencies and Percentages for Function | 75 |
| 15. Descriptive Statistics for Function | 76 |
| 16. Inter-Item Correlations and Factor Loadings for Interaction with Professors | 79 |
| 17. Frequencies and Percentages for Interaction with Professors | 80 |
| 18. Descriptive Statistics for Interactions with Professors | 80 |

| | | |
|-----|---------------------------------------------------------------------------------|-----|
| 19. | Inter-Item Correlations and Factor Loadings for Interaction with Students | 82 |
| 20. | Frequencies and Percentages for Interaction with Students | 83 |
| 21. | Descriptive Statistics for Interaction with Students | 83 |
| 22. | Inter-Item Correlations and Factor Loadings for Positive Affect . | 85 |
| 23. | Frequencies and Percentages for Positive Affect | 87 |
| 24. | Descriptive Statistics for Positive Affect | 88 |
| 25. | Inter-Item Correlations and Factor Loadings for Time Attitudes . | 90 |
| 26. | Frequencies and Percentages for Time Attitudes | 91 |
| 27. | Descriptive Statistics for Time Attitudes | 92 |
| 28. | Inter-Item Correlations and Factor Loadings for Time Planning . | 94 |
| 29. | Frequencies and Percentages for Time Planning | 95 |
| 30. | Descriptive Statistics for Time Planning | 96 |
| 31. | Inter-Item Correlations and Factor Loadings for Self-Concept of Ability | 99 |
| 32. | Frequencies and Percentages for Self-Concept of Ability | 100 |
| 33. | Descriptive Statistics for Self-Concept of Ability | 100 |
| 34. | Frequencies and Percentages for Grade Point Average | 101 |
| 35. | Descriptive Statistics for Grade Point Average | 101 |
| 36. | Frequencies and Percentages for Educational Expectations | 103 |
| 37. | Descriptive Statistics for Educational Expectations | 103 |

| | | |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 38. | Correlation Coefficients, Means, and Standard Deviations for Variables in the Theoretical Model | 108 |
| 39. | Effects of University and Social Background on Structure, Students' Perceptions of Challenge to Remember and Interpret Information | 116 |
| 40. | Effects of University and Social Background on Function, Students' Perceptions of Challenge to Apply and Analyze Information | 119 |
| 41. | Effects of University and Social Background, Structure and Function on Interaction with Professors | 122 |
| 42. | Effects of University and Social Background, Structure and Function on Interaction with Students | 125 |
| 43. | Effects of University and Social Background, Structure and Function on Positive Affect | 128 |
| 44. | Effects of University Background and Social Background, Structure, Function, Interaction with Professors, Interaction with Students and Positive Affect on Time Attitudes | 133 |
| 45. | Effects of University Background and Social Background, Structure, Function, Interaction with Professors, Interaction with Students and Positive Affect on Time Planning | 136 |
| 46. | Effects of University and Social Background, Social Capital and Student Effort on Self-Concept of Ability | 141 |

**47. Effects of University and Social Background, Social Capital,
and Student Effort on Self-Concept of Ability on Grade Point
Average 148**

**48. Effects of University and Social Background, Social Capital,
Student Effort, Self-Concept of Ability and Grade Point Average on
Educational Expectations 158**

CHAPTER 1

INTRODUCTION

There are increasing demands within Canadian society for universities to demonstrate accountability for their use of resources. Recent and ongoing cuts to government funding of universities suggest that universities have not been very successful at demonstrating their value and their accountability to government policy makers and to the public who elect these officials. Loss of government funds has resulted in budget cuts within universities and increasing tuition fees for students (Johnston, 1995). Under these economic conditions, universities need to examine how well they carry out their mandate in order to justify the support they receive from governments, to guide their decisions about budget cuts, and to demonstrate that they are accountable for tuition fee increases.

Some economists and sociologists depict the most important mandate of educational institutions to be that of enhancing the human capital of students (see Becker, 1975; Bidwell, 1989; Coleman, 1988a; Coleman, 1988b; Karabel & Halsey, 1977; Schultz, 1971). According to James Coleman (1988a), ". . . human capital is created by changes in persons that bring about skills and capabilities that make them able to act in new ways" (p. s100). Educational institutions--schools and universities--

act as agents of socialization that enable students to make the changes that are required in order for them to acquire skills and capabilities that help them to become more productive members of society. Put another way, universities have a social contract to provide opportunities for students to change their levels of achieved statuses within society by increasing their levels of knowledge and their reasoning power and by shaping their attitudes toward learning (Bidwell, 1989).

Universities describe their mandate as one of creating and disseminating knowledge through the activities of teaching, research, and service. Central to both the teaching and research activities of the university is the education of students to enhance their human capital. More specifically, as the consumers of the teaching efforts of university professors, students are central to the universities's mandate of disseminating knowledge. Students who acquire new knowledge, skills, and attitudes through their education are recognized as an important human capital resource within society (Bidwell, 1989). Students are also central to the university's mandate of creating new knowledge. Graduate students, and some undergraduate students, help to create new knowledge through participation in the research activities of their professors. They also learn to become future researchers through this participation and through their

learning that takes place, at least in part, in classrooms. Because of the centrality of students to the teaching and research activities of the university, it is important that the university be able to assess its efforts in ways that are relevant to students.

In addition, valid and reliable assessments of the activities that take place in universities and that are relevant to students are important for at least one other reason. It is important for universities to be accountable to citizens and to students because, in Canada, universities are public institutions funded by both citizens and students in the form of taxes and tuition fees. It is very likely that the disposition of public opinion toward universities is formed mainly through students and their perceptions of their university experiences. That is, students are the largest sector of the public that has first-hand experience within universities. The perceptions of their experiences, therefore, influence how supportive they are of universities. Furthermore, students are likely to convey their opinions about the university to their friends and families, and in this way influence the opinions of many other people. In turn, people who are dissatisfied are not likely willingly to support universities through either taxes or tuition fees.

Because of the educational and economic centrality of students to

the goals of universities, it is argued here that it is important for universities to assess students' perceptions of their educational experiences. However, this type of meaningful assessment of conditions within universities that contribute to the creation and dissemination of knowledge, and to the enhancement of the human capital of students, is lacking in universities (Association of Universities and Colleges of Canada, 1992). Although the quality of the personnel and facilities available for teaching and learning are often used to compare the worth of universities (see Johnston, 1995; Tan, 1986), this type of information is limited and does not necessarily relate meaningfully to educational outcomes (see Smith, 1991; Naimark, 1993; Roberts & Clifton, 1991). The Association of Universities and Colleges of Canada (1992) calls for the development of performance indicators that relate to the purposes and missions of universities and that will permit meaningful comparisons among universities.

It is acknowledged that some professional education programs, such as law and medicine, use the results of certification exams completed by students in their programs as an indication of their performance relative to other programs. However, certification exams only provide evidence about the effectiveness of some university programs to educate students. Many programs, education included, do not have professional organizations with

these types of examinations. Furthermore, certification exams are outcome measures that assess minimum competency related to the practice within a profession. As Miller and Taylor (1984) point out, with respect to teacher education, practice-driven agendas differ from theory-driven agendas in many ways. It follows then that certification exams should not be used instead of appropriately designed measures of the processes of education. The educational process, which comprises the bulk of the teaching efforts of university personnel, and is a major function of universities, involves activities designed to engage students in learning about knowledge in their field of study, in this case educational study.

What is needed are measures of the teaching/learning process that relate positively to outcomes of educational attainment. Beck (1990) suggests that the quality of students' lives may be one of a number of relevant yardsticks for measuring the worth of universities. In fact, it is argued in this study that students' perceptions of their educational experiences may be significant. Their perceptions may provide useful indicators of the effectiveness of the processes by which professors attempt to educate them, and of the quality of the learning environment they have experienced. From a human capital perspective, adequate education of students involves processes in which universities aim to change students by

providing an appropriate environment for them to acquire knowledge, skills, and attitudes related to a variety of disciplines, professions, and fields of study. Kleinfeld, (1975), and Clifton and Roberts (1993) argue that appropriate educational environments are ones that are challenging and supportive.

I propose that when the educational experiences students have in university classes are challenging and supportive, social capital is available. Social capital helps students to achieve their educational goals and the goal of society to develop the human capital of its citizens. In a challenging and supportive environment, students are expected to learn, and to feel supported by others in their efforts to learn. When students are challenged by academic expectations in the learning environment, there is motivation for them to interact about these challenges with their peers and with their professors to meet these challenging expectations. These interactions create and enforce norms that are relevant to educational goals. When students are supported by the interactions they have with others in the learning environment, they can trust each other and their professors to help them achieve their educational goals. In these ways, social capital is an important resource that facilitates the creation of human capital (Coleman 1988a). Human capital, as already noted, is represented by students who

have acquired new knowledge, new skills, and new attitudes (see Schultz, 1971). Social capital, in the form of an educational environment that is perceived by students to be challenging and supportive, stimulates students to accomplish educational goals and to acquire knowledge, skills, and attitudes that are encompassed by these goals.

The objective of this study is to examine theoretically and empirically the relationship between social capital of students and their human capital. More specifically, four main questions guide the study. Does social capital have a positive effect on the human capital development of students? Does social capital affect student effort? Does student effort affect the human capital development of students? And, in what way does student effort act as an intermediary between social capital and human capital? The following discussion introduces the theoretical reasoning that support these questions. Following that, the limitations of the study are discussed, and, finally, an overview of the study is presented.

THE THEORETICAL RATIONALE

In universities, new knowledge, new skills, and new attitudes are acquired through students being exposed to new information and through their interactions with professors and other students in the learning environment. Literature on the socialization of students identifies

conditions that are most conducive to facilitating the changes that students must make in order to enhance their human capital (Brim, 1966; Bredemeier & Bredemeier, 1978; Kleinfeld, 1975; Clifton & Roberts, 1993). That is, in order to change, students need to become dissatisfied to a certain degree with their level of knowledge, skills, and attitudes. In addition, they need to be motivated to acquire new knowledge, to change their attitudes, and do things that will help them to acquire new skills.

When university students have experiences that are challenging, the expectations accompanying these challenges provide stimulation and motivation for them to change. When university students have experiences that are supportive, they are encouraged in their efforts to change, because the change process is acknowledged and support validates effort directed toward change.

These assertions are grounded in the idea that conditions of challenge and support will best stimulate and encourage students to attain their educational goals, and, concomitantly, will serve the goals of the university and the goals of society to have well-educated citizens. Educational institutions need to know whether or not they are successful in establishing such a social environment. More specifically, it is students' perceptions of their social environment--with respect to challenges and

support--that are important in the change process (Kleinfeld, 1975; Clifton & Roberts, 1993). In other words, it is not enough for socializing agents (the professors, teaching assistants, and support staff, for example) to consider their programs to be challenging and supportive, for these are relative qualities that are subjectively defined by individuals. Rather, it is the perceptions of the students being socialized that are important. Students' perceptions of their quality of life with respect to challenge and support are indicators of the social capital that is available to them.

More theoretically, Coleman (1990) refers to social capital as "social-structural resources [that are] a capital asset for the individual" (p. 302). These resources exist "in the structure of relations between actors and among actors" (Coleman 1988a, p. s98). That is, social capital develops through the personal relations and networks of relations within a social context (see Granovetter, 1985). These relations are important assets because they guide social action by generating trust, establishing expectations, and creating and enforcing norms among those who have social relationships with each other. In this way, social capital links the individual to the social structure.

The social interactions and personal relations that occur within a social structure are the mechanisms through which social capital is realized

(Coleman (1990). First, individuals who interact regularly have expectations of and obligations toward one another and develop a sense of trustworthiness with respect to the obligations and expectations. Trust and shared expectations and obligations allow pooling of resources directed toward achieving shared goals. Second, information is exchanged during social relations. Individuals use their social relations with others as a way of gaining information that otherwise may be difficult, or impossible, for them to obtain. Third, during social relations, norms are established and sanctions imposed to reward and punish behaviour that is either appropriate or inappropriate for achieving the educational goals shared by the group. Consequently, in order for social capital to develop, students need to interact with professors and with other students in their educational environments. Social capital is present in the educational environment when students know what is expected of them and when they are supported to meet their educational goals. Students' perceptions of their quality of life in terms of challenge and support provide an indication of the level of social capital that is available to them. Students' perceptions of social capital are important because, according to Mead (1975), human action is guided by the interpretations of meaning in their environment. Therefore, students' perceptions of social capital should be

important performance indicators of the efforts of the university.

Social capital is valuable to students because it is a resource that facilitates development of their human capital. Schultz (1971) refers to human capital as the knowledge, skills, and attitudes that are acquired by individuals. In the university, production of human capital takes the form of graduates with the knowledge, skills, and attitudes that enable them to contribute in meaningful ways to society. In a profession, like education, production of human capital takes the form of teachers who are confident, who have knowledge of educational theory and practice (Miller & Taylor, 1984), and who also have a positive attitude toward their own ongoing learning (Mandzuk, 1994). While these aspiring teachers are students, development of human capital is reflected in their academic self concepts, their grade point averages, and in their educational expectations.

Academic self-concepts and grade point averages are immediate human capital resources that students may acquire, while educational expectations are attitudes that students have about their future.

Of course, social capital is not responsible for the total socialization of students. In addition to social capital resources available in the educational environment, students can also further their own development through their own effort. That is, students may choose to spend more time

studying or they may choose to spend less time studying. Students may choose to attend their classes, or they may choose not to attend their classes. They may choose to manage their time to facilitate their educational goals or they may choose to organize their time around other goals. It is proposed in this study that the effort that students apply to their educational goals facilitates development of their human capital. In addition, it is proposed that the educational environment, which students help to create, influences the actions they choose related to their educational goals. That is, conditions in the educational environment can help them to mobilize their efforts toward the development of their self-concepts, abilities, and educational expectations.

Students who are successfully socialized by their educational experiences acquire human capital during the process. Short-term evidence of developing human capital accumulates as students go through educational programs, and are reflected in their self-concepts, the grades they receive in their courses, and their educational expectations. These short term outcomes of educational experiences are stepping stones to significant long term outcomes that provide evidence that human capital has been successfully developed. Significant long-term outcomes include the degrees and credentials that students earn, and ultimately the

occupation they obtain that is commensurate with their qualifications (Bidwell, 1989; Schultz, 1971). These outcomes are important because completion of a university degree is significantly and positively associated with both occupational status and average income (Pascarella & Terenzini, 1991). In fact, Pascarella and Terenzini (1991) note that in the United States, completion of a four year university degree provides graduates with a 34 percentile point advantage in occupational status, and a 20 to 40 percent advantage in income in comparison to students who only complete secondary school.

In summary, two important resources facilitate the human capital development of students. The first, social capital, is a resource that exists within institutions. It is the product of the interactions of students with their professors and with each other. The second, student effort directed toward educational goals, is a resource that exists within individual students. It is at least partly a product of the choices students make in response to their perceptions of the educational environment. Specifically, it is proposed that social capital facilitates, motivates, inspires, and modifies the behaviour of students by providing a source of reflection and social comparison. Through their interactions, students see, appraise, and compare themselves to others within their educational environments.

Furthermore, they adjust their behaviour in relation to the responses they receive from others. These points provide the theoretical basis of the model examined in this dissertation. Further specification of the proposed relationship between social capital and human capital in a university is outlined in the theoretical model presented in Chapter 2.

RELEVANCE

Although the idea that a challenging and supportive environment facilitates educational goals may be widely held (Evans-Harvey, 1995), the link between students' perceptions of quality of life related to challenge and support and the attainment of educational goals has not been empirically examined. This research addresses this gap and contributes to the literature in three important ways. First, it provides the theoretical basis for measuring social capital and for linking it with the development of human capital. The concept social capital is theoretically elaborated by Coleman (1988a) but has not been operationally defined in the context of the university. The conceptual and operational application of social capital to the educational environment of universities presented in this study is new. I have begun developing these applications and relationships in this chapter and will develop them further in Chapter 2.

Second, this research empirically examines the link between social

capital and educational outcomes that represent human capital development. Examination of this link will help to validate, or refute, the notion that attending to the social capital of the educational environment is important for universities and for the educational attainment of students. This study also takes into account the motivation and effort of students. Inclusion of student effort in the model, which examines the influence of social capital, deepens the examination to include consideration of a mechanism of the effects through which social capital influences human capital. Specifically, I examine the degree to which the social capital variables affect the efforts of students and the degree to which these variables affect their human capital, self-concept of ability, grade point average, and educational expectations. In examining these relationships, this study controls for a number of social and university background variables. These variables are considered because they may also affect the development of the human capital of students.

Finally, this study is important because the social context of the educational environment warrants serious consideration in resource allocation and other policy decisions within universities and other educational institutions. If it is true that a demanding and supportive social environment facilitates student and institutional goals, the ability of

professors and university administrators to evaluate programs in relation to students' perceptions of the environment is useful. The theoretical model I examine in this study asserts that students' perceptions of the social context of their educational environment, affects their efforts and their educational attainment. If the relationships proposed in the model are supported, the measures used to operationalize social capital, and measures used to operationalize student effort, may become validated as useful performance indicators. That is, these measures could be used by administrators to guide program planning and evaluation, and this information could be used by them in allocating resources so as to enhance program effectiveness. These measures of social capital could also be used by professors and students to guide their efforts. These are the strengths of the study, but the study also has some limitations.

LIMITATIONS

This study has three limitations that need to be taken into account. First, it is based on data that were collected from students in a faculty of education in one Canadian university. This sample may limit the generalizability of the results to other populations of students, university students in other faculties, students in other universities, and students in other countries. Further research with other groups of students in other

faculties and at other universities would need to be conducted in order to more fully understand the generalizability of these results.

Second, this study is based on cross-sectional data that sample a population at a single point in time (1992) and, therefore, do not allow for the observation of change over time within the population. Although longitudinal data are often preferable to cross-sectional data, the collection of these data over time is very expensive. Nevertheless, the collection and analysis of cross-sectional data may be an appropriate first step in the process of gaining an initial understanding about a phenomenon. Cross-sectional data can be used to test theoretical models and develop methods of measuring complex variables even though this method may not provide as strong evidence as would be provided by longitudinal data.

Third, only fifteen variables that may be relevant to the development of students' human capital are included and analyzed in this study. It is likely that the socialization of students is much more complex than suggested by the theoretical model I propose in Chapter 2 and, therefore, less than the full amount of variance in the human capital variables--self-concept of ability, grade point average, and educational expectations--will be explained. Nevertheless, it is anticipated that the analyses involving these fifteen variables will provide a significant

contribution to the literature pertaining to the impact of social capital on the development of students' human capital.

OVERVIEW OF THE DISSERTATION

This dissertation has five chapters. In Chapter 1, I have introduced the study by asserting that universities need valid and reliable assessments of their efforts in order to be effective and to demonstrate accountability. I argue that students' perceptions of their educational experiences serve as useful indicators of how effective the efforts of university personnel are in developing the human capital of students. The theoretical concepts that are central to the study are summarized, and the relevance and limitations of the study are described. Finally, an overview of the dissertation is outlined.

In Chapter 2, I examine, in much more detail, the theoretical perspectives that guide the study. In the first section, I conceptualize the human capital development of students as a process of socialization that is inseparably linked to their educational attainment, and that is a primary goal of universities. In the second section, I review theories of social action and use them as a basis for postulating that social structure influences the actions of individuals. In the third section, I describe the concept social capital which provides a theoretical framework for

understanding how social structure influences the perceptions and actions of individuals. In the fourth and final section of the chapter, I develop the hypothesis that a challenging and supportive learning environment provides social capital that facilitates the human capital development of university students. A theoretical model that links social capital, student effort, and human capital, and thus guides the study is presented.

In Chapter 3, I describe the methodology used in the study. In the first section, I describe the survey methodology employed in this study and the sample of university students attending the University of Manitoba who participated in the study. In the second section, I present the fifteen variables that are analyzed in this study showing how each one is operationalized as well as descriptive statistics for each. In the third section, I describe the structural equation modelling procedures used to analyze the variables in the theoretical model that is presented in Chapter 2.

In Chapter 4, I present the empirical examination of the theoretical model. In the first section, the zero-order correlations between all variables in the model are examined. In the second section, a series of multivariate analyses of the interrelationships between university background, social background, social capital, student effort, and human

capital variables are reported. The first set of analyses in this section examines university and social background characteristics of students that influence their perceptions of social capital resources available to them in their educational environment. The second set of analyses examines the influence of the background and the social capital variables on the time management efforts of students. Finally, the third set of analyses examines the effects of the background, the social capital, and the student effort variables on the human capital variables. As shown in Figure 4 in Chapter 2, the social capital and human capital variables are introduced into the analyses in a stepwise fashion to allow a more complete examination of these variables.

Chapter 5 concludes the study. In the first section, the most important results of the study are summarized and discussed. Following this, the implications of the findings for practice and policy making are discussed, and suggestions for further research are presented.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter examines the theoretical perspectives that guide the study. The chapter is divided into four sections. In the first section, the concept human capital is described. Human capital development is inseparably linked to the educational attainment of students and represents a primary goal of universities. The second section reviews theories of social action. It provides a basis for making the argument that social structure influences the actions of individuals. The third section describes the concept social capital. Social capital theory delineates features of the social environment that are a resource for individuals and provides a theoretical framework for understanding how social structure influences the perceptions and actions of individuals. The fourth and final section of the chapter describes social capital within the university context and develops the proposition that a challenging and supportive learning environment constitutes social capital that facilitates the human capital development of students. A theoretical model that links social capital, student effort, and human capital, and that guides the study is presented.

HUMAN CAPITAL AND THE UNIVERSITY

Three types of capital that are distinguished in the literature are

relevant to the goals of universities. These are physical capital, human capital, and social capital (Schultz, 1971; Becker, 1975; Loury, 1977; Coleman, 1988a; Coleman, 1988b). Each of these types of capital is similar in that all are resources that, in this case, facilitate the advancement of knowledge and the educational attainment of students.

Physical capital resources are tangible material entities that exist separate from a person, and are created and used by humans to improve their potential to achieve their goals. In universities, classrooms, libraries, laboratories, and equipment represent physical capital that is needed in order for professors to teach and to do research. These entities are often used as objective indicators of the worth of universities (Tan, 1986). For example, library holdings of books and journals is one of the categories of indicators used in the Maclean's (1995, November) magazine annual ranking of Canadian universities. However, physical capital resources are limited indicators of the ability of universities to achieve their goals because they only represent the tools and facilities that are used. They are, of course, related to the achievement of the goals of the university, but they are not directly part of the process of educating students and they are not the goals themselves.

In addition to physical capital, human capital and social capital are

also resources that facilitate the achievement of the goals of the university. Human capital and social capital relate directly to the process of educating students and it is proposed in this study that social capital facilitates the development of human capital. In subsequent sections of this chapter, social capital is described in detail. For now, the focus is on human capital.

Human capital refers to the knowledge, skills, and attitudes that are embodied within individuals (Schultz 1971). Adam Smith, an influential philosopher and economist during the industrial revolution, was one of the first to consider human beings in terms of the concept capital. He viewed the acquired and useful abilities of all of the inhabitants of a country as part of their available capital. In this regard, human capital, in the form of knowledge, skills, and attitudes, can produce benefits for society as well as for the individual. That is, new ideas based upon knowledge can change the way people do things so that greater benefits can be realized both privately to them and publicly to other members of society (Becker, 1975; Mirvis, 1993; Schultz, 1971; Weisbrod, 1968).

Taking these ideas into consideration, it is argued that human capital is an important concept because it relates both to individuals and to society. Through human capital development, individuals can optimize

their abilities to participate in the production of benefits to themselves and others. Through educational attainment, a primary source of human capital, students are able to think and act in new ways. Consequently they likely gain economic and occupational advantages because educational attainment is strongly related to the prestige of the jobs available to them and to their incomes from work (Bidwell, 1989; Pascarella & Terenzini, 1991, p.529). For example, in countries similar to Canada in terms of economic and social development, correlations between educational attainment and occupational status range between 0.5 and 0.7, and the correlations between educational attainment and income range between 0.3 and 0.4 (see Blau & Duncan, 1967; Boyd, 1982; Broom et al., 1980; Krymkowski, 1991)

Furthermore, because students are members of society, the new ways in which they are able to think and act have an effect on society that can potentially lead to benefits such as the development of new ideas, techniques and products for economic expansion and social adaptation (Weisbrod, 1968). Ultimately, societies benefit economically, socially, scientifically, and technologically when human capital is well developed. The schools and universities supported within society are the institutions that are charged with carrying out the process of developing the human

capital of students.

Socialization is the term used to describe the process through which human capital is developed. Orville Brim (1966), for example, defines socialization as "the process by which persons acquire the knowledge, skills, and dispositions [attitudes] that make them more or less able members of society" (p. 3). Throughout the life span there are many significant people and groups of people who may socialize an individual. Families are generally the most important socializing agency for young children (Giddens, 1991), but as people move through the life span, other agencies of socialization, such as schools and universities, become important. In this regard, universities are contexts within which socialization occurs through the deliberate teaching of knowledge and skills, and the deliberate changing of attitudes (Giddens, 1991). That is, universities are important creators and transmitters of human capital because they intentionally specialize in providing opportunities for students to attain knowledge, skills, and attitudes related to the educational programs they offer.

Not surprisingly, university mission statements invariably reflect the idea that human capital development is an important purpose of universities. For example, the mission statement of the University of Manitoba does not use the term human capital but, nevertheless, describes

the mission of the university in terms closely related to the definition of human capital. It states:

The mission of the University of Manitoba is to create, preserve, and communicate knowledge, and thereby contribute to the cultural, social, and economic well-being of the people of Manitoba, Canada, and the world ("Plan 2000," 1994).

By communicating knowledge, teaching skills, and changing attitudes, universities develop the human capital of students who, in turn, are able to contribute to society using the human capital resources they have acquired in the university.

More specifically, by teaching students, professors contribute to the creation, preservation, and communication of knowledge. This occurs because, through teaching, professors pass on their knowledge, skills and attitudes to others who in turn can contribute to their own well-being, and to the development of society. In this case, professors in a faculty of education attempt to teach students the knowledge, skills, and attitudes that are necessary to be effective teachers.

To achieve the mission of developing human capital through teaching students, universities often articulate goals that relate to students. For example, a stated goal of the University of Manitoba is ..."to enhance

student success by fostering an environment conducive to intellectual and personal growth" ("Plan 2000," 1994). Student success, in the context of the university, relates to educational attainment and the development of knowledge, skills, and attitudes.

It is important to note that human capital, unlike physical capital, is intangible, it is embodied in a person, and it is inseparable from the person. Within the university, human capital, embodied in professors, is a resource that is used to accomplish the education and research functions of the university. That is, professors possess the knowledge, skills, and attitudes that are to be transmitted to students who seek to be educated. Human capital, embodied in students, is the desired outcome of the education function of the university. In practical terms, this outcome is seen in students who acquire new knowledge, skills, and attitudes.

It is also important to note that human capital is also acquired through self investment and that students affect their own academic achievement (Schultz, 1971). Students must invest effort, such as spending their time attending classes and studying, in order to acquire new knowledge, skills, and attitudes. The university cannot change students unless they are willing to invest the time and effort that is necessary. Some might even argue that students are not especially influenced by the

efforts of their professors or the conditions within the learning environment (Becker, 1961). This study, however, tests this assumption. Theories of social action are the basis for assuming that the social environment has potential to influence the perceptions, actions, and achievements of students.

THEORIES OF SOCIAL ACTION

Theories of social action attempt to address questions such as: Why do people act as they do? Are people motivated by the obligations, norms, and sanctions that are a part of being a member of society? Is their motivation an expression of individual self-interest? Or, do both normative values and individual self-interest play a part in explaining social action? Some sociological theories emphasize social structures, such as statuses, norms, and institutions as important influences that guide the social actions of people. Psychological, and some social psychological, theories emphasize individual needs and interests as motivators of action. Other theories, such as rational choice theory, take into account both social factors and individual dispositions when explaining social action.

A number of prominent sociologists, such as Emile Durkheim and Talcott Parsons, were concerned with developing social theory to explain individual behaviour (Coleman, 1990). They developed structural theories

to explain the actions of individuals by taking into account the influence of the social context to which an individual is exposed. In this perspective, "...an actor [is] socialized and action [is] governed by social norms, rules, and obligations." (Coleman, 1988a, p. s95). Individual action is seen as consistent with group standards that constrain individual behaviour and thereby foster group solidarity and ensure social order (Hechter, 1983). The important point that is stressed in structural theories is that social factors, which are independent of individuals, influence how they act, think, and feel (Albas & Albas, 1984). The most important of these factors are statuses, norms, and values (Rossides, 1968).

A status is a social position within society, such as student or professor. People are presumed to act in accordance with the statuses they occupy because statuses are associated with norms and values that represent group standards for the actions and behaviours of individuals. In other words, values, which are collective beliefs about what is meaningful in a social context, combine with norms, which are socially prescribed expectations that define "the rights and duties actors may legitimately demand of each other", to influence social action (Albas and Albas, 1984, p. 7).

Social structural theory contends that individuals hold both ascribed

and achieved statuses. Ascribed statuses are usually associated with biological characteristics such as age and gender. Achieved statuses in modern societies are usually associated with some form of education, the completion of which results in the acquisition of new knowledge, skills, and attitudes for students who, if successful in attaining their education, are conferred a titled status such as teacher or professor. Both ascribed and achieved statuses are associated with culturally defined norms and values that guide social action. For example, young adults, because of norms and values associated with age, are expected to become productive members of society. Students, because of the norms and values associated with the status of student, are expected to attend classes and study to achieve educational goals.

Generally social structural theories explain the actions of individuals in terms of "the internalization of social norms" (Wrong, 1961, p.185), but they do not address why individuals are affected by social structure, nor how they come to internalize norms. In addition, these theories do not generally consider individual variations in motivation, which may account for compliance with, versus deviance from, social norms. They also do not account for how norms become established within a social structure.

In contrast, the actions of individuals can be viewed from a social

psychological perspective. George Herbert Mead's explanation of social action places reasons for action within "the self" of the individual (Mead, 1975). He contends that humans interpret meaning from their environment, particularly from their interactions with others, and that they act in relation to these interpretations. Furthermore, because humans have the capability of being self-reflective, they are able to understand their own viewpoint in relation to that of others. Through significant symbols, such as language, humans use this understanding to interact with each other. Through interaction, in turn, individuals join with other individuals to construct social reality.

The essence of the distinction between social structural and social psychological perspectives of social action is captured in Reynold's statement:

The social and physical environments in which the individual resides may set limits -- sometimes very sharp limits -- on the person's perceptions, interpretations, and actions, but they do not determine them (Reynolds, 1993, p. 127)

Social psychological theories of social action take the perspective of the individual and assume that humans are motivated by the desire to achieve a positive image of themselves by winning acceptance in the eyes of others

(Reynolds, 1993).

Coleman (1990), in turn, describes three different types of individual action that are assumed by social theorists: expressive action, purposive or common sense action, and rational action. Expressive action is a response "resulting from a psychological state brought about by one's relation to one's social environment" (Coleman, 1990, p. 13). Purposive or common sense action is goal directed and shaped by the values and preferences held by the individual. Rational action is a particular type of purposive action in which actions are viewed as having different uses and values for individuals (Coleman, 1990, p. 14). From this perspective, actors are assumed to choose the actions that will maximize benefit for themselves.

Rational choice theories assume that individuals act in ways that are most advantageous to them. In other words, individuals select actions that are most effective in obtaining their goals (Hechter et al., 1990). However, these theories do not assume that individuals act in a social vacuum. Rather, they assume that the choices of action that individuals make are influenced, but not completely predetermined, by the social context in which they exist.

More specifically, three hypotheses form the core of rational choice theories (Hechter et al., 1990). The first hypothesis is referred to as the

preference hypothesis and states that "individuals act in order to attain preferred ends" (Hechter et al., 1990, p. 3). For example, students may work hard in university in order to graduate and to obtain a good job. For these students the preferred ends are graduation and the good job. Other students may skip classes and focus on the party life of the university. For these students, social engagement may be the preferred end.

The second hypothesis is the constraint hypothesis. It contends that constraints and opportunities, derived from individual and/or institutional resources, influence the probability that individual preferences can be attained. Within the educational environment of the university, the academic expectations of professors and available learning opportunities are examples of constraints and opportunities that can help students attain graduation and good jobs. That is, students can improve the probability of attaining these ends if they conform to the expectations of their professors, and if they take advantage of opportunities to learn.

The third hypothesis is the utility maximization hypothesis. It contends that individuals take into account constraints, and then choose action to realize their most important goals (Hechter et al., 1990). For example, if the most important goal of students is to graduate and get a job, they are likely to choose to study rather than to socialize excessively.

The choice they make depends upon their preferences which are limited, or facilitated, by constraints such as workload and professors' expectations, and by norms of student behaviour. Some students choose to study and other students choose to socialize. Their choices are a result of both their goals and the influence of constraints and opportunities in the educational environment.

Rational choice theories imply that norms and institutions influence individual behaviour by altering the cost/benefit calculations that individuals take into account when they make choices. For example, students whose professors expect them to overcome academic challenges in order to achieve positive evaluations, will take into account the cost of not meeting these expectations if they choose to socialize rather than to study. In this respect, the expectations of demanding professors are only one cost/benefit factor that the student takes into account in deciding on what to do. A desire to have fun, or the influence of friends who want to socialize, are examples of other cost/benefit factors that students must take into account in the choices they make.

In essence, rational choice theories suggest that social structure and individual choice interact to influence the attainment of goals. From this perspective, James Coleman (1990) has elaborated a theory of social action

that links social structure to individual action and goal attainment. Central to his theory is the concept of social capital.

SOCIAL CAPITAL

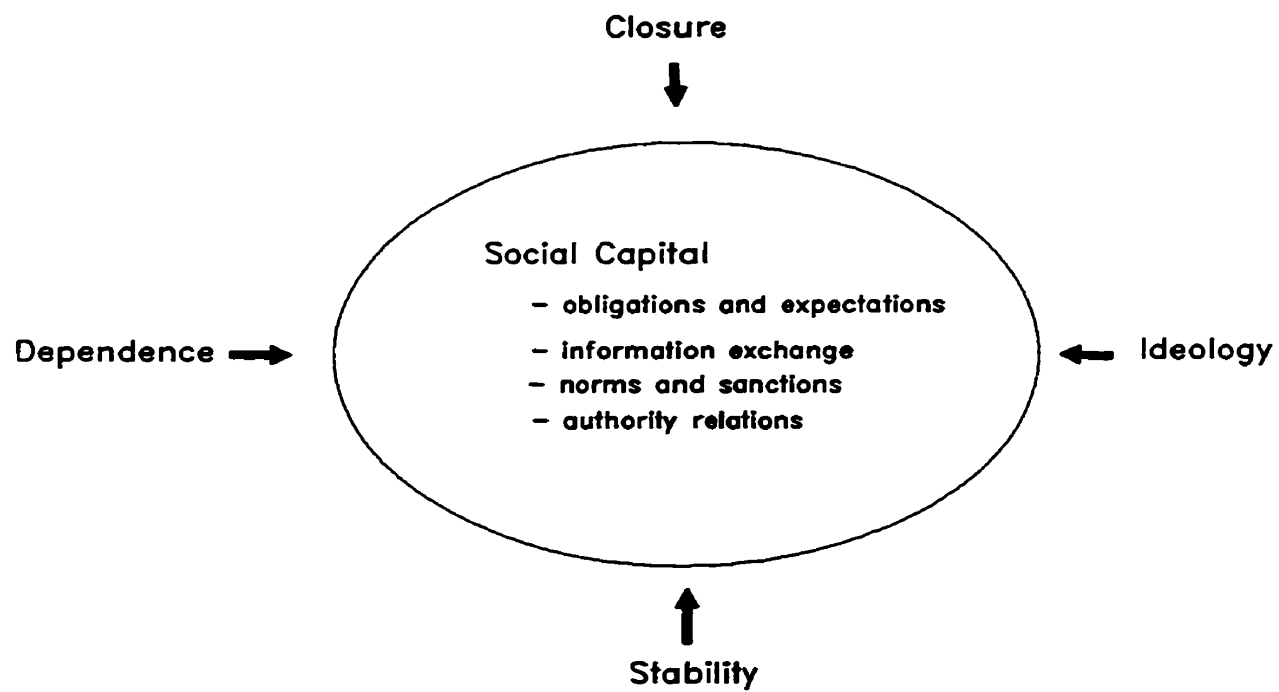
Coleman (1990) refers to social capital as "social-structural resources [which are] a capital asset for the individual" (p. 302). He defines social capital as:

not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of a social structure and they facilitate certain actions of individuals who are within the structure (p. 302)

Social capital "inheres in the structure of relations between actors and among actors" (Coleman, 1988a, p. s98). That is, social capital develops through the personal relations and networks of relations within a social structure (Granovetter, 1985). The concept of social capital, as described by James Coleman (1988a, 1990), links the social structure with the individual. Coleman (1988a, 1990) discusses four entities of social capital that exist in social relations and four properties of social structure that help to produce social capital. As depicted in Figure 1, Coleman's examples of social capital entities are obligations and expectations, information exchange, norms and sanctions, and authority relations.

The first example of social capital is obligations and expectations.

Figure 1
Coleman's Social Capital



Social Capital and Properties of Social Structure
That Enhance Social Capital Resources

Individuals within social structures interact with one another and therefore develop expectations of and obligations toward each other. For example, university professors convey expectations to students and students are obliged to address the challenges they encounter in meeting these expectations in order to receive passing grades. Also, professors are obliged to interact with students to help them understand what they must do and to guide them to overcome successfully the challenges they experience. Furthermore, obligations and expectations are more likely to arise when individuals within a social structure trust that obligations will be met. Trust develops through repeated interactions that allow people to gain a sense of predictability vis-à-vis actions and reactions.

Accordingly, when students trust that professors' expectations are related to things they need in order to be successful students and citizens, they are more likely to put forth effort to meet the expectations. Similarly, when professors trust that students are sincere in seeking help, they are more likely to put effort into providing help. In other words, trustworthiness provides a condition conducive to the exchange of obligations and expectations. When individuals think they can rely on these exchanges to help them meet their goals, they have a form of social capital as a resource that is richer when the level of obligation is high

rather than when the level is low (Coleman, 1988a).

The second example of social capital is information exchange.

During all social relations, information is always exchanged. Interactions between professors and students in classrooms are one type of social relations in which information exchange takes place in universities.

Students ask their professors questions and seek clarification from them about difficult concepts. Also, through interaction, professors can answer questions and elaborate on explanations. Students also exchange information with each other. Interaction among students and between students and professors serves to help students understand expectations and to gain a sense of their abilities relative to those expectations. More practically, students can use other students to catch up on missed lectures, to clarify the expectations for assignments, study together, and discuss their future careers.

The third example of social capital is norms and sanctions. Norms represent the expectations for action that are regarded by a group of people as appropriate or inappropriate. Proscriptive norms specify actions that are discouraged, and prescriptive norms specify actions that are encouraged. Norms are usually enforced by sanctions that take the form of rewards or punishment to reinforce desired behaviour. For example,

through their interactions with students and the rewards and sanctions they use, professors establish norms for classroom behaviours such as coming to class, listening in class, being prepared to discuss assigned readings, and participating in classroom discussions. These norms provide the classroom with social capital which helps to ensure that classes are meaningful and productive for students. Similarly, students also have norms and sanctions for each other (see Albas and Albas, 1984). For example, students working in study groups expect participation from all group members that is congruent with the goals of the group. Students who want the advantage of working in study groups need to contribute to the group. In fact, if students have a choice, they will often expel those who do not contribute to the achievement of the goals.

The fourth and final example of social capital discussed by Coleman is authority relations. Within university classrooms it is the norm for professors to take a leadership role by virtue of their status, which is based on the knowledge, skills, and attitudes that they possess and that students seek to acquire by being in their classes and acknowledging their academic status. When professors are incapable or reluctant to take a leadership role, or, when students choose not to relinquish rights of control to their professors, few legitimate class goals can be accomplished effectively and

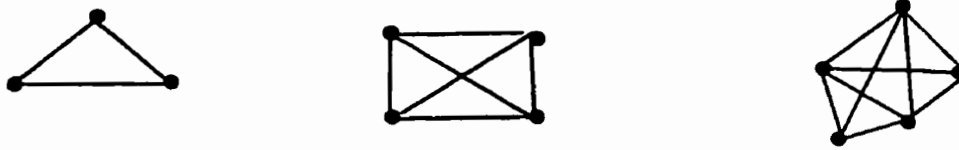
efficiently, if at all. By passing on rights of authority to professors who have demonstrated that they are competent, students can more efficiently and effectively meet their own goals.

Coleman (1988a) states that "all social relations and social structures facilitate some forms of social capital" (p. s105), but some properties of social structure are considered especially important. As shown in Figure 1, closure, stability, ideology, and conditions of dependence are properties of social structures that Coleman considers to be the most important conditions for the existence of rich social capital (Coleman, 1988a; Coleman, 1990).

The first property is closure. The social networks in which more than two people relate to others can be referred to as open or closed. Closed social networks are ones in which all actors have direct relations with one another. Figure 2a represents closed social networks among sets of three, four and five actors. Figure 2b represents open social networks. Open social networks are ones in which some of the actors do not have direct relations with some other actors.

Closure within social networks is seen as a condition that facilitates the development of norms, rewards and sanctions, and trustworthiness within a social group. That is, actors who are part of a closed social

Figure 2
Closed and Open Social Networks*



a) Closed Social Networks



b) Open Social Networks

*Each shape represents a network of social relations

Nodes represent actors and lines represent the social relations between actors

network develop common values and codes of behaviour that they establish and maintain through interactions with each other. Within closed social networks, actors gain reputations with respect to their reliability in fulfilling obligations, and group norms and sanctions can be relied upon as guides to action for all actors. In contrast, if a social network is open, and some actors do not interact with each other, there is more limited opportunity for the development of common values and codes of behaviour and there is less predictability and less trust that can develop between all the actors. Consequently, individual actions are not as tightly guided by group norms.

The second important property of social relations is stability.

Coleman (1988a) notes that social capital flourishes where there are social networks that individuals can depend upon because they are stable over a period of time. In other words, social structures that last a long time are more likely to facilitate the development of social capital than structures that are short lived. Social capital depends on stability of these structures and relations. Social capital is lost when structures and relations are disrupted, because without ongoing social relations between actors, interaction is insufficient for individuals to get to know one another well enough to be able to depend on each other. Building trust in social groups takes time.

In some university programs, for example, groups of students are admitted and proceed through several years of study as a cohort. In these programs, students and professors have considerable opportunities to interact with each other. As a result, they gain knowledge about each other. That is, stability in social relations helps to create social capital because, through repeated interactions, professors get to know the strengths and weaknesses of their students, and students get to know the strengths and weaknesses of other students and their professors. Also, because there is an opportunity for repeated encounters between students within cohorts, study groups, research groups, and friendship groups are more likely to form.

The third important property of social structure in terms of social capital is the existence of an ideology that requires individuals to act in the interests of something or someone other than themselves. According to rational choice theory, individuals will act to achieve goals that are most important to them. When social structures, such as those within universities, are based upon an ideology, such as scholarship, collective goals based on the ideology can become important to individuals. For example, professors can develop expectations of students based upon the ideology of scholarship. These expectations, along with evaluations and

feedback based on the expectations, help to focus the efforts of students towards academic activities based on scholarship in order to attain their educational goals.

The fourth property of social structure identified by Coleman is dependence. That is, social capital is more abundant the more extensively people need to rely upon each other because dependence acts as a motivator for interaction and the development of social networks. For example, within a university classroom, lectures and individual assignments do little to foster student interdependence. In contrast, certain types of group assignments and small group discussions in classes can create conditions of dependence between students. For example, research groups can create dependence between students and professors.

In summary, Coleman's work presents the idea that many entities of social capital, such as obligations and expectations, information exchange, norms and sanctions, and authority relationships between people are a resource that can facilitate the achievement of their common goals (Coleman, 1988b). Furthermore, he proposes that when social structures are closed and stable, and based on some dependence of individuals on one another and on shared ideology, social capital is enhanced.

However, in operational terms, social capital is a resource only to

the extent that it is perceived as such by individuals within a specific social context and in relation to specified goals. In this study it is proposed that social capital can facilitate the changes in knowledge, skills, and attitudes that university students must make in order to increase their human capital. This is particularly true of professional programs such as the one I studied in a faculty of education. In order to test this proposition, it is necessary to specify the nature of social capital within the context of the educational environment and to identify the process by which social capital relates to the human capital development of students.

THE THEORETICAL MODEL

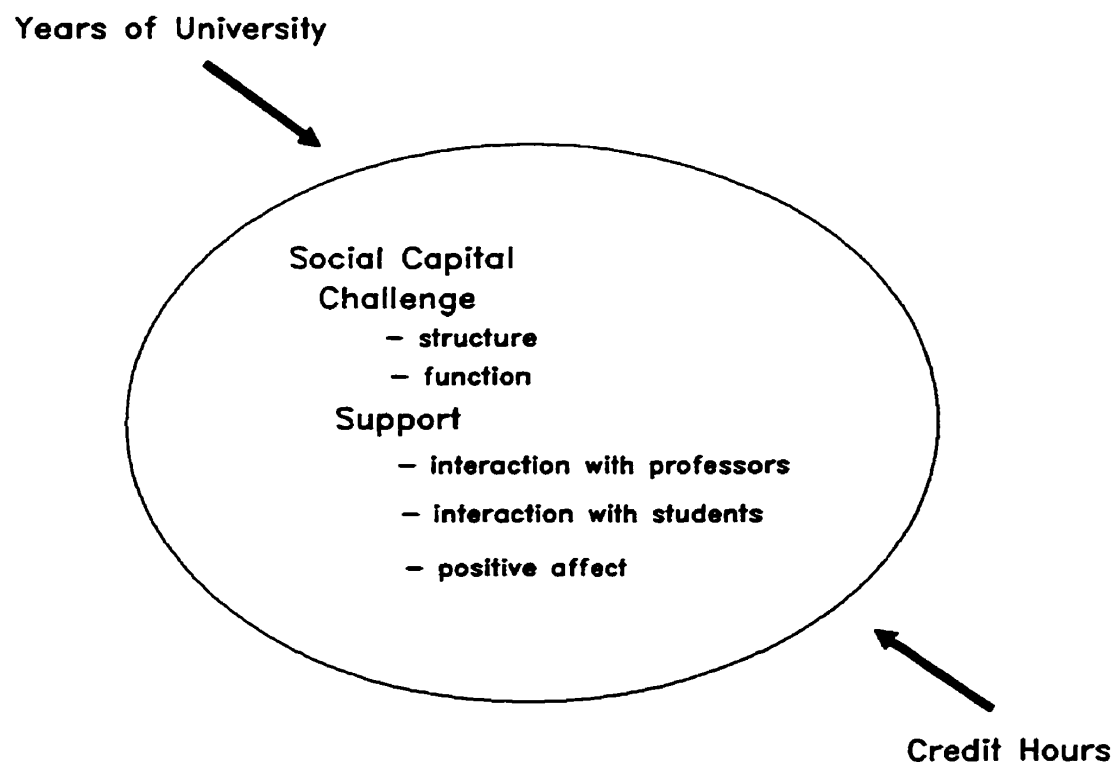
This study proposes that students' perceptions of challenge and support within educational institutions are social capital resources that influence their behaviours and their educational attainment. As previously stated, the acquisition of human capital--new knowledge, skills, and attitudes--involves change on the part of individuals who are attempting to acquire these forms of human capital. Change occurs when individuals are motivated to change and ultimately when they make the effort to change (Brim, 1966; Bredemeier & Bredemeier, 1978). In other words, the university provides the structure, but students must put forth effort in order to change. It is argued that when students feel challenged and supported

within the educational environment, they are more likely to make efforts to change and, as a result, are more likely to change.

Universities, as socializing agents, inadvertently or by design, influence motivation and effort and thereby can facilitate changes in students. That is, universities change students by providing opportunities for them to acquire human capital related to a variety of disciplines, professions, and fields of study. Furthermore, effective universities are ones that provide a learning environment that is rich in social capital that facilitates the changes students must make in order to achieve educational goals. Institutions that provide a learning environment that facilitates change are ones that challenge students to change, and at the same time support them through the process of making changes (Brim, 1966; Baird, 1988; Clifton & Roberts, 1993). Challenge and support are conveyed through social relations within the social structure of the university and, as such, are context specific social capital resources. Figure 3 illustrates challenge and support as two domains of social capital and introduces the dimensions of each of these domains that are examined in this study. In addition, two social structural factors, years of university and credit hours are introduced. These are part of students' university backgrounds and believed to influence social capital in the university context are introduced.

Figure 3

Social Capital in the University: A Context Specific View



**Social Capital in the University and Social Structural
Factors That Enhance Social Capital Resources**

Challenge is an important prerequisite to change because it provides an incentive to change. Challenges that motivate people can take many forms. In university, the expectations and reactions of professors and other students guide the changes that students make. For example, if students are expected to learn the meaning of new concepts and to be able to speak or write about them in meaningful ways when they are evaluated, they will experience challenge. Furthermore, if they want positive evaluations they will be motivated to change by learning the concepts. Effective education programs, within universities, challenge students to learn advanced or specialized knowledge, to develop specialized skills, and to develop attitudes that relate to the grades, degrees, and certificates conferred by the university.

Support is also recognized as an important facilitator of change. Listening, advising, guiding, and encouraging are all aspects of support that motivate students to keep trying even though change may be difficult. In the university environment, professors and other students can advise and encourage students as they go through the changes that are required in order to acquire new knowledge, develop new skills, and change their attitudes. For example, professors can answer students' questions, advise them on how to direct their efforts, and give them feedback and help.

Students can also help each other to understand the professors' expectations and difficult concepts by discussing and exchanging information.

Because the acquisition of new knowledge, skills, and attitudes involves change on the part of students, the link between the challenges and support provided in the educational environment and the responses of students is important. Although a considerable amount of educational attainment and professional socialization literature has identified that both institutional and individual factors are important in the educational process (see for example, Astin, 1993; Becker, 1961; Bidwell, 1989; Coleman, 1990; Merton, 1982; Pascarella & Terenzini, 1991; Simpson, 1979; Weidman, 1989; Zeichner & Gore, 1990), few researchers have empirically measured and tested relationships between these factors. In this study, students' perceptions of challenge and support provide limited but meaningful measures of social capital resources available to students within the university environment. It is proposed that there is a relationship between social capital, student effort, and the human capital development of students.

A theoretical model guides the examination of these relationships. More specifically, an educational attainment model that includes a number

of university background, social background, social capital, student effort, and human capital outcome measures is used. The model includes these four groups of variables that are presumed to be related to one another as shown in Figure 4.

Reading Figure 4 from left to right, university and social background variables represent the first group of variables. Considerable research specifies that background variables should be included in models like this one, in order to take into account factors, other than those of primary interest, that may influence educational outcomes (Bidwell, 1989). That is, the university background variables, *credit hours*, and *years of university*, and the social background variables, *gender*, *age*, and *parent's education*, are included because it is assumed that these variables are likely correlated with other variables in the model.

The university background variables that are included in Figure 4 are of particular interest because they relate to students' involvement in the social structure of the university. As Coleman's (1990) theory indicates, in general terms, properties of social structure--stability, closure, shared ideology, and dependence--influence the possibility for social capital to exist. In specific terms related to students in the context of the university, university background variables, such as *credit hours* and *years of*

The Theoretical Model

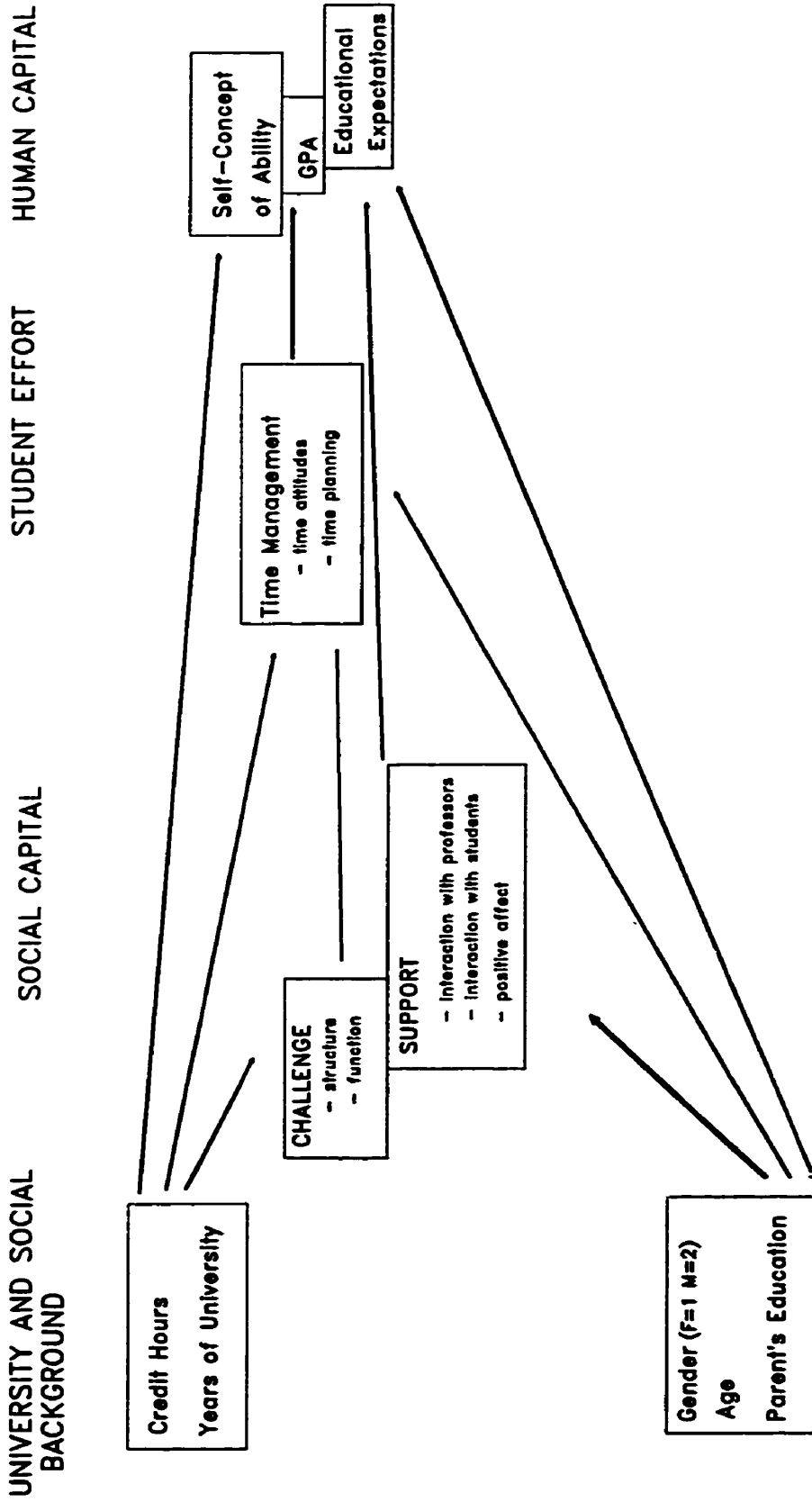


Figure 4

university, relate to the amount of involvement students have or have had in the social structure of the university (see Figure 3). Therefore, they provide a reasonable set of variables for taking into account the effects of social structure on social capital.

The social background variables that are included, *gender*, *age*, and *parent's education* relate to individual characteristics of students that may influence their perceptions of social capital, their time management efforts, and/or their human capital development. For example, older university students have been shown to achieve higher grade point averages than younger students (Metzner and Bean, 1987) and, therefore, age needs to be taken into account when examining the effects of social capital on grade point average. Parents' education may also have an effect on student human capital development if students are influenced to attain similar levels of education to that of their parents; or if students are advantaged or disadvantaged in some way by the support their parents are able or unable to give them in working towards achieving their educational goals.

The second group of variables includes measures of students' perceptions of available social capital in their university program. In the conceptualization, as already stated, there are two domains, challenge and support. The variables in these domains are of primary interest in this

study and they are examined both separately and in relation to one another. Challenge, the first domain, includes the variables *structure* and *function*. These measures examine students' perceptions of the cognitive challenges they experience in their courses. It is proposed that when students perceive that they have been challenged to remember facts, interpret meaning, and apply theories and ideas to problems, they have an incentive to acquire new knowledge, skills, and attitudes and are motivated to apply their efforts to achieve these goals. Therefore, it is proposed that students' perceptions of challenge have a positive effect on their academic self-concepts, their grade point averages, and their educational expectations. It is also proposed that challenge will affect support because students who feel challenged are more likely to interact with others who share the experience and may be able to help them meet the challenges.

Support, the second domain of social capital in the university environment, includes the variables *interaction with professors*, *interaction with students*, and *positive affect*. These measures examine students' perceptions of the support they experience in the faculty. It is proposed that when students perceive that they have positive interactions with professors, students, and others in the faculty, and when they feel positive about their educational experiences in general, they are encouraged and

motivated to go through the changes necessary to attain their educational goals. Therefore, it is proposed that students' perceptions of support have a positive effect on their academic self-concepts, their grade point averages, and their educational expectations.

The third group of variables measures student effort with respect to the way students manage their time. Students have and develop social psychological dispositions in many areas, the most important of which may be related to their efforts. Students' time management, in terms of attitudes and planning, is a reasonable indicator of student effort directed toward achieving educational goals (Britton & Tessor, 1991). The location of the student effort variables in the model reflects the notion that students' efforts may be influenced by the context of their educational experiences, and that institutional and individual factors interact in the educational attainment process. It is proposed that social capital has a positive effect on students' time management. Furthermore, it is proposed that when time is used constructively and managed by setting priorities and focusing on course work, educational attainment is positively affected.

The last group of variables in the model are measures of the developing human capital of students. These variables are *self-concept of ability*, *grade point average (GPA)*, and *educational expectations*. These

forms of human capital are goals of universities as socializing agents, and important outcomes of undergraduate education for students. Self-concept of ability is an important goal because, in interacting with other students and professors, students develop a sense of their own ability, which affects their performances and educational expectations. That is, in line with theories of social action described earlier in this chapter, self-concept of ability is modeled to be an intervening variable between background, social capital, and student effort variables and the educational attainment variables, *GPA* and *educational expectations*. It is proposed that the effort required to attain a positive self-concept of ability also has a positive effect on both immediate educational attainment, such as grades, and future educational goals such as educational expectations.

The next chapter, Chapter 3, describes the variables included in this model. Description of these variables is preceded by a description of the survey instrument used in this study and the sample of students who completed the survey. Following the description of the variables, the procedures used to analyze the data and examine the theoretical model are presented.

CHAPTER 3

METHODOLOGY

In this chapter, the methodology for the study is described in three sections. The first section describes the survey methodology used and the sample of university students who participated in the study. A questionnaire to collect data to illuminate how various aspects of the quality of student life impact on educational outcomes was administered to a randomly selected sample of undergraduate students in the Faculty of Education at the University of Manitoba. The second section presents the fifteen variables that are used in the study. The operationalization of each variable is described along with descriptive statistics for each. The third section describes the statistical procedures used to analyze the data. The analyses are guided by the theoretical model presented in Chapter 2, and structural equation modelling procedures are used for these analyses.

SURVEY INSTRUMENT AND SAMPLE

In 1991, a research team including R. A. Clifton, L. W. Roberts, J. C. Welsh, E. Etcheverry, S. Hasinoff, and D. Mandzuk developed the Quality of Student Life Questionnaire to test models and hypotheses related to students' perceptions of their quality of life in the educational environment of the university. The questionnaire (see Appendix A) is a

refinement of an earlier student questionnaire that was part of a review of the Faculty of Education mandated by the University Senate and carried out in 1987. The revised questionnaire underwent ethics review procedures and approval in the Faculty of Education in December, 1991 and was administered to a sample of Baccalaureate and After Degree program students in the Faculty of Education in February, 1992.

A stratified random cluster sampling technique was used to select the sample of undergraduate education students. This procedure involved identifying the mandatory courses in each year of the undergraduate programs in the Faculty, and selecting a random sample of classes from these programs. Twenty-seven classes, representing approximately 20 percent of the student population within each academic year, were selected to complete the survey. The survey was administered during class time in February 1992, and took approximately 25 minutes to complete. From a sample of 363 students enrolled in these classes, 269 questionnaires were completed by the students, providing a response rate of approximately 74 percent.

Although the response rate is better than would be expected from a more costly mail-in or telephone survey (Babbie, 1995), the response rate appears somewhat lower than might be expected when surveys are

administered and collected in class. However, non-response is mainly due to the fact that some students are enrolled in more than one of the classes that were selected to complete a survey but they are counted as part of the total number of students who received surveys in each class. That is, the response rate reported is a low estimate that does not correct for non-response due to multiple class enrolment because questionnaires are anonymous. Thus, the actual response rate is probably higher than 74 percent.

Table 1 provides a summary of the sample and return rate by year, based upon the year level of the classes in which the questionnaires were administered. The response rate ranges from 58.1 percent for year 4 to 83.3 percent for year 1. It should be noted that students in year four of their program may be enrolled in year one level classes. Non-response is higher for year 4 students because these students could be enrolled in classes at any year level and, therefore, could have received a questionnaire in other classes.

The questionnaire has three parts. The first part asked students about their perceptions of the degree of challenge and support in the faculty. The second section asked students about their social psychological

Table 1
Sample and Return Rate by Year

| <u>Year</u> | <u>Sample Size</u> | <u>Surveys Returned</u> | <u>Response Rate</u> |
|--------------|--------------------|-------------------------|----------------------|
| 1 | 72 | 60 | 83.3 |
| 2 | 113 | 89 | 78.8 |
| 3 | 73 | 59 | 80.8 |
| 4 | 105 | 61 | 58.1 |
| Total | 363 | 269 | 74.1 |

dispositions related to teacher identity, alienation, self-concept of ability, and time use. The third part asked students about their social and university background characteristics, their grade point averages, and their educational expectations. As indicated in the theoretical model (see Figure 4), this study examines the effects of two domains of social capital in the university, students' perceptions of challenge and support, on students' time management, grade point averages, academic self-concepts, and educational expectations. Also, as noted, social and university background factors are taken into account in the assessment of these effects.

MEASUREMENT OF THE VARIABLES

The fifteen variables obtained from the questionnaire that are used to test the theoretical model are described in this section. That is, the operationalization of each variable is indicated along with the response rate from the sample surveyed in this study. In addition, descriptive statistics are presented and indicate that all variables are normally distributed. Any recoding that has been done is noted in the text and/or on the frequency tables. There are four groups of variables: university and social background variables, social capital variables, student effort variables, and human capital variables.

University and Social Background Variables.

The primary focus of this study is to examine the influence of social capital on the development of students' human capital. As argued in Chapter 2, in examining the impact of social capital, it is important to take into account other factors that may influence the development of students' human capital. Therefore, this study includes university and social background variables that are often associated with educational attainment. Two university background variables are included. *Credit hours* is a measure of the amount of course work students are taking and *years of university* is a measure of university experience students have completed. Three social background variables are included. *Gender* and *age* measure student characteristics and *parent's education* measures the highest level of education of students' parents.

Credit Hours. Question 4 of Part V of the questionnaire asks students "How many credit hours of university work are you taking this academic year (Sept - April)?" Table 2 presents frequencies and percentages, and Table 3 presents descriptive statistics for data collected on credit hours. Data are recoded to normalize the distribution of responses. In general, recoding collapses responses so that the distribution of recoded responses is as close as possible to the natural distribution of

Table 2
Frequencies and Percentages for Credit Hours

| Number of Credit Hours* | Frequencies | Percentages |
|--------------------------------|--------------------|--------------------|
| 9 | 7 | 2.7 |
| 15 | 9 | 3.5 |
| 18 | 7 | 2.7 |
| 21 | 12 | 4.7 |
| 24 | 47 | 18.2 |
| 27 | 31 | 12.0 |
| 30 | 101 | 39.1 |
| 33 | 28 | 10.9 |
| 36 | 9 | 3.5 |
| 39 | 7 | 2.7 |
| Total | 258 | 100.0 |

* Recodes: 9(3,6); 15(12,17); 21(20);24(25); 27(26,28); 30(31); 33(32); 36(35); 39(40,57,60,63)

Table 3
Descriptive Statistics for Credit Hours

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 27.49 | Standard Deviation | 5.78 |
| Mode | 30.00 | Median | 30.00 |
| Kurtosis | 1.69 | Skewness | -1.03 |

responses but also is as close as possible to a normal distribution. Specifically for this variable, data are recoded into 3 credit hour distinctions. Three credit hour distinctions are used because courses are almost exclusively designated as 3 or 6 credit hours. Therefore, the response, 9 credit hours, includes the responses of 3 and 6 credit hours, the response 15 credit hours includes the responses of 12 and 17 credit hours and so on as reported in the footnote to Table 2.

Approximately 91 percent of respondents report taking 18 or more credit hours of study in the academic year. Approximately 40 percent are taking 30 credit hours, which is considered to be a full year load, and approximately 17 percent are taking more than 30 credit hours of course work. The mean is 27.49 credit hours with a standard deviation of 5.78. Data are missing for 11 respondents.

Years of University. Question 3 of Part V of the questionnaire asks 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 4 presents frequencies and percentages, and Table 5 presents descriptive statistics for this variable.

Students' previous education at the university level range from 0 to 8 years. Thirteen percent of students report that they have completed no

Table 4
Frequencies and Percentages for Years of University

| Years | Frequencies | Percentages |
|--------------|--------------------|--------------------|
| 0 | 34 | 13.0 |
| 1 | 57 | 21.8 |
| 2 | 44 | 16.9 |
| 3 | 44 | 16.9 |
| 4 | 39 | 14.9 |
| 5 | 23 | 8.8 |
| 6 | 12 | 4.6 |
| 7 | 7 | 2.7 |
| 8 | 1 | 0.4 |
| Total | 261 | 100.0 |

Table 5
Descriptive Statistics for Years of University

| | | | |
|-----------------|--------------|---------------------------|-------------|
| Mean | 2.60 | Standard Deviation | 1.87 |
| Mode | 1.00 | Median | 2.00 |
| Kurtosis | -0.60 | Skewness | 0.45 |

previous years of university education, approximately 71 percent report that they have completed from 1 to 4 years, and approximately 17 percent report that they have completed from 5 to 8 years of previous education at university. The mean is 2.60 years with a standard deviation of 1.87. Data are missing for 8 respondents.

Gender. Question 1 of Part IV of the questionnaire asks students to identify their gender. Females are coded as "1" and males are coded as "2". Respondents include 168 females and 67 males. That is, approximately 75 percent of respondents are female and approximately 25 percent are males. Four students who responded to the questionnaire did not specify their gender.

Age. Question 2 of Part IV of the questionnaire asks students their age. Table 6 shows frequencies and percentages, and Table 7 shows descriptive statistics for data collected on the ages of students. The data are recoded to normalize the distribution of responses. That is, as reported in the footnote on Table 6, age 32 represents respondents aged 32 to 43. That is, sixteen respondents reported ages greater than 32 but their ages are recoded as 32. This recoding normalizes the data.

Ages of respondents range from 17 to 32, with approximately 68 percent of respondents between the ages of 20 and 30. Approximately 25

Table 6
Frequencies and Percentages for Age

| Age* | Frequencies | Percentages |
|--------------|--------------------|--------------------|
| 17 | 1 | .4 |
| 18 | 30 | 11.3 |
| 19 | 35 | 13.2 |
| 20 | 35 | 13.2 |
| 21 | 40 | 15.1 |
| 22 | 28 | 10.6 |
| 23 | 20 | 7.5 |
| 24 | 9 | 3.4 |
| 25 | 8 | 3.0 |
| 26 | 5 | 1.9 |
| 27 | 12 | 4.5 |
| 28 | 8 | 3.0 |
| 29 | 9 | 3.4 |
| 30 | 5 | 1.9 |
| 31 | 3 | 1.1 |
| 32 | 17 | 6.4 |
| Total | 265 | 100.0 |

* Recodes: 32 (34, 35, 36,37, 38, 39, 40, 41, 42, 43)

Table 7
Descriptive Statistics for Age

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 22.57 | Standard Deviation | 4.09 |
| Mode | 21.00 | Median | 21.00 |
| Kurtosis | -0.06 | Skewness | 0.10 |

percent of respondents are less than 20 years old, and slightly over 7.5 percent are older than 30. The mean age is 22.57 with a standard deviation of 4.09. All but 4 of the respondents reported their age.

Parents' Education. Question 4 of Part IV of the questionnaire asks students about the highest level of education received by their mother and their father. There are nine response choices for highest level of education received: "(1) elementary school, (2) some high school, (3) completed high school, (4) some technical/vocational training, (5) completed community college, (6) some university, (7) completed bachelors degree, (8) some education at the graduate level, (9) completed graduate degree." Responses for highest level of education attained by mothers were added to responses for highest level of education attained by fathers to produce a combined score with a possible range of from 1 to 18. The higher the score, the higher the combined education level of a student's mother and father. Table 8 presents frequencies and percentages, and Table 9 presents descriptive statistics for data collected on parents' education.

Approximately 14 percent of students have parents' education scores of greater than 12, indicating that both parents have had at least some level of post-secondary education. Eight respondents did not provide information on both mother's and father's education and, therefore,

Table 8
Frequencies and Percentages for Parents' Education

| Scale Score | Frequencies | Percentages |
|--------------------|--------------------|--------------------|
| 2 | 19 | 7.3 |
| 3 | 10 | 3.8 |
| 4 | 35 | 13.4 |
| 5 | 26 | 10.0 |
| 6 | 24 | 9.2 |
| 7 | 20 | 7.7 |
| 8 | 16 | 6.1 |
| 9 | 26 | 10.0 |
| 10 | 23 | 8.8 |
| 11 | 15 | 5.7 |
| 12 | 10 | 3.8 |
| 13 | 8 | 3.1 |
| 14 | 8 | 3.1 |
| 15 | 10 | 3.8 |
| 16 | 8 | 3.1 |
| 17 | 2 | 0.8 |
| 18 | 1 | 0.4 |
| Total | 261 | 100.0 |

Table 9
Descriptive Statistics for Parents' Education

| | | | |
|-----------------|--------------|---------------------------|-------------|
| Mean | 7.84 | Standard Deviation | 3.92 |
| Mode | 4.00 | Median | 7.00 |
| Kurtosis | -0.61 | Skewness | 0.48 |

are considered to be non-respondents for this variable. The mean is 7.84 years of education with a standard deviation of 3.92. That is, the combined education level of students' parents is less than a bachelor's degree for approximately 50 percent of respondents.

Social Capital Variables

This study postulates that students' perceptions of the challenge and support they experience in the Faculty are a social capital resource that can facilitate the development of their human capital in terms of academic self-concept, grade point average, and educational expectations. Five variables measure social capital. Two variables measure students' perceptions of the challenges they experience in the Faculty, and three variables measure their perceptions of the support they have in the Faculty.

Part II of the questionnaire asks students to rate, on a four point scale ranging from strongly agree to strongly disagree, the quality of their education. Questions in Part II relate to two dimensions of the challenge students experience. One is the structural dimension, representing challenges to remember and interpret new facts and terms, and the other is the functional dimension, representing challenges to engage in more complex skills such as applying and analyzing information. (Clifton, Etcheverry, Hasinoff, & Roberts, 1996). Questions pertaining to these two

dimensions are included in this study in the form of two additive scales called *structure* and *function*.

Structure. The items pertaining to the structural dimension of the challenge domain of social capital ask students to indicate the degree to which they agree or disagree with the following six statements.

In the Faculty of Education, 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.

The inter-item correlations and factor loadings for *structure* are reported in Table 10. The inter-item correlations range from .36 to .78, and factor loadings range from .60 to .89, indicating that items are strongly related to the factor. The alpha reliability coefficient for this scale is .88.

Possible scores on this scale range from 6 to 24. The higher the score, the greater the student's perception of challenges experienced to remember, recall, and interpret information. Reported scores range from 7 to 24. Table 11 presents frequencies and percentages, and Table 12 shows descriptive statistics for this variable. The mean score is 16.18 with a standard deviation of 3.07. Data are missing for 8 respondents.

Table 10
Inter-Item Correlations and Factor Loadings for Structure

| Items | 1. | 2. | 3. | 4. | 5. | 6. | Factor Loadings |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|
| 1. | 1.00 | | | | | | .76 |
| 2. | .59 | 1.00 | | | | | .72 |
| 3. | .36 | .42 | 1.00 | | | | .60 |
| 4. | .59 | .53 | .40 | 1.00 | | | .89 |
| 5. | .52 | .49 | .44 | .81 | 1.00 | | .87 |
| 6. | .57 | .46 | .41 | .78 | .77 | 1.00 | .86 |

Eigenvalue = 3.76
Percent of Common Variance = 62.70

Table 11
Frequencies and Percentages for Structure

| <u>Scale Scores</u> | <u>Frequencies</u> | <u>Percentages</u> |
|---------------------|--------------------|--------------------|
| 7 | 1 | 0.4 |
| 8 | 1 | 0.4 |
| 9 | 1 | 0.4 |
| 11 | 2 | 0.8 |
| 12 | 21 | 8.0 |
| 13 | 26 | 10.0 |
| 14 | 33 | 12.6 |
| 15 | 36 | 13.8 |
| 16 | 22 | 8.4 |
| 17 | 24 | 9.2 |
| 18 | 50 | 19.2 |
| 19 | 12 | 4.6 |
| 20 | 10 | 3.8 |
| 21 | 4 | 1.5 |
| 22 | 4 | 1.5 |
| 23 | 10 | 3.8 |
| 24 | 4 | 1.5 |
| Total | 261 | 100.0 |

Table 12
Descriptive Statistics for Structure

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 16.18 | Standard Deviation | 3.07 |
| Mode | 18.00 | Median | 16.00 |
| Kurtosis | 0.16 | Skewness | 0.36 |

Function. The items pertaining to the functional dimension of the challenge domain of social capital ask students to indicate the degree to which they agree or disagree with the following eleven statements.

In the Faculty of Education, 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 weaknesses of arguments.
9. - apply theoretical principles in solving problems.
10. - organize ideas in new ways.
11. - identify bias in written material.

The inter-item correlations and loadings for *function* are reported in Table 13. The inter-item correlations range from .10 to .57, and the factor loadings range from .46 to .74 indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .85.

Possible scores on this scale range from 11 to 44. The higher the score, the greater the student's perception of challenge to apply, synthesize, and analyze information. Reported scores, after recoding data, range from 18 to 43. Specifically, a score of 13 is recoded to a score of 18 in order to normalize the data. Table 14 presents frequencies and percentages, and Table 15 shows descriptive statistics for this variable. The mean score is

Table 13
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 | | | | | | | | | | | .69 |
| 2. | .38 | 1.00 | | | | | | | | | | .53 |
| 3. | .51 | .37 | 1.00 | | | | | | | | | .68 |
| 4. | .38 | .32 | .57 | 1.00 | | | | | | | | .69 |
| 5. | .36 | .40 | .36 | .38 | 1.00 | | | | | | | .70 |
| 6. | .48 | .28 | .46 | .46 | .49 | 1.00 | | | | | | .74 |
| 7. | .28 | .10 | .21 | .21 | .25 | .22 | 1.00 | | | | | .46 |
| 8. | .32 | .22 | .26 | .40 | .41 | .39 | .41 | 1.00 | | | | .66 |
| 9. | .43 | .22 | .37 | .39 | .48 | .51 | .23 | .41 | 1.00 | | | .67 |
| 10. | .34 | .33 | .27 | .33 | .39 | .37 | .30 | .38 | .28 | 1.00 | | .60 |
| 11. | .29 | .14 | .27 | .26 | .29 | .32 | .23 | .44 | .23 | .29 | 1.00 | .52 |

Eigenvalue = 4.46
Percent of Common Variance = 40.60

Table 14
Frequencies and Percentages for Function

| <u>Scale Scores</u> | <u>Frequencies</u> | <u>Percentages</u> |
|---------------------|--------------------|--------------------|
| 18 | 1 | 0.4 |
| 19 | 1 | 0.4 |
| 20 | 1 | 0.4 |
| 21 | 2 | 0.8 |
| 22 | 1 | 0.4 |
| 23 | 4 | 1.6 |
| 24 | 4 | 1.6 |
| 25 | 11 | 4.3 |
| 26 | 17 | 6.7 |
| 27 | 15 | 5.9 |
| 28 | 11 | 4.3 |
| 29 | 20 | 7.8 |
| 30 | 20 | 7.8 |
| 31 | 36 | 14.1 |
| 32 | 25 | 9.8 |
| 33 | 40 | 15.7 |
| 34 | 12 | 4.7 |
| 35 | 8 | 3.1 |
| 36 | 5 | 2.0 |
| 37 | 7 | 2.7 |
| 38 | 3 | 1.2 |
| 39 | 5 | 2.0 |
| 40 | 3 | 1.2 |
| 41 | 2 | 0.8 |
| 43 | 1 | 0.4 |
| Total | 255 | 100.0 |

Table 15
Descriptive Statistics for Function

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 30.73 | Standard Deviation | 4.10 |
| Mode | 33.00 | Median | 31.00 |
| Kurtosis | 0.51 | Skewness | -0.06 |

30.73 with a standard deviation of 4.10. Data are missing for 14 respondents.

As previously indicated, in addition to assessing students' perceptions of how challenged they are in the educational environment, this study also measured students' perceptions of the support they have. Part I of the questionnaire asks students to rate, on a four point scale ranging from strongly agree to strongly disagree, how they feel in the Faculty of Education. The questions in Part I relate to three dimensions of support in the educational environment and are based on the work of Roberts and Clifton (1991). Questions pertaining to these three dimensions are included in this study in the form of three additive scales called *interaction with professors*, *interaction with students*, and *positive affect*.

Interaction with professors. The first dimension of support is students' perceptions of their interactions with professors. The items pertaining to this dimension of the support domain of social capital ask students to indicate the degree to which they agree or disagree with the following seven statements.

The Faculty of Education is a place where....

1. - professors treat me fairly.
2. - professors give me the marks I deserve.
3. - professors take a personal interest in helping me with my work.
4. - I am treated with respect.

5. - professors help me to do my best.
6. - professors are fair and just.
7. - professors listen to what I say.

The inter-item correlations and factor loadings for *interaction with professors* are reported in Table 16. The inter-item correlations range from .25 to .68, and the factor loadings range from .62 to .78 indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .82.

Possible scores on this scale range from 7 to 28. The higher the score, the more positive the student's perception of their interactions with professors. Reported scores, after recoding data, range from 11 to 28. Specifically, scores of 8 and 11 are recoded to scores of 11 and 12 respectively in order to normalize the data. Table 17 presents frequencies and percentages and Table 18 shows descriptive statistics for this variable. The mean score is 20.21 with a standard deviation of 2.46 and the variable is reasonably normally distributed. Data are missing for 16 respondents on this scale.

Interaction with students. The second dimension of support is students' perceptions of their interactions with other people, in particular other students, in the Faculty. The items pertaining to this dimension of

Table 16
Inter-Item Correlations and Factor Loadings for Interaction with Professors

| Items | 1. | 2. | 3. | 4. | 5. | 6. | 7. | Factor Loadings |
|-------|------|------|------|------|------|------|------|-----------------|
| 1. | 1.00 | | | | | | | .72 |
| 2. | .47 | 1.00 | | | | | | .68 |
| 3. | .29 | .29 | 1.00 | | | | | .68 |
| 4. | .42 | .29 | .41 | 1.00 | | | | .62 |
| 5. | .39 | .38 | .68 | .35 | 1.00 | | | .78 |
| 6. | .54 | .61 | .31 | .29 | .48 | 1.00 | | .76 |
| 7. | .39 | .25 | .36 | .35 | .47 | .42 | 1.00 | .66 |

Eigenvalue = 3.43
Percent of Common Variance = 49.00

Table 17
Frequencies and Percentages for Interaction with Professors

| Scale Scores | Frequencies | Percentages |
|---------------------|--------------------|--------------------|
| 11 | 1 | 0.4 |
| 12 | 1 | 0.4 |
| 14 | 3 | 1.2 |
| 15 | 5 | 2.0 |
| 16 | 7 | 2.8 |
| 17 | 15 | 5.6 |
| 18 | 20 | 7.9 |
| 19 | 30 | 11.9 |
| 20 | 37 | 14.6 |
| 21 | 80 | 31.6 |
| 22 | 28 | 11.1 |
| 23 | 7 | 2.8 |
| 24 | 9 | 3.6 |
| 25 | 2 | 0.8 |
| 26 | 4 | 1.6 |
| 27 | 3 | 1.2 |
| 28 | 1 | 0.4 |
| Total | 253 | 100.0 |

Table 18
Descriptive Statistics for Interactions with Professors

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 20.21 | Standard Deviation | 2.46 |
| Mode | 21.00 | Median | 21.00 |
| Kurtosis | 1.65 | Skewness | -0.21 |

the support domain of social capital ask students to indicate the degree to which they agree or disagree with the following six statements.

The Faculty of Education is a place where....

1. - I find it easy to get to know other people.
2. - people care about what I think.
3. - mixing with other people helps me to understand myself.
4. - people think a lot of me.
5. - other students accept me as I am..
6. - I get on well with other students in my class.

The inter-item correlations and factor loadings for *interaction with students* are reported in Table 19. The inter-item correlations range from .19 to .47, and the factor loadings range from .60 to .72 indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .74.

Possible scores on this scale range from 6 to 24. The higher the score, the more positive the students' perception of their interactions with other students. Reported scores, after recoding data, range from 10 to 23. Specifically, a score of 6 is recoded to a score of 10 in order to normalize the data. Table 20 presents frequencies and percentages, and Table 21 shows the descriptive statistics for this variable. The mean score is 17.55 with a standard deviation of 2.21. Data are missing for 15 respondents on the interactions with students scale.

Table 19
Inter-Item Correlations and Factor Loadings for Interaction with Students

| Items | 1. | 2. | 3. | 4. | 5. | 6. | Factor Loadings |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|
| 1. | 1.00 | | | | | | .66 |
| 2. | .30 | 1.00 | | | | | .60 |
| 3. | .32 | .34 | 1.00 | | | | .68 |
| 4. | .33 | .37 | .39 | 1.00 | | | .68 |
| 5. | .27 | .25 | .29 | .19 | 1.00 | | .61 |
| 6. | .39 | .20 | .36 | .38 | .47 | 1.00 | .72 |

Eigenvalue = 2.62
Percent of Common Variance = 43.60

Table 20
Frequencies and Percentages for Interaction with Students

| Scale Scores | Frequencies | Percentages |
|---------------------|--------------------|--------------------|
| 10 | 1 | 0.4 |
| 11 | 1 | 0.4 |
| 12 | 4 | 1.6 |
| 13 | 2 | 0.8 |
| 14 | 11 | 4.3 |
| 15 | 20 | 7.9 |
| 16 | 38 | 15.0 |
| 17 | 44 | 17.3 |
| 18 | 59 | 23.2 |
| 19 | 26 | 10.2 |
| 20 | 24 | 9.4 |
| 21 | 15 | 5.9 |
| 22 | 6 | 2.4 |
| 23 | 3 | 1.2 |
| Total | 254 | 100.0 |

Table 21
Descriptive Statistics for Interaction with Students

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 17.55 | Standard Deviation | 2.21 |
| Mode | 18.00 | Median | 18.00 |
| Kurtosis | 0.47 | Skewness | -0.18 |

Positive affect. The third dimension of support assesses students general perceptions of their educational experience. The items pertaining to this dimension of the support domain of social capital ask students to indicate the degree to which they agree or disagree with the following twelve statements.

The Faculty of Education is a place where....

1. - the things I learn are important to me.
2. - I really get involved in my work.
3. - I like learning.
4. - I enjoy being.
5. - I have acquired skills that will be of use to me.
6. - the things I learn will help me in my life.
7. - I am given the chance to do work that really interests me.
8. - the things I am taught are worthwhile learning.
9. - I really like to go each day.
10. - the work I do is good preparation for my future.
11. - I have learned to work hard.
12. - I find that learning is a lot of fun.

The inter-item correlations and factor loadings for *positive affect* are reported in Table 22. The inter-item correlations range from .22 to .68, and the factor loadings range from .56 to .79 indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .89.

Possible scores on this scale range from 12 to 48. The higher the score, the more positive the students' perceptions of their educational

Table 22
Inter-Item Correlations and Factor Loadings for Positive Affect

| Items | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | Factor Loadings |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------|
| 1. | 1.00 | | | | | | | | | | | | .60 |
| 2. | .31 | 1.00 | | | | | | | | | | | .64 |
| 3. | .30 | .48 | 1.00 | | | | | | | | | | .62 |
| 4. | .22 | .49 | .51 | 1.00 | | | | | | | | | .63 |
| 5. | .40 | .36 | .31 | .31 | 1.00 | | | | | | | | .74 |
| 6. | .46 | .41 | .38 | .36 | .57 | 1.00 | | | | | | | .74 |
| 7. | .46 | .33 | .32 | .36 | .60 | .48 | 1.00 | | | | | | .74 |
| 8. | .48 | .30 | .37 | .36 | .60 | .58 | .68 | 1.00 | | | | | .78 |
| 9. | .32 | .40 | .30 | .50 | .38 | .38 | .42 | .49 | 1.00 | | | | .67 |
| 10. | .50 | .36 | .32 | .35 | .68 | .61 | .63 | .67 | .45 | 1.00 | | | .79 |
| 11. | .27 | .53 | .36 | .36 | .31 | .29 | .29 | .31 | .36 | .34 | 1.00 | | .56 |
| 12. | .23 | .39 | .53 | .42 | .37 | .43 | .32 | .40 | .50 | .39 | .34 | 1.00 | .64 |

Eigenvalue = 5.60
Percent of Common Variance = 46.70

experience in the faculty in terms of general enjoyment, feeling positive, happiness, and liking the institution. Reported scores range from 14 to 46. Table 23 presents frequencies and percentages, and Table 24 shows descriptive statistics for this variable. The mean score is 34.52 with a standard deviation of 5.33 and the variable is reasonably normally distributed. Data are missing for 14 respondents on the positive affect scale.

Student Effort Variables

Two time management variables, *time attitudes* and *time planning*, are used to measure student effort. Questions 7 to 19 of Part III, Section 4 of the questionnaire asked students to rate their time management skills on a five point scale ranging from "always" to "never". These questions relate to two dimensions of time management involving attitudes toward time and planning (Britton & Tessor, 1991). Questions pertaining to these two dimensions are included in this study in the form of two additive scales called *time attitudes* and *time planning*.

Time attitudes. The 6 items in the *time attitudes* scale ask students:

1. - Do you continue unprofitable routines or activities?
2. - Do you make constructive use of your time?
3. - Do you believe that there is room for improvement in the way you manage your time?
4. - On an average class day, do you spend more time with personal

Table 23
Frequencies and Percentages for Positive Affect

| <u>Scale Scores</u> | <u>Frequencies</u> | <u>Percentages</u> |
|---------------------|--------------------|--------------------|
| 14 | 1 | 0.4 |
| 18 | 1 | 0.4 |
| 19 | 1 | 0.4 |
| 20 | 1 | 0.4 |
| 22 | 1 | 0.4 |
| 23 | 2 | 0.8 |
| 24 | 3 | 1.2 |
| 25 | 6 | 2.4 |
| 26 | 8 | 3.1 |
| 27 | 2 | 0.8 |
| 28 | 5 | 2.0 |
| 29 | 9 | 3.5 |
| 30 | 12 | 4.7 |
| 31 | 16 | 6.3 |
| 32 | 10 | 3.9 |
| 33 | 13 | 5.1 |
| 34 | 17 | 6.7 |
| 35 | 30 | 11.8 |
| 36 | 31 | 12.2 |
| 37 | 19 | 7.5 |
| 38 | 9 | 3.5 |
| 39 | 13 | 5.1 |
| 40 | 16 | 6.3 |
| 41 | 11 | 4.3 |
| 42 | 2 | 0.8 |
| 43 | 9 | 3.5 |
| 44 | 2 | 0.8 |
| 45 | 3 | 1.2 |
| 46 | 2 | 0.8 |
| Total | 255 | 100.0 |

Table 24
Descriptive Statistics for Positive Affect

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 34.52 | Standard Deviation | 5.33 |
| Mode | 36.00 | Median | 35.00 |
| Kurtosis | 0.75 | Skewness | -0.58 |

- grooming than doing school work?
5. - Do you often find yourself doing things which interfere with your school work simply because you hate to say "NO" to people?
 6. - Do you set and honour priorities?

Items 2 and 6 indicate positive time attitudes and are coded with a high score for a response of "always" and a low score for a response of "never". Four of the items, items 1, 3, 4, and 5, in this scale all indicate poor time attitudes and are reverse coded in order to make it possible to add them to items 2 and 6 to produce a scale. That is, the negatively worded items are coded with a high score for a response of "never" and a low score for a response of "always", and then the scale is formed by adding all the items.

The inter-item correlations and factor loadings for *time attitudes* are reported in Table 25. The inter-item correlations range from .11 to .49, and the factor loadings range from .50 to .79, indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .71.

Possible scores on this scale range from 6 to 30. The higher the score, the more positive are the students' time attitudes. Reported scores range from 10 to 30. Table 26 presents frequencies and percentages, and Table 27 shows descriptive statistics for this variable. The mean score is

Table 25
Inter-Item Correlations and Factor Loadings for Time Attitudes

| Items | 1. | 2. | 3. | 4. | 5. | 6. | Factor Loadings |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|
| 1. | 1.00 | | | | | | .71 |
| 2. | .45 | 1.00 | | | | | .79 |
| 3. | .31 | .31 | 1.00 | | | | .50 |
| 4. | .30 | .42 | .11 | 1.00 | | | .59 |
| 5. | .37 | .30 | .24 | .25 | 1.00 | | .63 |
| 6. | .29 | .49 | .15 | .23 | .31 | 1.00 | .64 |

Eigenvalue = 2.55
Percent of Common Variance = 42.40

Table 26
Frequencies and Percentages for Time Attitudes

| <u>Scale Scores</u> | <u>Frequencies</u> | <u>Percentages</u> |
|---------------------|--------------------|--------------------|
| 10 | 1 | 0.4 |
| 11 | 2 | 0.8 |
| 12 | 4 | 1.5 |
| 13 | 4 | 1.5 |
| 14 | 8 | 3.1 |
| 15 | 8 | 3.1 |
| 16 | 22 | 8.4 |
| 17 | 25 | 9.6 |
| 18 | 24 | 9.2 |
| 19 | 35 | 13.4 |
| 20 | 31 | 11.9 |
| 21 | 25 | 9.6 |
| 22 | 23 | 8.8 |
| 23 | 22 | 8.4 |
| 24 | 11 | 4.2 |
| 25 | 9 | 3.4 |
| 26 | 3 | 1.1 |
| 28 | 1 | 0.4 |
| 29 | 2 | 0.8 |
| 30 | 1 | 0.4 |
| Total | 261 | 100.0 |

Table 27
Descriptive Statistics for Time Attitudes

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 19.46 | Standard Deviation | 3.39 |
| Mode | 19.00 | Median | 19.00 |
| Kurtosis | 0.24 | Skewness | 0.02 |

19.46 with a standard deviation of 3.39. Data are missing for 8 respondents.

Time planning. The 6 items in the *time planning* scale ask students:

1. - Do you make a list of the things you have to do each day?
2. - Do you plan your day before you start it?
3. - Do you make a schedule of the activities you have to do on workdays?
4. - Do you write a set of goals for yourself each day?
5. - Do you spend time each day planning?
6. - Do you have a clear idea of what you want to accomplish during the next week?

The inter-item correlations and loadings for *time planning* are reported in Table 28. The inter-item correlations range from .36 to .69, and the factor loadings range from .60 to .85, indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .87.

Possible scores on this scale range from 6 to 30. The higher the score, the more positive are the student's time planning skills. Reported scores on this scale also range from 6 to 30. Table 29 presents frequencies and percentages, and Table 30 shows the descriptive statistics for this variable. The mean score is 19.96 with a standard deviation of 4.83. Data are missing for 14 respondents.

Table 28
Inter-Item Correlations and Factor Loadings for Time Planning

| Items | 1. | 2. | 3. | 4. | 5. | 6. | Factor Loadings |
|-------|------|------|------|------|------|------|-----------------|
| 1. | 1.00 | | | | | | .84 |
| 2. | .57 | 1.00 | | | | | .77 |
| 3. | .69 | .61 | 1.00 | | | | .85 |
| 4. | .58 | .44 | .60 | 1.00 | | | .77 |
| 5. | .57 | .56 | .63 | .56 | 1.00 | | .81 |
| 6. | .44 | .38 | .36 | .37 | .38 | 1.00 | .60 |

Eigenvalue = 3.62
Percent of Common Variance = 60.40

Table 29
Frequencies and Percentages for Time Planning

| Scale Scores | Frequencies | Percentages |
|---------------------|--------------------|--------------------|
| 6 | 1 | 0.4 |
| 8 | 1 | 0.4 |
| 9 | 4 | 1.6 |
| 10 | 7 | 2.7 |
| 11 | 2 | 0.8 |
| 12 | 6 | 2.4 |
| 13 | 4 | 1.6 |
| 14 | 10 | 3.9 |
| 15 | 11 | 4.3 |
| 16 | 15 | 5.9 |
| 17 | 6 | 2.4 |
| 18 | 22 | 8.6 |
| 19 | 21 | 8.2 |
| 20 | 24 | 9.4 |
| 21 | 20 | 7.8 |
| 22 | 19 | 7.5 |
| 23 | 16 | 6.3 |
| 24 | 25 | 9.8 |
| 25 | 14 | 5.5 |
| 26 | 9 | 3.5 |
| 27 | 7 | 2.7 |
| 28 | 2 | 0.8 |
| 29 | 3 | 1.2 |
| 30 | 6 | 2.4 |
| Total | 255 | 100.0 |

Table 30
Descriptive Statistics for Time Planning

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 19.96 | Standard Deviation | 4.83 |
| Mode | 24.00 | Median | 20.00 |
| Kurtosis | -0.14 | Skewness | -0.33 |

Human Capital Variables

Three variables measure the developing human capital of students. As indicated in Chapter 2, human capital development consists of the acquisition of new attitudes, knowledge, and skills. Two of the variables, *self-concept of ability* and *educational expectations* measure attitudes: the other variable, grade point average (*GPA*), measures knowledge and skills.

Self-concept of ability. Questions 1 to 5 of Part III, Section 3 of the questionnaire ask students how they feel about their academic abilities.

The following questions, which represent a modified version of the Self-Concept of Ability Scale developed by Brookover, Patterson, and Thomas (1962), make up the *self-concept of ability* scale used in this study:

1. - Think of your university friends. Do you think you can do your university course work...better than all of them/better than most them/about the same/poorer than most of them/poorer than all of them
2. - Think of the students in your faculty. Do you think you can do your university course work...better than all of them/better than most them/about the same/poorer than most of them/poorer than all of them
3. - When you complete your undergraduate degree, do you think that you will be...better than all students/better than most students/about the same/poorer than most students/poorer than all students
4. - Do you think you have the ability to complete a doctoral degree...yes for sure/yes probably/maybe/no probably not/no for

sure

5. - Forget how your professors grade your work. How good do you think your work is...excellent/good/same as most of the students/below most of the students/poor

The inter-item correlations and factor loadings for *self-concept of ability* are reported in Table 31. The inter-item correlations range from .19 to .50, and the factor loadings for the items range from .59 to .75, indicating that the items are strongly related to the factor. The alpha reliability coefficient for this scale is .66.

Possible scores on this scale range from 5 to 25. The higher the score, the more positive is the students' academic self-concepts. Reported scores on this scale range from 11 to 25. Table 32 presents frequencies and percentages, and Table 33 presents descriptive statistics for this variable. The mean score is 17.84 with a standard deviation of 2.14. Data are missing for 6 respondents.

Grade Point Average. Question 6 of Part V of the questionnaire asks students to indicate their cumulative grade point average. Table 34 presents frequencies and percentages and Table 35 shows descriptive statistics for data collected on GPA. There are eight response choices, from "0.0 - 0.9" to "4.0 - 4.5", each choice representing a range of grade point averages. Data are recoded to normalize the distribution of

Table 31
Inter-Item Correlations and Factor Loadings for Self-Concept of Ability

| Items | 1. | 2. | 3. | 4. | 5. | Factor Loadings |
|--------------|-----------|-----------|-----------|-----------|-----------|------------------------|
| 1. | 1.00 | | | | | .65 |
| 2. | .50 | 1.00 | | | | .75 |
| 3. | .19 | .31 | 1.00 | | | .59 |
| 4. | .24 | .31 | .25 | 1.00 | | .65 |
| 5. | .23 | .32 | .32 | .39 | 1.00 | .68 |

Eigenvalue = 2.23
Percent of Common Variance = 44.60

Table 32
Frequencies and Percentages for Self-Concept of Ability

| Scale Scores | Frequencies | Percentages |
|---------------------|--------------------|--------------------|
| 11 | 1 | 0.4 |
| 12 | 1 | 0.4 |
| 13 | 4 | 1.5 |
| 14 | 6 | 2.3 |
| 15 | 20 | 7.6 |
| 16 | 33 | 12.5 |
| 17 | 53 | 20.2 |
| 18 | 53 | 20.2 |
| 19 | 41 | 15.6 |
| 20 | 22 | 8.4 |
| 21 | 14 | 5.3 |
| 22 | 11 | 4.2 |
| 23 | 3 | 1.1 |
| 25 | 1 | 0.4 |
| Total | 263 | 100.0 |

Table 33
Descriptive Statistics for Self-Concept of Ability

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 17.84 | Standard Deviation | 2.14 |
| Mode | 17.00 | Median | 18.00 |
| Kurtosis | 0.46 | Skewness | 0.12 |

Table 34
Frequencies and Percentages for Grade Point Average

| <u>Code</u> | <u>Grade Point Average</u> | <u>Frequencies</u> | <u>Percentages</u> |
|--------------|----------------------------|--------------------|--------------------|
| 4 | 0.0 - 2.4 | 20 | 7.8 |
| 5 | 2.5 - 2.9 | 57 | 22.2 |
| 6 | 3.0 - 3.4 | 108 | 42.0 |
| 7 | 3.5 - 3.9 | 64 | 24.9 |
| 8 | 4.0 - 4.5 | 8 | 3.1 |
| Total | | 257 | 100.0 |

Table 35
Descriptive Statistics for Grade Point Average

| | | | |
|-----------------|--------------|---------------------------|--------------|
| Mean | 5.94 | Standard Deviation | .95 |
| Mode | 6.00 | Median | 6.00 |
| Kurtosis | -0.35 | Skewness | -0.20 |

responses. Specifically, all responses indicating GPA's of below 2.4 are grouped together.

Forty-two percent of students report a GPA of 3.0 to 3.4. Thirty percent of students report a GPA below 3.0, and 28 percent report a GPA higher than 3.4. The mean is 5.94, indicating a GPA of approximately 3.0, with a standard deviation of .95. Data are missing for 12 respondents.

Educational Expectations. Question 6 of Part III, Section 3 of the questionnaire asks students "How far do you believe you will go in university?" Table 36 presents frequencies and percentages, and Table 37 presents descriptive statistics for this variable. There are five response choices ranging from less than a bachelor's degree to completing a doctoral degree. Data are coded so that "a doctoral degree" is coded "5", indicating that the higher the score the higher the level of degree expected.

Fifty-three percent of the students report that they expect to complete a bachelor's or a second bachelor's degree. Approximately 46 percent expect to complete a masters or a doctoral degree. The mean is 3.25, indicating a second bachelor's degree level of education, with a standard deviation of .97. Data are missing for 5 respondents.

PROCEDURE

In order to test the theoretical model incorporating these fifteen

Table 36
Frequencies and Percentages for Educational Expectations

| Code | Educational Expectations | Frequencies | Percentages |
|--------------|---------------------------------|--------------------|--------------------|
| 1. | less than a bachelor's degree | 3 | 1.1 |
| 2. | a bachelor's degree | 69 | 26.1 |
| 3. | a second bachelor's degree | 71 | 26.9 |
| 4. | a master's degree | 100 | 37.9 |
| 5. | a doctoral degree | 21 | 8.0 |
| Total | | 264 | 100.00 |

Table 37
Descriptive Statistics for Educational Expectations

| | | | |
|-----------------|-------------|---------------------------|-------------|
| Mean | 3.25 | Standard Deviation | .97 |
| Mode | 4.00 | Median | 3.00 |
| Kurtosis | -.96 | Skewness | -.08 |

variables, the data are analyzed using structural equation modelling procedures. Structural equation modelling procedures involve testing interrelationships between independent and dependent variables using a series of regression analyses that are guided by theory (Pedhazur, 1982). The theoretical model presented in Chapter 2 depicts the hypothesized interrelationships between the fifteen variables included in the model, and provides a guide for the multivariate analyses that are used.

The first step in testing the model is to calculate the Pearson Product Moment correlations between all pairs of variables in the model. Second, regression coefficients are calculated between the independent and dependent variables and these are used to estimate the magnitude of relationship between each independent and each dependent variable when other independent and intervening variables are controlled. All of the variables, except gender, are measured at least at the ordinal level, and display appropriate variability for use in these modelling procedures. As explained earlier in this chapter, since gender is a nominal variable it is coded so that it can be used as a dummy variable in the analyses.

Although some sources indicate that only data measured at the interval or ratio level of measurement should be used in regression analyses, variables measured at the ordinal level, as long as they are close to being normally

distributed, are often used in these procedures because regression analyses, such as those used in this study, are sufficiently robust for this type of data (Asher, 1976; Bohrnstedt & Carter, 1971; Pedhazur, 1982). As shown in the tables that present descriptive statistics, all fifteen of the variables in this model are normally distributed and therefore meet the univariate assumptions underlying multiple regression analysis.

Both standardized and unstandardized regression coefficients are computed to estimate the effects of independent variables on dependent variables. Standardized and unstandardized coefficients indicate the amount of change in a dependent variable, measured in standard deviation units, in relation to a 1 standard deviation change in an independent variable when other variables are controlled. Standardized regression coefficients are computed from variables that are first standardized so that the mean for all variables is 0 and the standard deviation is 1. Unstandardized regression coefficients are computed from raw data. The use of standardized regression coefficients are most appropriate when comparing the relative effect of each variable within a theoretical model, such as the model formulated for this study. Unstandardized coefficients are most appropriate for comparing tests of the same model with data from different populations (Asher, 1976; Pedhazur, 1982). That is, standardized

and unstandardized regression coefficients allow for slightly different interpretations of the effect of independent and intervening variables on dependent variables. Both standardized and unstandardized regression coefficients are presented so that the effect of each independent variable in this study can be compared with the others and so that the results of this study may be compared with the results of similar studies.

SUMMARY

In summary, this chapter has presented three aspects of the methodology used in this study. The first section described the survey questionnaire and the sample of students from whom data were collected. Responses to questions from three parts of the Quality of Student Life Questionnaire that was administered to a stratified random cluster sample of undergraduate students in the Faculty of Education provide the data for this study. The second section presented the fifteen variables used in the study. This section includes the measurement of each of the variables and descriptive statistics for the data that was collected. The third section described the procedures used to analyze these data. Structural equation modeling procedures are used to estimate interrelationships between independent and dependent variables in the theoretical model. The next chapter presents the results of the empirical examination of the model.

CHAPTER 4

RESULTS

The analyses of the variables in the theoretical model are presented in this chapter. The zero-order correlation coefficients between all pairs of variables in the model are examined in the first section of the chapter. In the second section, a series of multivariate analyses that examine the interrelationships among university background, social background, social capital, student effort, and human capital variables are reported. The first set of analyses in this section examines university and social background characteristics of students and their perceptions of social capital resources available to them in their educational environment. The second set of analyses examines the influence of background and social capital on the time management efforts of students. Finally, the third set of analyses examines the effects of background, social capital, and student effort on the human capital variables.

CORRELATION MATRIX

The zero-order correlation coefficients between all pairs of variables in the theoretical model are reported in Table 38. These coefficients provide preliminary information about the relationships among all the variables in

Table 38
Correlation Coefficients, Means, and Standard Deviations for Variables in the Theoretical Model

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. |
|----------------------------|--------|--------|--------|--------|------|-------|--------|-------|-------|-------|-------|-------|-------|-------|------|
| 1. CRHRS | 1.00 | | | | | | | | | | | | | | |
| 2. YRSU | .00 | 1.00 | | | | | | | | | | | | | |
| 3. GENDER | .05 | .13* | 1.00 | | | | | | | | | | | | |
| 4. AGE | -.18** | .59** | .08 | 1.00 | | | | | | | | | | | |
| 5. PARED | .04 | .06 | .04 | -.17** | 1.00 | | | | | | | | | | |
| 6. STRUCTUR | -.14* | .04 | .08 | .11 | -.08 | 1.00 | | | | | | | | | |
| 7. FUNCTION | -.11 | -.17** | -.11 | -.11 | -.02 | .29** | 1.00 | | | | | | | | |
| 8. INTPROF | .10 | -.04 | -.08 | -.04 | .04 | -.08 | .35** | 1.00 | | | | | | | |
| 9. INTSTUD | .08 | .15** | .01 | .02 | -.02 | .10 | .33** | .37** | 1.00 | | | | | | |
| 10. POSAFF | .04 | -.12 | -.10 | -.06 | .03 | .17** | .45** | .51** | .42** | 1.00 | | | | | |
| 11. TIMEATT | .04 | .01 | .02 | .10 | .01 | .01 | -.00 | .15* | .14* | .15* | 1.00 | | | | |
| 12. PLANNING | .07 | .09 | -.21** | -.02 | .05 | .06 | .06 | .09 | .21** | .21** | .40** | 1.00 | | | |
| 13. SCA | .07 | .24** | -.02 | .20** | -.01 | -.04 | -.03 | -.04 | .14* | -.14* | .31** | .19** | 1.00 | | |
| 14. GPA | .16** | .22** | -.07 | .22** | .00 | -.11 | -.16** | .04 | .18** | -.03 | .25** | .30** | .39** | 1.00 | |
| 15. EDEXP | .16** | .42** | .07 | .22** | -.11 | .04 | -.01 | -.07 | .16** | -.08 | .15** | .17** | .45** | .18** | 1.00 |
| Means | 27.49 | 2.59 | 1.25 | 22.57 | 7.84 | 16.18 | 30.73 | 20.21 | 17.55 | 34.52 | 19.46 | 19.96 | 17.84 | 5.93 | 3.25 |
| Standard Deviations | 5.78 | 1.87 | .44 | 4.09 | 3.92 | 3.07 | 4.10 | 2.46 | 2.21 | 5.33 | 3.39 | 4.83 | 2.14 | .95 | .97 |

* p≤.05 **p≤.01

(CRHRS = Credit Hours; YRSU = Years of University; PARED = Parents' Education; STRUCTR = Structure; INTPROF = Interaction with Professors; INTSTUD = Interaction with Students; POSAFF = Positive Affect; TIMEATT = Time Attitudes; PLANNING = Time Planning; SCA = Self-Concept of Ability; EDEXP = Educational Expectations)

the model. The first group of associations that are of interest are between the two university background variables--*credit hours* and *years of university*--and the other variables in the model. The correlations show that the number of credit hours in which students are enrolled has a significant negative association with *structure*, the degree to which students feel challenged to remember, recall, and interpret information ($-.14$ $p \leq .05$), and significant positive associations with *GPA* (.16 $p \leq .01$), and *educational expectations* (.16 $p \leq .01$). The first of these correlations suggests that students who are enrolled in fewer credit hours of course work have a greater perception of being challenged to remember, recall, and interpret information than are students who are enrolled in more credit hours. The other correlations suggest that students who are enrolled in more credit hours have higher GPA's and higher educational expectations than students who are enrolled in fewer credit hours.

The second university background variable to be considered is the number of previous years of university education completed by students. The results show that the number of years of university education already completed by students is associated negatively with *function*--students' perceptions of challenge to apply, analyze, and synthesize information--($-.17$ $p \leq .01$), and positively with *interaction with students* (.15 $p \leq .05$), *self-concept*

of ability (.24 $p \leq .01$), *GPA* (.22 $p \leq .01$), and *educational expectations* (.42 $p \leq .01$). The first of these associations suggests that students with less university experience have a greater perception of being challenged to think functionally than students who have more experience at university. The other correlations suggest that students who have more years of university experience have more positive interactions with other students, have more positive academic self-concepts, higher GPAs, and higher educational expectations than students who have less university experience.

Three social background variables that may affect students' perceptions of challenge and support, their efforts, and educational attainment are considered. The correlation matrix shows that the social background variables, *gender*, *age*, and *parents' education*, have fewer significant associations with other variables in the model than do the university background variables. *Gender* is significantly associated with only one variable, *time planning* (-.21 $p \leq .01$) suggesting that females are more likely to engage in goal-directed time planning behaviours than are males. *Age* is significantly associated with *self-concept of ability* (.20 $p \leq .01$), *GPA* (.22 $p \leq .01$), and *educational expectations* (.22 $p \leq .01$), indicating that older students are more likely to study more, have more positive academic self-concepts, higher GPAs, and higher educational expectations than

students who are younger. Surprisingly, *parents' education* has no significant associations with any of the variables in the model.

The second set of associations that are of interest pertain to the social capital variables. There is a negative association between *function* and *GPA* (-.16 $p \leq .01$) suggesting that students who feel more challenged to apply, analyze, and synthesize information have lower grade point averages than students who perceive less challenge to learn in these ways.

The correlations between *interaction with professors*, *interaction with students*, and *positive affect* and the student effort and educational attainment variables show several positive associations and one negative association. Positive *interaction with professors* is associated with positive *time attitudes* (.15 $p \leq .05$); as well, positive *interaction with students* is associated with positive *time attitudes* (.14 $p \leq .05$), *time planning* (.21 $p \leq .01$), *self-concept of ability* (.14 $p \leq .05$), *GPA* (.18 $p \leq .01$), and *educational expectations* (.16 $p \leq .01$). Similarly, positive feelings about experiences in the faculty (*positive affect*) are associated positively with *time attitudes* (.15 $p \leq .05$) and *planning* (.21 $p \leq .01$). In contrast, positive feelings about experience in the faculty are negatively associated with *self-concept of ability* (-.14 $p \leq .05$). This is surprising because it suggests that students who have more positive perceptions about the meaningfulness of the faculty

have less positive self-concepts of their abilities than students who have less positive perceptions.

The third set of associations pertains to the student effort variables. Student effort is hypothesized to influence the human capital development of students. As shown, *time attitudes* and *time planning* are both positively associated with *self-concept of ability* (.31 $p \leq .01$; .19 $p \leq .01$), *GPA* (.25 $p \leq .01$; .30 $p \leq .01$), and *educational expectations* (.15 $p \leq .01$; .17 $p \leq .01$). These correlations, not surprisingly, provide tentative support for the hypothesis that effort is positively associated with educational attainment.

Overall, the correlation coefficients indicate that a number of variables are associated with one another to a greater extent than would be expected by chance. However, they do not indicate the relative importance of the variables in explaining the effects hypothesized in the theoretical model. To examine the theoretical model further, multivariate analyses are used to analyze the interrelationships between variables in more depth. That is, effect parameters are calculated to test hypothesized relationships and, as indicated in Chapter 3, both standardized and unstandardized regression coefficients are reported. To examine the theoretical model, only the standardized regression coefficients are discussed. Unstandardized regression coefficients are reported in parentheses.

MULTIVARIATE ANALYSES

The theoretical model examined in this study, and presented in Chapter 2, links students' perceptions of challenge and support, student effort, and the development of students' human capital. Ten analyses are conducted, each contributing to an increasingly complex examination of the relationships in the model presented in Figure 4. In each analysis, the relevant independent and intervening variables are introduced in incremental steps and examined for direct and mediating effects.

Effects of University and Social Background Variables on the Social Capital Variables

The theory guiding this study suggests that, within the context of the university, social capital may be influenced by the amount of involvement students have or have had in the social structure of the university. That is, it is expected that students who are enrolled in more credit hours have more exposure to the ideology and academic expectations of the institution and are more dependent on the institution as a source of support. It is, therefore, anticipated that the number of credit hours in which students are enrolled has a positive effect on their perceptions of challenge and support. Similarly, based on this theory it is expected that students with more university experience have established social relations with more closure

and stability in the educational environment than students with less university experience. It is, therefore, expected that students with more previous years of university were to have more positive perceptions of support than students with fewer previous years of university.

Although social capital theory suggests no specific influence of the social background factors, *gender* and *age*, on students' perceptions of challenge and support, it is possible that students' perceptions may differ in relation to these characteristics. Human capital and social capital theories suggest that parents who have higher levels of education may provide a resource to their children that facilitates their children's educational attainment (Coleman, 1988a). It is assumed that parental human capital is passed on to students in some way that relates to their higher education goals and their perceptions of their educational experiences.

In total, five analyses examine the effects of university and social background variables on students' perceptions of challenge and support in the educational environment. The first two analyses examine the effects of the university and social background variables on *structure* and *function*, the two dimensions of the challenge domain of social capital. Each of these analyses has two steps. Step 1 includes the effects of the university background variables and Step 2 includes the effects of both the university

background and social background variables. The three analyses that follow examine the effects of university and social background variables on *interaction with professors*, *interaction with students*, and *positive affect*, the three dimensions of the support domain of social capital. In addition, to enable a more detailed analysis of the relationship between challenge and support, each of the analyses of the support variables includes a step that examines the effect of the challenge variables on the support variables.

Structure. Results reported in Table 39 indicate the effects of university and social background variables on students' perceptions of the degree to which they have felt challenged to think in the structural dimension. These results show that the number of credit hours students are taking has a significant effect ($-.14 p \leq .05$ in Step 1, and $-.13 p \leq .05$ in Step 2) on their perceptions of being challenged to remember and interpret information. That is, students enrolled in fewer credit hours perceive that they are challenged to remember and interpret information to a greater extent than students who are enrolled in greater numbers of credit hours.

This result seems opposite to what one might expect. That is, because students taking more credit hours surely must be attempting to remember more information than students taking fewer credit hours, one would expect that students' perceptions of feeling challenged to remember

Table 39
Effects of University and Social Background on Structure,
Students' Perceptions of Challenge to Remember and Interpret
Information

| Independent Variables | Step 1 | Step 2 |
|-------------------------------------|-------------------------------|-------------------------------|
| <u>University Background</u> | | |
| Credit Hours | -.14* (-.07) | -.13* (-.07) |
| Years of University | .04 (.07) | -.01 (-.02) |
| <u>Social Background</u> | | |
| Gender | | .08 (.57) |
| Age | | .08 (.06) |
| Parents' Education | | -.06 (-.05) |
| R² | .02 | .04 |

* $p \leq .05$ ** $p \leq .01$

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

and interpret would be greater for students taking more credit hours than for students taking fewer credit hours. There are at least two possible explanations for this interesting result. The first is that students taking more credit hours may be students who have higher ability levels than those who enrol in fewer credit hours. That is, students may or may not perceive themselves to be challenged because of their ability which probably covaries with the number of credit hours they select to take.

The second possible explanation relates to role expansion theory (Thoits, 1983). According to this theory, there is a positive effect of involvement in many roles and more complex roles, presumably because fulfilling role expectations in one role relates to and facilitates fulfilling expectations in other roles. In a similar vein, perhaps there is a positive spin-off associated with participating in a greater numbers of credit hours. In other words, remembering and interpreting information may be perceived as less challenging for those who do a lot of it than for others who do less.

None of the direct effects of the social background variables, that are added to the analyses in Step 2, are significant. That is, students' perceptions of being challenged to remember and interpret information are not a function of their gender, age, or parents' education. The R^2 statistics

reported in this table indicate that the university and social background variables together explain only 4 percent of the variance in *structure*. This is a very small amount; 96 percent remains unexplained and may be accounted for by measurement error and/or variables not included in the model.

Function. Table 40 indicates the effects of the university and social background variables on students' perceptions of the degree to which they feel challenged to think in the functional dimension. Step 1 of the analyses shows that *years of university* has a significant negative effect on students' perceptions of challenge to apply, analyze, and synthesize information. That is, students with fewer years of university are more likely to perceive that they are challenged to apply, analyze, and synthesize information than are students with more years of university experience. However, when the effects of the social background variables are added, the effect of *years of university* drops from $-.17$ ($p \leq .01$) to $-.12$ indicating that approximately 30 percent of the effect of years of university experience on students' perceptions that they are challenged to apply and analyze information is actually due to their social background characteristics which are added in Step 2.

The effect of *credit hours* on *function* remains about the same in

Table 40
Effects of University and Social Background on Function,
Students' Perceptions of Challenge to Apply and Analyze
Information

| Independent Variables | Step 1 | Step 2 |
|-------------------------------------|------------------|----------------|
| <u>University Background</u> | | |
| Credit Hours | -.11 (-.08) | -.12 (-.08) |
| Years of University | -.17** (-.36) | -.12 (-.27) |
| <u>Social Background</u> | | |
| Gender | | -.09 (-.83) |
| Age | | -.05 (-.05) |
| Parents' Education | | -.01 (-.01) |
| R² | .04 | .05 |

* $p \leq .05$ ** $p \leq .01$

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

both analyses. Both the effects of *years of university* and *credit hours* are just less than significant. Also, there are no statistically significant direct effects of the social background variables on students' perceptions of the functional dimension of challenge. That is, students' perceptions of being challenged to apply, analyze, and synthesize information are not influenced by their gender, age, or parents' education. The R^2 statistics reported in this table show that the university and social background variables account for only 5 percent of the variance in *function*. In other words, ninety-five percent of the variance in this variable is unexplained and, therefore, may be accounted for by measurement error and/or variables that are not included in the model.

The next three analyses relate to the effects of university background, social background, and students' perceptions of the challenges they experience in the faculty on the second group of social capital variables, the variables that measure students' perceptions of the support they receive in the faculty. Each of these analyses has three steps. Step 1 includes the effects of the university background variables: Step 2 includes the effects of both the university and social background variables: and Step 3 includes the effects of university background, social background, and challenge variables. The dependent variables in this group are *interaction*

with professors, interaction with students and positive affect.

Interaction with Professors. Results reported in Table 41 show that only one background variable, *credit hours*, has a significant effect on *interaction with professors* (.14 $p \leq .05$). That is, students who are enrolled in greater numbers of credit hours have more positive interactions with their professors than students enrolled in fewer credit hours. This result supports the social capital theoretical perspective which indicates that a sense of trust develops in social relations when social relations are more stable than when they are not. It is somewhat surprising, then, to note that the number of years of previous university that students have has no significant effect on their *interaction with professors*. Social capital theory suggests that over time an increased sense of trust would develop and result in more positive interactions between students and professors. The fact that this effect is not seen may be because students do not interact with the same professors from year to year. Students' gender, age, and parents' education also have no significant effects on *interaction with professors*.

Structure and function, the two dimensions of challenge students' experience in the faculty, have much stronger effects on *interaction with professors* than any of the university or social background variables.

Structure has a negative effect on *interaction with professors* (-.19 $p \leq .01$)

Table 41
Effects of University and Social Background, Structure and Function
on Interaction with Professors

| Independent Variables | Step 1 | Step 2 | Step 3 |
|-------------------------------------|----------------|----------------|------------------|
| <u>University Background</u> | | | |
| Credit Hours | .10 (.04) | .11 (.05) | .14* (.06) |
| Years of University | -.04 (-.06) | -.05 (-.06) | .00 (.00) |
| <u>Social Background</u> | | | |
| Gender | | .09 (-.48) | -.03 (-.19) |
| Age | | .02 (.01) | .06 (.03) |
| Parents' Education | | .05 (.03) | .04 (.03) |
| <u>Challenge</u> | | | |
| Structure | | | -.19** (-.15) |
| Function | | | .42** (.25) |
| R² | .01 | .02 | .18 |

* p≤.05 **p≤.01

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

indicating that students who feel more challenged to remember and interpret information have less positive interactions with their professors than students who feel less challenged to think in these ways. This may be because challenges to remember and interpret information are likely met through solitary acts that students engage in largely on their own rather than through interacting with their professors. In other words, challenges to remember and interpret information are posed to students by the requirements of their professors, but these challenges must be met primarily through student effort to add to or supplement what they already know in order to recall or interpret new information.

In contrast, *function* has a strong positive effect on *interaction with professors* (.42 $p \leq .01$) indicating that students who feel more challenged to apply and analyze information have more positive interactions with their professors than students who feel less challenged to apply and analyze. That is, challenges to apply and analyze are likely met through interactions with professors and others with whom ideas can be expressed and debated. Furthermore, unlike challenges to recall and interpret information, challenges to apply and analyze information require students to use information and integrate it with what they already know rather than to add new facts and terms to their memory. That is, the demand for change

on the part of students differs considerably between these types of challenge. It is possible that professor expectations which challenge students to apply and analyze information may be more personally validating than professor expectations which challenge students to recall and interpret information. Therefore, perhaps it should not be surprising that challenges to apply and analyze information are associated with feeling supported by professors and challenges to recall and interpret are not.

Overall, university and social background variables account for only 2 percent of the variance in *interaction with professors* (Step 2). Students' perceptions of the challenges they experience, however, account for an additional 16 percent, raising the R^2 statistic to .18 in Step 3.

Interaction with Students. Table 42 reports the effects of university background, social background and students' perceptions of challenge on students' perceptions of their interactions with other students. As shown, only two variables have significant effects on students' interactions with other students. The first of these variables to be considered is *years of university*. Consistently, across all 3 steps, *years of university* have positive effects on *interaction with students* (.15 $p \leq .01$ in Step 1; .22 $p \leq .01$ in Step 2; and .27 $p \leq .01$ in Step 3) indicating that students with more previous university experience have more positive interactions with their fellow

Table 42
**Effects of University and Social Background, Structure and Function
 on Interaction with Students**

| Independent Variables | Step 1 | Step 2 | Step 3 |
|-------------------------------------|----------------|----------------|----------------|
| <u>University Background</u> | | | |
| Credit Hours | .08 (.03) | .07 (.03) | .11 (.04) |
| Years of University | .15** (.18) | .22** (.26) | .27** (.31) |
| <u>Social Background</u> | | | |
| Gender | | -.02 (-.09) | .02 (.08) |
| Age | | -.10 (-.06) | -.08 (-.05) |
| Parents' Education | | -.05 (-.03) | -.04 (-.03) |
| <u>Challenge</u> | | | |
| Structure | | | -.00 (-.00) |
| Function | | | .37** (.20) |
| R² | .03 | .04 | .17 |

* p<.05 **p<.01

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

students than students with fewer years of university experience. It is notable that the size of the effect increases quite substantially with each step. Specifically, there is a 47 percent increase that occurs between steps 1 and 2, and a 23 percent increase that occurs between steps 2 and 3, indicating that when the social background variables, in particular *age*, and the challenge variables, in particular *function*, are taken into account, the effect of *years of university* on *interaction with students* strengthens. In other words, some of the effects of *years of university* on *interaction with students* are suppressed by the social background variables, especially *age*, and the challenge variables, especially *function*, because of the covariation between *years of university* and *age* and between *years of university* and *function*.

The only other significant effect, and by far the strongest effect shown in this table, is the effect of *function* on *interaction with students* (.37 $p \leq .01$). This coefficient indicates that students who feel more challenged to apply and analyze information have more positive interactions with other students than students who feel less challenged to engage in this intellectual activity. As previously noted, challenges to apply and analyze information are likely met, at least partly, through interactions with professors. Following the same logic used to explain the positive effect of *function* on *interaction with professors*, it is argued here that when

professors make demands upon students to apply and analyze information, students meet the challenge of these demands, at least partly, through their interactions with other students. In contrast this method of dealing with the expectations of professors is not utilized to meet challenges to recall and interpret information. To meet these challenges, perhaps students need to work alone to memorize the material.

The R^2 statistics for *interaction with students* indicate that university background and social background account for only 4 percent of the variance in this variable. However, the R^2 rises to .17 when the challenge variables are added to the analysis in Step 3. That is, students' perceptions of the challenges they experience in the faculty explain an additional 13 percent of the variance in *interaction with students*.

Positive Affect. Table 43 indicates the effects of university and social background and challenge on *positive affect*. None of the effects of the university or the social background variables is significant. These results indicate that students' perceptions of the meaningfulness of their educational experience in the Faculty of Education are not a function of the number of credit hours in which they are enrolled, the number of years of university they have taken, gender, age, or the education level of their parents.

Table 43
Effects of University and Social Background, Structure and Function
on Positive Affect

| Independent Variables | Step 1 | Step 2 | Step 3 |
|-------------------------------------|----------------|-----------------|----------------|
| <u>University Background</u> | | | |
| Credit Hours | .04 (.04) | .05 (.05) | .11 (.11) |
| Years of University | -.12 (-.33) | -.13 (-.37) | -.08 (-.21) |
| <u>Social Background</u> | | | |
| Gender | | -.09 (-1.13) | -.06 (-.73) |
| Age | | .04 (.05) | .06 (.07) |
| Parents' Education | | .05 (.07) | .06 (.08) |
| <u>Challenge</u> | | | |
| Structure | | | .06 (.11) |
| Function | | | .43** (.57) |
| R² | .02 | .03 | .23 |

* p<.05 **p<.01

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

However, students' perceptions of the meaningfulness of their educational experience are significantly and strongly affected by their perceptions of being challenged to think functionally (.43 $p \leq .01$). That is, students who feel more challenged to apply and analyze information also feel more positive about their experiences in the educational environment. In contrast, students' feelings about challenges to remember and interpret information have a non-significant (.06), minimal effect on *positive affect*. Challenges to remember and interpret information are not linked to experiences and perceptions of meaningfulness because these challenges require students to change the base of information that they use to determine meaning. In contrast, challenges to apply and analyze information require students to use their knowledge base and relate it to experience. It is likely that when information is related to experiences, the information becomes more meaningful.

Together, the university and social background variables account for only 3 percent of the variance in *positive affect*. Inclusion of students' perceptions of the challenges they experience in the faculty into the analysis, in Step 3, increases the variance explained to 23 percent, a rise of 20 percent from Step 2.

In summary, both the university background and social background

variables have some anticipated and some unanticipated effects on the social capital variables. The positive effects of *credit hours* on *interaction with professors* and of *years of university* on *interaction with students* indicate, as expected, that the amount of educational exposure students have, as well as the amount of university experience they have, positively affect their perceptions of support within the educational environment. Also, as anticipated, the social background variables, *gender* and *age*, have no significant effects on social capital. In other words, students' perceptions of challenge and support in the educational environment are not a function of their gender, age, or parents' education. It is a little surprising that *parents' education* also has no significant effects. If *parents' education* is indeed a human capital resource that facilitates students' educational attainment, it would appear not to be because *parents' education* influences students' perceptions of their educational experiences.

Also unexpected are the negative effects of *credit hours* on *structure* and of *years of university* on *function*. These effects are interesting because they indicate that, in general, the effects of the university background variables on challenge are quite different from the effects of the university background variables on support.

In each of these tables, it is shown that *function* has a very strong

positive effect on students' perceptions of support. In other words, when students feel challenged to apply, analyze, and synthesize information they have more positive perceptions of all three dimensions of support. In contrast, students' perceptions of being challenged to interpret and remember information have a negative effect on their perceptions of their interactions with their professors and basically no effect on their interactions with other students and their feelings about the meaningfulness of their educational experiences. These are interesting results which are important to take into account, particularly if it is accepted that university students should be challenged to think in both the structural and functional dimensions. More specifically, these results indicate that when professors make demands of students to recall and interpret new facts and terms, these demands are unlikely to be associated with perceptions of positive interactions with professors. However, when professors make demands on students to apply and analyze information, these demands are likely to be associated with perceptions of positive interactions with them.

Effects of University Background, Social Background, and Social Capital Variables on Student Effort Variables

The theoretical model presented in Chapter 2 links social capital to educational attainment through student effort. That is, perceptions of

challenge and support are thought to be linked to student motivation to manage time in order to meet educational goals. The two analyses presented in this set examine the influence of the background and the social capital variables on the two student effort variables, *time attitudes* and *time planning*. In each analysis, four steps are presented. Step 1 includes the effects of the university background variables, Step 2 includes the effects of the university and social background variables, Step 3 includes the effects of the university and social background and the challenge variables, and Step 4 includes the effects of the university and social background, challenge, and support variables.

Time Attitudes. Table 44 indicates the effects of the university and social background variables, and the challenge and support variables, on students' attitudes about their time use. Interestingly, only one variable, *age*, has statistically significant effects upon students' attitudes toward managing their time to meet their educational goals. The effect of *age* on *time attitudes* (.18 $p \leq .05$) indicates that older students have more positive time attitudes than younger students and this effect does not change across the steps. That is, the fact that the size of the effect of *age* on *time attitudes* is .18 ($p \leq .05$) across steps 2 to 4 indicates that the effect of age is independent of challenge and support which are added to the analysis in

Table 44
Effects of University Background and Social Background, Structure, Function, Interaction with Professors, Interaction with Students and Positive Affect on Time Attitudes

| Independent Variables | Step 1 | Step 2 | Step 3 | Step 4 |
|----------------------------------------|---------------|----------------|----------------|----------------|
| <u>University Background</u> | | | | |
| Credit Hours | .04 (.03) | .08 (.04) | .08 (.04) | .04 (.02) |
| Years of University | .01 (.02) | -.10 (-.19) | -.10 (-.18) | -.13 (-.23) |
| <u>Social Background</u> | | | | |
| Gender | | .01 (.08) | .01 (.08) | .02 (.14) |
| Age | | .18* (.15) | .18* (.15) | .18* (.15) |
| Parents' Education | | .05 (.04) | .05 (.04) | .04 (.04) |
| <u>Challenge</u> | | | | |
| Structure | | | -.00 (-.00) | .01 (.01) |
| Function | | | .01 (.01) | -.12 (-.10) |
| <u>Social Capital - Support</u> | | | | |
| Interaction with Professors | | | | .09 (.13) |
| Interaction with Students | | | | .12 (.18) |
| Positive Affect | | | | .10 (.06) |
| R² | .00 | .02 | .02 | .07 |

* p<.05 **p<.01

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

steps 3 and 4.

Surprisingly, *years of university* has a slight, but not statistically significant, negative effect on *time attitudes* (-.13), indicating that students who have more previous university experience are more likely to have less positive attitudes about managing their time. Most of this effect becomes evident in Step 2 after the effects of the social background variables, in particular age, are taken into account. In Step 2 the effect of *years of university* on *time attitudes* is -.10, a dramatic increase from Step 1 where the effect is .01. In other words, the effects of *years of university* on *time attitudes* are suppressed by the social background variables, especially age, because of the covariation between *years of university* and *age*.

The R^2 statistics indicate that, together, the university and social background variables account for only 2 percent of the variance in *time attitudes*. Furthermore, the amount of variance explained does not change when the variables measuring challenge are included in Step 3; but the amount changes considerably to 7 percent when support variables are added in Step 4. That is, although the effects of *interaction with professors*, *interaction with students*, and *positive affect* on *time attitudes* are not statistically significant, they all have positive effects that are not statistically significant (.09, .12, and .10 respectively), but together they add 5 percent

to the amount of variance explained.

Time Planning. Results reported in Table 45 indicate the effects of the university and social background variables and the challenge and support variables on students' time planning behaviours. Four variables--*years of university, gender, interaction with students, and positive affect*--have notable effects upon students' *time planning*.

In Step 1 of these analyses, neither of the university background variables, *credit hours* nor *years of university*, have significant effects on *time planning*. However, Step 2 indicates that *gender* has a significant effect (-.23 $p \leq .01$), which remains consistent through Steps 3 and 4 (-.23 $p \leq .01$ and -.22 $p \leq .01$ respectively), and indicates that females have more positive time planning behaviours than males. In other words, it is not because female and male students differ in their perceptions of challenge and support that they differ in their *time planning*. The difference in *time planning* appears to be related to gender, or may be associated with other variables that are not included in this study but are themselves related to gender.

Also in Step 2, a significant effect of *years of university* on *time planning* (.16 $p \leq .05$) is reported. This regression coefficient represents an increase of 78 percent over that reported in Step 1 (.09) and indicates that

Table 45
 Effects of University Background and Social Background, Structure, Function, Interaction with Professors,
 Interaction with Students and Positive Affect on Time Planning

| Independent Variables | Step 1 | Step 2 | Step 3 | Step 4 |
|-------------------------------------|--------------|-------------------|-------------------|-------------------|
| <u>University Background</u> | | | | |
| Credit Hours | .07 (.06) | .07 (.06) | .08 (.07) | .05 (.05) |
| Years of University | .09 (.22) | .16* (.41) | *.17 (.43) | .14 (.36) |
| <u>Social Background</u> | | | | |
| Gender | | -.23** (-2.53) | -.23** (-2.57) | -.22** (-2.50) |
| Age | | -.08 (-.09) | -.08 (-.10) | -.08 (-.09) |
| Parents' Education | | .03 (.04) | .04 (.05) | .04 (.05) |
| <u>Challenge</u> | | | | |
| Structure | | | .09 (.13) | .07 (.10) |
| Function | | | .03 (.04) | -.08 (-.09) |
| <u>Support</u> | | | | |
| Interaction with Professors | | | | -.05 (-.09) |
| Interaction with Students | | | | .15* (.32) |
| Positive Affect | | | | .18* (.16) |
| R² | .01 | .07 | .08 | .13 |

* p \leq .05 **p \leq .01

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

the effects of the social background variables suppress the effects of *years of university* on *time planning*. That is, the result in Step 2 indicates that when students' social backgrounds are held constant, it is shown that students with more university experience have more positive time planning behaviours than students with less university experience. The fact that the amount of university experience influences time planning raises interest in understanding how the quality of experience may influence this aspect of time management.

In relation to understanding the influence of the quality of educational experience on time management, it is noted that there are no significant direct (or indirect) effects seen in Step 3 when students' perceptions of the challenges they experience are included in the analyses. However, in Step 4, the addition of the support variables yields the most interesting effects in this table for this study. Specifically, two of the support variables, *interaction with students* and *positive affect* have positive direct effects on *time planning* (.15 $p \leq .05$ and .18 $p \leq .05$ respectively). These results indicate that students who have more positive interactions with other students are better at planning their time than those with less positive interactions with other students, and students who find their educational experience more meaningful are better at planning their time

than students with less positive perceptions of their experience.

It is also notable in Step 4 that the support variables have a mediating influence on the effects of years of university reported in Steps 2 and 3. More specifically, the effect of *years of university* on *time planning* drops from .17 ($p \leq .05$) in Step 3 to .14 in Step 4 after the support variables are included. This 18 percent drop in effect indicates that the way students feel about their interactions with their professors and with each other, and the way they feel about the meaningfulness of their experiences, mediate some of the effects of years of university on time planning. In other words, the influence of previous university experience on *time planning* is partly a function of the social capital resources in the educational environment. More specifically, as hypothesized, social capital support, particularly from other students and feelings of positive affect, have positive effects on student time planning.

Overall, the amount of variance in *time planning* that is explained rises from 1 percent in Step 1 taking into account only the two university background variables, to 7 percent in Step 2 with the addition of the social background variables, to 8 percent in Step 3 after the challenge variables are added, and finally to 13 percent in Step 4 with the support variables included. In other words, eighty-seven percent of the variance in *time*

planning remains unexplained.

In summary, these results indicate that there is some support for the argument that social capital influences student effort. Although none of the social capital variables has a significant effect on *time attitudes*, two variables, *interaction with students* and *positive affect*, do have significant positive effects on *time planning*. Of the two variables that are used to measure student effort in this study, *time planning*, as indicated in Chapter 3, includes items most specific to time management behaviours. That is, social capital resources appear to influence behaviours more than attitudes.

Effects of University Background, Social Background, Social Capital and Student Effort Variables on Human Capital Variables

The theoretical model (Figure 4), postulates that students' university and social backgrounds, their perceptions of social capital in the educational environment, and their personal effort all contribute to the development of their human capital—the attitudes and abilities that students acquire as a result of being in an educational institution. The final three analyses in this study examine the effects of university background, social background, social capital, and student effort on the three human capital variables, self-concept of ability, GPA, and educational expectations.

Self-Concept of Ability. The development of positive academic self-concepts in students is well recognized as an important indicator of educational attainment (Gerardi, 1990). More specifically, many studies acknowledge a positive relationship between academic self-concept and academic achievement and point to a need for research into the determinants of *self-concept of ability* (Robinson & Cooper, 1984; Rosenberg et al., 1995; Rosenberg, Schooler & Schoenbach, 1989). In Chapter 2, it is argued that when students are challenged, they are more likely to work hard and gain a sense of having developed abilities than if there is little or no challenge. Also, the theoretical argument is made that when students are supported and find their experiences meaningful, they are more likely to put forth greater effort and to gain a sense of their developing abilities. These arguments, which are examined in the following analysis, predict positive effects of social capital and student effort on students' academic self-concepts.

Table 46 reports the effects of university and social background, social capital, and student effort on *self-concept of ability*. There are five steps in these analyses. The first two steps take into account university and social background variables that may influence the development of students' self-concept. As discussed in Chapter 2, social action theories

Table 46
Effects of University and Social Background, Social Capital and Student Effort on
Self-Concept of Ability

| Independent Variables | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 |
|-------------------------------------|----------------|----------------|----------------|------------------|------------------|
| <u>University Background</u> | | | | | |
| Credit Hours | .07 (.03) | .09 (.03) | .09 (.03) | .10 (.04) | .08 (.03) |
| Years of University | .24** (.27) | .17* (.20) | .18* (.20) | .11 (.12) | .13 (.15) |
| <u>Social Background</u> | | | | | |
| Gender | | -.06 (-.30) | -.05 (-.26) | -.07 (-.35) | -.06 (-.30) |
| Age | | .12 (.06) | .13 (.07) | .16* (.08) | .11 (.06) |
| Parents' Education | | .00 (.00) | -.00 (-.00) | .02 (.01) | .01 (.00) |
| <u>Challenge</u> | | | | | |
| Structure | | | -.06 (-.04) | -.05 (-.03) | -.06 (-.04) |
| Function | | | .04 (.02) | .07 (.04) | .11 (.06) |
| <u>Support</u> | | | | | |
| Interaction with Professors | | | | -.03 (-.03) | -.05 (-.05) |
| Interaction with Students | | | | .20** (.20) | .16* (.15) |
| Positive Affect | | | | -.22** (-.09) | -.26** (-.10) |
| <u>Student Effort</u> | | | | | |
| Time Attitudes | | | | | .29** (.18) |
| Time Planning | | | | | .07 (.03) |
| R² | .06 | .07 | .08 | .13 | .22 |

* $p \leq .05$ ** $p \leq .01$

Standardized and unstandardized regression coefficients are reported.
 Unstandardized regression coefficients are in parentheses.

suggest that academic self-concepts arise, at least in part, from reflected appraisal through interaction with others. It follows then that *self-concept* of ability should become more positive with both age and experience because older students with more university experiences are more likely to have more social relationships than younger students with less experience. In Step 1, the university background variables, *credit hours* and *years of university* are taken into account. The regression coefficients indicate that, as expected, *years of university* has a significant effect on self-concept of ability (.24 $p \leq .01$). This positive effect indicates that students who have more years of university experience have more positive academic self-concepts than students who have fewer years of university experience. The effect of credit hours is positive but very small and not statistically significant.

As seen in Step 2, the only social background variable that has an appreciable effect on self-concept of ability is *age*. Although the effect is relatively weak (.12), it indicates that older students have slightly more positive academic self-concepts than younger students. It is also notable that the effect of *years of university* is diminished by almost 30 percent to .17 ($p \leq .05$) when the social background variables are taken into account in this step. This indicates that some of the effect of university experience is,

in fact, due to the social background variables, particularly *age*. These results also support previous research that indicates that age and experience are fairly consistent predictors of self-concept of ability.

Steps 3 and 4 examine the effects of the challenge and support variables, along with the university and social background variables, on self-concept of ability. In Step 3 it is shown that students' perceptions of the challenges they experienced in both *structure* and *function* have almost no effect on their academic self-concepts. That is, the degree to which students feel challenged to interpret, remember, apply, analyze, and synthesize information has virtually no direct effect on their academic self-concepts. In contrast, in Step 4, it is shown that *interaction with students* and *positive affect* significantly affect students' academic self-concepts. The effect of students interactions with other students is .20 ($p \leq .01$). As expected, students who have positive interactions with other students are more likely to have positive academic self-concepts than students with less positive interactions. This is consistent with the theory that self-concept develops through reflected appraisal of self during interactions with significant others (Rosenberg, Schooler, & Schoenbach, 1989).

On the other hand, the effect of *positive affect*, students' perceptions of their experiences in the faculty, on *self-concept of ability* is -.22 ($p \leq .01$),

indicating that students with positive perceptions of their experiences in the faculty are more likely to have lower academic self-concepts than students with less positive perceptions of their experiences in the faculty. From one perspective this result is expected. That is, in the theoretical model it is proposed that students' feelings about their experiences have an effect on their academic self-concepts. These results support this general idea. The fact that the effect of *positive affect* on *self-concept of ability* is negative is unexpected, but supports a previous study that reported that many of the students who responded to the questionnaire provided extensive qualitative data in which they complained that the faculty was not highly regarded academically (Clifton, Mandzuk, & Roberts, 1994).

The decrease in the effect of *years of university* on *self-concept of ability*, from .18 ($p \leq .05$) to .11, that occurs between Step 3 and Step 4, indicates that students' perceptions of support account for some of the effect of *years of university* on *self-concept of ability*. Also, some of the effect of *age* on *self-concept of ability* is suppressed by the support variables. The effect changes from .13 to .16 ($p \leq .05$), an increase of 23 percent. That is, social capital in the educational environment accounts for some of the effect of *years of university* on *self-concept of ability*, and the covariation between age and support suppresses some of the effects of age.

Step 5 adds the effects of the student effort variables to the analyses of self-concept of ability. As the table shows, the two time management dimensions of student effort--*time attitudes* and *time planning*--have quite different effects. The strong positive effect of *time attitudes* on *self-concept of ability* (.29 $p \leq .01$) supports the predicted relationship between the variables, namely that students who have a positive attitude to time management also have more positive academic self-concepts than students who have a less positive attitude toward managing their time. In contrast, it is surprising that *time planning* has very little effect on *self-concept of ability* (.07). That is, students who put a lot of effort into planning are no more likely to have a positive academic self-concept than students who put little effort into planning.

Also notable, when time management is taken into account, are the changes in the effects of four of the previously considered variables on *self-concept of ability*. Specifically, time management suppresses the effects of two of the social capital variables on self-concept of ability. That is, in Step 5 of the analysis, it is shown that students who feel more challenged to apply and analyze information are slightly more likely to have more positive academic self-concepts than students who feel less challenged to think in this way. In Step 4, the effect of *function* on *self-concept of ability*

is .07; in Step 5, the effect is .11. These effects, however, are not statistically significant.

Also shown in Step 5 is an increase of 18 percent in the previously noted effect of *positive affect on self-concept of ability* (from $-.22$ $p \leq .01$ to $-.26$ $p \leq .01$). That is, time management suppresses some of the influence of students' feelings about their experiences in the faculty on their academic self-concepts. In addition, the effects of two variables--*age* and *interaction with students*--on *self-concept of ability* decrease after the student effort variables are taken into account. Specifically, there is a 31 percent decrease (from $.16$ $p \leq .05$ to $.11$) in the effect of *age* on *self-concept of ability* and a 20 percent decrease (from $.20$ $p \leq .01$ to $.16$ $p \leq .05$) in the effect of *interaction with students* on *self-concept of ability*. These results indicate that time management mediates, to some degree, the effects of *age* and *interaction with students* on *self-concept of ability*. The latter finding provides some additional support for the argument that social capital is a resource that influences educational attainment outcomes partly by influencing student effort.

Overall, 22 percent of the variance in self-concept of ability is explained in the model presented in Step 5. The R^2 statistics reported at the bottom of Table 46 indicate that 7 percent of the variance is explained

by the university and social background variables (Step 2): the addition of the social capital variables raises the amount explained by 6 percent to 13 percent (Step 4), and the addition of the student effort variables raise the R^2 another 9 percent to 22 percent (Step 5).

In summary, the proposition that social capital is a resource for human capital development is supported by the noted effect of *interaction with students on self-concept of ability*. The hypothesis that educational attainment is influenced by student effort, is also supported.

Self-concept of ability is the first of the three human capital variables to be examined. It represents developing attitudes of students with respect to their academic abilities, and it is hypothesized to be an important intervening variable between university and social background, social capital, and student effort and the remaining human capital variables in this study. Grade point average is the second of these human capital variables and it is considered next.

Grade Point Average. Table 47 reports the effects of university background, social background, social capital, student effort, and self-concept of ability on *GPA*. Grade point average is an important indicator of human capital development because employers and graduate schools use it as a means of assessing and comparing students (Astin, 1993). Although

Table 47
Effects of University and Social Background, Social Capital, and Student Effort
on Self-Concept of Ability on Grade Point Average

| Independent Variables | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 |
|------------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| University Background | | | | | | |
| Credit Hours | .16** (.03) | .21** (.03) | .19** (.03) | .16** (.03) | .15* (.02) | .13* (.02) |
| Years of University | .22** (.11) | .11 (.05) | .09 (.05) | .03 (.01) | .01 (.01) | -.02 (-.01) |
| Social Background | | | | | | |
| Gender | | -.11 (-.25) | -.12 (-.26) | -.12 (-.27) | -.08 (-.17) | -.06 (-.13) |
| Age | | .21** (.05) | .21** (.05) | .23** (.05) | .23** (.05) | .20** (.05) |
| Parents' Education | | .03 (.01) | .02 (.01) | .04 (.01) | .02 (-.01) | .02 (.01) |
| Challenge | | | | | | |
| Structure | | | -.07 (-.02) | -.07 (-.02) | -.08 (-.03) | -.07 (-.02) |
| Function | | | -.10 (-.02) | -.16* (-.04) | -.13 (.01) | -.16* (-.04) |
| Support | | | | | | |
| Interaction with Professors | | | | .02 (.01) | .01 (.01) | .03 (.01) |
| Interaction with Students | | | | .24** (.10) | .19** (-.09) | .15* (.06) |
| Positive Affect | | | | -.06 (-.01) | -.11 (-.02) | -.04 (-.01) |
| Student Effort | | | | | | |
| Time Attitudes | | | | | .12 (.04) | .05 (.01) |
| Time Planning | | | | | .22** (.04) | .20** (.04) |
| Human Capital | | | | | | |
| Self-Concept of Ability | | | | | | .26** (.11) |
| R ² | .07 | .11 | .13 | .17 | .25 | .30 |

* p ≤ .05 ** p ≤ .01

Standardized and unstandardized regression coefficients are reported.
Unstandardized regression coefficients are in parentheses.

considerable research related to the educational attainment of university students has included GPA, this study marks the first time that the influence of social capital on GPA, as well as the influence on student effort, which is thought to influence GPA, (Astin, 1993) has been examined.

In Step 1, it is shown that both of the university background variables have a positive effect on grade point average. The effect parameter for *credit hours* (.16 $p \leq .01$) indicates that students who are enrolled in greater numbers of credit hours have higher GPAs than students who are enrolled in fewer credit hours. Similarly, the effect for *years of university* (.22 $p \leq .01$) indicates that students who have more university experience have higher GPAs than students who have fewer years of university experience.

In Step 2, the social background variables are added to the regression equation. Here, it is shown that two of the variables, *gender* and *age*, have effects on GPA that are worth noting. Specifically, the coefficient estimating the relationship between *gender* and GPA is -.11, indicating that females have slightly higher GPAs than males. This result is consistent with previous research (Astin, 1993). It is also not surprising that the effect of *age* (.21 $p \leq .01$) indicates that older students have higher GPAs than

younger students.

The introduction of the social background variables into the equation in Step 2 also has an effect on the university background variables. That is, the effect of *credit hours* on *GPA* increases by about 31 percent from .16 ($p \leq .01$) to .21 ($p \leq .01$) and the effect of *years of university* decreases by 50 percent from .22 ($p \leq .01$) to .11. These changes are due to covariance between the university background and social background variables. More specifically, the covariation between *credit hours* and the social background variables suppresses some of the effects of *credit hours* on *GPA* so that the larger effect of *credit hours* on *GPA* is evident only after the social background variables are held constant. That is, some of the effect of *credit hours* is not seen in Step 1 because of the association between *age* and *credit hours* ($r = .59$, $p \leq .01$), indicating that younger students are more likely to be enrolled in greater numbers of credit hours than are older students. When age is accounted for in Step 2, the stronger effect of *credit hours* is revealed. In contrast, the covariation between *years of university* and the social background variables has the opposite effect. That is, some of the effect of *years of university* on *GPA*, shown in Step 1, is actually due to the social background, particularly the gender and ages of students. Therefore, when these are taken into account, the effect of *years*

of university on GPA decreases substantially.

In Step 3, the variables which measure students' perceptions of the challenges they experience in the Faculty are taken into account. The effect of students' perceptions of the structural dimension of challenge (-.07) is very weak, indicating that students' perceptions of the degree to which they have been challenged to remember and interpret information has little effect on their GPAs. The somewhat stronger, but also not statistically significant, effect of the functional dimension of challenge (-.10) suggests that students who have strong perceptions of being challenged to apply and analyze information, have slightly lower GPAs than students who perceive less challenge to think in these ways. It is notable that the effects of both of the challenge variables are negative. This may be due to the link between ability and GPA (Astin, 1993). That is, students with less ability, and consequently lower GPAs, likely perceive themselves to be unduly challenged in contrast to students with higher ability and higher GPAs. Overall, introduction of the challenge variables has little effects and makes no notable change to the effects of the university and social background variables on *GPA*.

Step 4 introduces the support variables--*interaction with professors, interaction with students, and positive affect*--into the analysis. Interestingly,

only one of the support variables has a significant effect. Specifically, students' perceptions of their interactions with other students has a moderately large effect on *GPA* (.24 $p \leq .01$). This effect indicates that students who have positive perceptions of their interactions with other students have higher GPAs than students who have less positive interactions with other students. It would appear, therefore, that interactions with peers provide an important resource for educational attainment, as predicted by social capital theory. This result also corresponds with other literature (Astin, 1993; Pascarella & Terenzini, 1991) that indicates the importance of peer influence on the academic achievement of university students. Unexpectedly, however, *interaction with professors* and *positive affect*, the other two support variables, have essentially no direct effects on *GPA*.

A substantial indirect effect of the support variables is also noted in Table 47. Specifically, the effect of *function* on *GPA* increases 60 percent, from -.10 in Step 3, to -.16 ($p \leq .05$), when the support variables are added in Step 4. In both steps, the effects of *function* on *GPA* are negative, indicating that the higher the students' perceptions of challenge to apply and analyze information, the lower their academic achievement. The increase in effect, from Step 3 to Step 4, indicates that students'

perceptions of challenge to apply and analyze information covary with their perceptions of support. It is interesting that this is the case for *function*, but not for *structure*. That is, the effects of structure are independent of students' perceptions of the support they experience in the Faculty. As discussed previously, this difference between *structure* and *function* may be because these two dimensions of challenge require different responses from students. More specifically, the challenge to recall and interpret information calls for students to memorize and understand, both of which are individual acts that probably differ for each student according to his/her cognitive abilities, such as the ability to concentrate and to memorize. On the other hand, the challenge to apply and analyze information appears to be strengthened by interaction with and support from others with whom discussion and information exchange may enhance students' skill at applying and analyzing information.

Step 5 introduces the effects of the student effort variables, *time attitudes* and *time planning*, on *GPA*. Both of these variables have a direct effect on *GPA*. *Time attitudes* has a relatively weak effect (.12) but *time planning* has a relatively strong effect (.22 $p \leq .01$). These results indicate that students who have more effective time management attitudes and efforts have higher GPAs than students who have less effective time

management. In other words, as predicted by Britton and Tessor (1991), Pace (1979), Pascarella (1985) and others, student effort at planning university work has a direct influence on academic achievement.

Introduction of the student effort variables into the equation in Step 5 also has an effect on the previously noted effect of *gender* on *GPA*, which indicated that generally, females have higher GPAs than males. In Step 5 the effect of *gender* is reduced considerably, by 33 percent, in comparison to Step 4. In other words, much of the effect of *gender*, noted in the previous steps, is actually due to its covariation with time management, of which *time planning* has the largest effect. Therefore, when time management is held constant, *gender* effects are reduced. In no step, however, is the effect of gender statistically significant. As previously noted, females in this study engage in time planning activities more than males do. These results suggest that student effort in the form of planning is an important method by which students, in particular females, enhance their achievement.

There is also a notable change in the effect of two of the social capital variables on *GPA* when the student effort variables are added in Step 5. As the table shows, the effect of *interaction with students* is reduced and the effect of *positive affect* is increased. The effect of *interaction with*

students on *GPA* changes from .24 ($p \leq .01$) to .19 ($p \leq .01$), a reduction of approximately 21 percent. That is, time management mediates some of the effects of *interaction with students* on *GPA*. In other words, student time management is linked to interaction with other students, as predicted by the theoretical model. Some of what students gain from interaction with other students is related to time management, in particular time planning, which covaries with *interaction with students*.

In contrast, time management suppresses some of the effects of *positive affect* on *GPA*. After the effects of time management are accounted for, students' perceptions of the meaningfulness of their experiences in the faculty have an effect of -.11. This is an increase of 80 percent over the effect reported in Step 4 prior to accounting for the effects of the time management variables. The effect of *positive affect*, of course, is relatively small and negative.

The sixth and final step in the analysis of *GPA* includes the effects of self-concept of ability. A considerable amount of literature has concerned the relationship between academic self-concept and academic achievement (Byrne, 1986; Hattie, 1992; Rosenberg et al., 1995; Wylie, 1979). As predicted by this literature, self-concept of ability, as used in this study, has a strong effect on *GPA* (.26 $p \leq .01$). That is, students who have

more positive self-concepts of their academic ability have higher GPAs than students who have less positive self-concepts. Furthermore, self-concept of ability mediates the effects of *interaction with students*, and the relatively small effects of both *positive affect*, and *time attitudes*. That is, the effects of each of these variables on *GPA* are reduced by about 15 percent, 64 percent, and 58 percent, respectively. As predicted in the theoretical model, experiences in the educational environment and student effort influence student self-concepts of their ability which, in turn, influence students' GPAs. That is, *interaction with students*, *positive affect*, and *time attitudes* have indirect effects on *GPA* through the association of these variables with self-concept of ability.

The R^2 statistics reported in Table 47 indicate in Step 2 that the university and social background variables together explain 11 percent of the variance in *GPA*. The addition of the challenge variables, in Step 3, raises the variance explained by 2 percent to 13 percent, and the addition of the support variables, in Step 4, raises it another 4 percent to 17 percent. Inclusion of the student effort variables raises the variance explained a substantial 8 percent in Step 5, and the inclusion of the *self-concept of ability* variable in Step 6 adds another 5 percent. A total of 30 percent of the variance in *GPA* is explained in the model reported in Step 6.

In summary, two of the social capital variables, *function* and *interaction with students*, have direct effects on *GPA*, thus supporting the hypothesis that a relationship exists between challenge and support in the educational environment and *GPA*. The argument that student effort affects *GPA* is also supported because there are both direct and indirect effects of time management on *GPA*. Also, the number of credit hours students are taking and their ages have direct effects on *GPA*.

Educational Expectations. The final analysis of this study, reported in Table 48, examines the effects of all of the independent and intervening variables in the model on students' educational expectations. As argued previously, educational expectations are an important human capital outcome indicator because ongoing education is a professional expectation of all professionals, including teachers.

Step 1 examines the effects of the university background variables on *educational expectations*. Both *credit hours* (.16 $p \leq .01$) and *years of university* (.42 $p \leq .01$) have the predicted effects on students' educational expectations. That is, students who are enrolled in more credit hours and students who have more university experience have higher educational expectations than students who are enrolled in fewer credit hours and students who have fewer years of previous university experience.

Table 48
Effects of University and Social Background, Social Capital, Student Effort,
Self-Concept of Ability and Grade Point Average on Educational Expectations

| Independent Variables | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 | Step 7 |
|-------------------------------------|----------------|------------------|------------------|-----------------|------------------|------------------|------------------|
| <u>University Background</u> | | | | | | | |
| Credit Hours | .16** (.03) | .16** (.03) | .17** (.03) | .18** (.03) | .17** (.03) | .13* (.02) | .15** (.02) |
| Years of University | .42** (.22) | .45** (.23) | .46** (.24) | .42** (.22) | .43** (.22) | .38** (.20) | .39** (.20) |
| <u>Social Background</u> | | | | | | | |
| Gender | | .01 (.02) | .01 (.03) | .00 (.01) | .02 (.04) | .04 (.08) | .03 (.07) |
| Age | | -.04 (-.01) | -.04 (-.01) | -.02 (-.00) | -.04 (-.01) | -.08 (-.02) | -.06 (-.02) |
| Parents' Education | | -.15** (-.04) | -.15** (-.04) | -.14* (-.04) | -.15** (-.04) | -.15** (-.04) | -.15** (-.04) |
| <u>Challenge</u> | | | | | | | |
| Structure | | | .01 (.00) | -.00 (-.00) | -.01 (-.00) | .01 (.00) | .01 (.00) |
| Function | | | .08 (.02) | .12 (.03) | .14* (.03) | .10 (.02) | .09 (.02) |
| <u>Support</u> | | | | | | | |
| Interaction with Professors | | | | -.10 (-.04) | -.11 (-.04) | -.08 (-.03) | -.08 (-.03) |
| Interaction with Students | | | | .11 (.05) | .08 (.04) | .03 (.02) | .04 (.02) |
| Positive Affect | | | | -.09 (-.02) | -.11 (-.02) | -.04 (-.01) | -.03 (-.01) |
| <u>Student Effort</u> | | | | | | | |
| Time Attitudes | | | | | .14* (.04) | .03 (.01) | .04 (.01) |
| Time Planning | | | | | .08 (.02) | .04 (.01) | .07 (.01) |
| <u>Human Capital</u> | | | | | | | |
| Self-Concept of Ability | | | | | | .33** (.15) | .35** (.16) |
| Grade Point Average | | | | | | | -.07 (-.07) |
| R ² | .20 | .22 | .23 | .25 | .28 | .37 | .37 |

* p<.05 **p<.01

Standardized and unstandardized regression coefficients are reported.
Unstandardized regression coefficients are in parentheses.

In Step 2, the social background variables are considered along with the university background variables. Only parents' education has an appreciable effect ($-.15$ $p \leq .01$) on *educational expectations*. The direction of this effect is contrary to human capital theory and other research involving post-secondary students (see Reitzes & Burke, 1983). Human capital theory predicts that children benefit from their parents' human capital. Therefore, as is shown in Reitzes and Burke's (1983) study, one would expect the children of parents with more human capital, specifically those who have more education, to be more likely to aspire to higher levels of education themselves. Surprisingly, the opposite is indicated by these results. That is, students who have parents with less education have higher educational expectations than students with parents who have more education. Perhaps students whose parents have little education regard increasing their education as an important way to improve both their social standing and their financial status in life. For students whose parents have higher levels of education, more education for themselves in a Faculty of Education may not represent improvement in either social standing or financial status because the teaching profession does not enjoy the level of prestige afforded to many other professional and occupational groups.

Steps 3 and 4 introduce the social capital variables. In Step 3 only

the variables that measure students' perceptions of the challenges they experience in the Faculty are included, and neither of these social capital variables have an appreciable effect on *educational expectations*. That is, the degree to which students feel challenged to remember and interpret information, and the degree to which they feel challenged to apply and analyze information do not influence the amount of education that they expect to achieve.

In Step 4, the variables that measure students' perceptions of the support they experience in the Faculty are added. All three of the variables, *interaction with professors*, *interaction with students*, and *positive affect*, have weak, but not statistically significant, effects on *educational expectations*. The effect of *interaction with professors* on *educational expectations* (-.10), and the effect of *positive affect* on *educational expectations* (-.09) indicate that students who have positive interactions with their professors and who have meaningful educational experiences have lower educational expectations than students who have less positive interactions and less meaningful experiences. In contrast, the effect of *interaction with students* on *educational expectations* (.11) indicates that students who have positive interactions with other students have higher educational expectations than students with less positive interactions with

other students.

It is also notable that, when the support variables are held constant in Step 4, the effect of *function* on *educational expectations* increases by 50 percent, from .08 to .12. Although still not significant, this effect is interesting, not only because it somewhat supports the idea of a relationship between challenge and educational expectations, but also for two other reasons. First, it is interesting because the effect of *function* on *educational expectations* is different from the effect of *structure* which has essentially no effect on *educational expectations* (-.00), and relatively little covariance with support. Comparison of the zero order correlations (Table 38) which describe the association of *structure* and *function* with each of the three support variables, *interaction with professors*, *interaction with students*, and *positive affect*, indicates a stark contrast between structure and function. That is, the zero order correlations between *structure* and these three variables are -.08, .10, and .17 ($p \leq .01$) respectively, in contrast to .35 ($p \leq .01$), .33 ($p \leq .01$), and .45 ($p \leq .01$) which are the corresponding zero order correlations between *function* and the three support variables.

Second, it is interesting because the effect of *function* on *educational expectations* is positive. This is opposite to the previously noted effect of *function* on *GPA*, one of the other human capital variables. The effect of

function on educational expectations is, however, similar to the effect of *function on self-concept of ability*, which is also positive. This is especially interesting in light of the fact that *educational expectations* and *self-concept of ability* are both representative of attitudes, while *GPA* is representative of skills and knowledge.

Step 5 adds the effects of student effort to the other independent and intervening variables on educational expectations. The results show that *time attitudes* have a positive effect on *educational expectations* (.14 $p \leq .05$), indicating that students with positive time attitudes have higher educational expectations than students with less positive time attitudes. *Time planning*, however, has a much weaker effect (.08).

The addition of the student effort variables also changes the effect of *function on educational expectations* which rises from .12 to .14 ($p \leq .05$). This indicates that when student effort, particularly *time attitudes*, is taken into account, the effect of students' perceptions of being challenged to apply and analyze information on their *educational expectations* is stronger than indicated prior to controlling for student effort. The effects of the other independent and intervening variables on *educational expectations* remain about the same as they were in the previous step.

Step 6 examines the effect of the university and social background,

social capital, and student effort variables plus *self-concept of ability* on *educational expectations*. The effect parameter for *self-concept of ability* (.33 $p \leq .01$) indicates a strong positive effect of *self-concept of ability* on the educational expectations of students. Not surprisingly, students who have positive academic self-concepts have higher educational expectations than students with less positive academic self-concepts. This is consistent with other literature which reports a positive relationship between college students' self-concepts and educational expectations (see for example Reitzes & Mutran, 1980).

In addition, the inclusion of *self-concept of ability* in the analysis which focuses on *educational expectations* results in some notable changes in the relationships between the other variables and *educational expectations*. More specifically, *self-concept of ability* is shown to mediate the effects of *function* and *time attitudes*. It also mediates the effects of *interaction with professors*, *interaction with students*, *positive affect*, and *time planning* to a much smaller extent. This indicates that each of the social capital and student effort variables that are mediated by *self-concept of ability* have, as predicted by the theoretical model, indirect effects on educational expectations through their association with *self-concept of ability*.

The final step in this analysis examines the effect of *GPA* on *educational expectations*. When all other variables have been taken into account, *GPA* has no appreciable effect on *educational expectations*. This may seem surprising because the literature suggests that students who have higher academic achievement than other students are more likely to expect to pursue graduate studies (Astin, 1993). As surprisingly, the addition of *GPA* to the analyses does not substantially affect the relationship between the other important variables (*credit hours, years of university, parents' education, and self-concept of ability*) and *educational expectations*. Each of these variables is about the same magnitude it was in the previous step.

Overall the R^2 statistics reported in Table 48 show that a substantial amount (22 percent) of variance in *educational expectations* is explained by the university and social background variables alone (Step 2). The addition of the social capital variables, in Steps 3 and 4, raises the amount of variance explained to 25 percent, and the addition of the student effort variables in Step 5, add another 3 percent to raise the R^2 to 28 percent. The addition of *self-concept of ability* increases the variance explained, by 9 percent to 37 percent in Step 6, and the addition of *GPA* does not increase the amount of variance explained in *educational expectations*.

In summary, *self-concept of ability* is the most important variable in

determining the educational expectations of students. Not only is the direct effect of this variable on *educational expectations* by far the strongest in the model but self-concept of ability is also shown, in previous steps, to mediate the effects of social capital and time management variables. The degree to which students are involved in their studies, and the amount of previous university experience they have also appear to be important predictors of educational expectations. This is indicated by the consistent effects of the university background variables, *credit hours* and *years of university*, which remain essentially unchanged across all steps of the analysis of educational expectations.

In summary, ten analyses have been presented in this chapter. The results suggest that the theory developed in Chapter 2 has some validity. In the next chapter these results will be summarized and discussed. At that time, I will draw out more explicitly the theoretical import of the results. I will also discuss the implication of the results for policy and practice and for further research.

CHAPTER 5

CONCLUSION

As outlined in Chapters 1 and 2, the primary purpose of this study is to examine the effects of social capital and student effort on the development of human capital of university students. The results of this study, reported in Chapter 4, indicate some expected and some unexpected findings related to the theoretical model. In this chapter, the most important findings are summarized and discussed in relation to the theories guiding the study. In addition, implications of the findings for policy and practice, and suggestions for further research are presented.

DISCUSSION

It has become increasingly evident in recent times that universities need valid and reliable assessments of their efforts in order to be effective in fulfilling their mandate, and in order to demonstrate accountability to the public (Naimark, 1993; Association of Universities and Colleges of Canada, 1992; Roberts & Clifton, 1991). In relation to demonstrating accountability to the public, the assessment of students' perceptions of their educational experiences are considered relevant because their perceptions help to form public opinion. That is, because students are the largest sector of the public that has first-hand experience within universities, they

are in a position to influence the opinions of many other people.

Students' perceptions are also relevant to assessments of how effective universities are at fulfilling their mandate to create new knowledge and to educate students so that they acquire new knowledge, skills, and attitudes that enable them to become more productive members of society. That is, although university programs assume the responsibility of providing opportunities for students to develop their human capital in terms of increasing their knowledge, developing their skills, and changing their attitudes, it is students themselves who must make the necessary changes in order to meet the educational expectations of university programs. In other words, students make decisions about their own actions. For example, they choose to attend or not to attend classes, and they choose to study or not to study. The actions of students are presumably linked to their experiences in the educational environment. In fact, there is a considerable body of literature indicating that both institutional factors, such as the supportiveness of the educational environment, and individual factors, such as students' time management, are important in the educational process (see for example, Astin, 1993; Becker, 1961; Baird, 1988; Bidwell, 1989; Coleman, 1990; Merton, 1982; Pascarella & Terenzini, 1991; Simpson, 1979; Weidman, 1989; Zeichner &

Gore, 1990). Furthermore, theories of social action (Mead, 1934; Reynolds, 1993) suggest that students' experiences in the educational environment influence their perceptions which, in turn, guide their actions. In this regard students who interact with other students, who attend rather than skip classes, and who study rather than not study, are likely to perceive that attending classes and studying are appropriate student behaviours and thus are likely to act accordingly. These actions, of course, affect their academic self-concepts, their GPAs and their educational expectations.

In order for students' perceptions to guide their actions toward achieving educational goals, it is argued in Chapters 1 and 2, that quality educational experiences are important. Literature on the socialization of students suggests that in order for students to be influenced to change their knowledge, skills, and attitudes, and thereby develop human capital (Becker, 1975; Bidwell, 1989; Schultz, 1971), they should have experiences that are both challenging and supportive (Brim, 1966; Bredemeier & Bredemeier, 1978; Kleinfeld, 1975; Clifton & Roberts, 1993). In other words, the experiences of students should include exposure to professors who make cognitive demands on them that challenge them to change their knowledge, skills, and attitudes, and supportive environments in the sense that professors and other students support their efforts to make the

changes needed to successfully meet the challenges encountered. In this study, I examine the thesis that challenge and support within the educational environment are social capital resources that are significant and useful indicators of the university's ability to adequately facilitate the socialization of students.

Granovetter (1985) identified that personal relations within a social context can be assets to the individuals who share these personal relations or are part of this network of relations. He further identified that these assets are social capital resources that facilitate goal achievement. In turn, Coleman (1990, 1988a) described the concept of social capital as "social-structural resources" (Coleman 1988a, p. S98) and he examined the concept within the context of primary and secondary education (see Coleman, 1990). More generally, he articulated four properties of social structures--closure, stability, shared ideology, and conditions of dependence--that are conducive to the development of social capital, and four entities of social capital--obligations and expectations, information exchange, norms and sanctions, and authority relations--that are examples of social capital that can exist in social relations (see Figure 1). That is, he proposed that when a network of relations involves interaction among all individuals within a social structure, when interactions among those individuals occur over time,

and when those individuals share goals and work interdependently, more social capital is generated than when there is less closure, stability, shared ideology and conditions of dependence within the network. Furthermore, he described several examples of social capital entities within social relations. That is, he proposed that social capital is evident in social relations that involve shared obligations and expectations, information exchange, the development of norms and sanctions that guide behaviour, and the assignment of authority to facilitate goal achievement.

As noted previously, this study examines social capital within the specific context of the university (see Figure 3). A basic assumption is that, through their experiences in this educational environment, including their interactions with both professors and other students, students feel more or less challenged and more or less supported to achieve their educational goals. In addition, the degree to which they have stable involvement in the social structure of the educational environment depends on the number of years of university experience they have and the number of credit hours of courses in which they are enrolled. That is, students who have more experience at university have a more stable connection to the social structure of the university and, therefore, are more likely to know about channels of communication and policies and procedures that do not change

from year to year than students with less university experience. Also, students who are enrolled in more credit hours of courses are more likely to engage in interaction with professors and other students within the educational environment, and are more likely to experience more academic challenges than students who are enrolled in fewer credit hours. Overall, these social-structural factors provide a basis for examining social capital within the context of the university.

The theoretical model, presented in Chapter 2, incorporates the proposition that challenge and support are two domains of social capital within the university environment that facilitate the development of human capital among students. Consistent with the assumption that students' efforts are influenced by the context of their educational experiences, it is also proposed in the theoretical model that social capital has a positive effect on student effort, and that student effort, in turn, has a positive effect on the development of students' knowledge, skills, and attitudes. In other words, the university adds to the education of students because it provides the social context in which social capital domains of challenge and support can exist. Individual students also add to their own education to the extent to which they organize their time to achieve the educational goals of their university program.

In total, fifteen variables, that are described in detail in Chapter 3, are included in the theoretical model and include university background, social background, social capital, student effort, and human capital variables. The social capital variables that are of primary interest in this study are students' perceptions of challenge and support in the educational environment. In total there are five social capital variables. Two of these variables--*structure* and *function*--measure students' perceptions of the challenges they experience: and three of these variables--*interaction with professors*, *interaction with students*, and *positive affect*--measure students' perceptions of support in the educational environment.

This study is based on data derived from a survey conducted in 1992 that examined the quality of student life in the Faculty of Education at the University of Manitoba. Using a stratified random cluster sampling technique, approximately 20 percent of the students within each academic year were selected to complete the Quality of Student Life Questionnaire which was developed by a research team of faculty members and students. In total 363 undergraduate students were included in the present study. The response rate was approximately 74 percent.

Structural equation modeling procedures are used to analyze the interrelationships among the variables in this study. These statistical

procedures are discussed in the final section of Chapter 3, and the results of these analyses are reported in detail in Chapter 4. These results are summarized here and discussed in relation to four main questions that underlie the primary focus of inquiry represented in the theoretical model that was presented in Figure 4. These four questions are addressed first in what follows. In addition, two secondary questions that arise from the model are also addressed.

The first main question to be discussed is: Does social capital have a positive effect on the human capital development of students? Several findings indicate that there is a positive link between social capital and human capital, while some findings do not. Overall, within the fifteen variables in the theoretical model, the social capital variables add to the amount of variance that is explained in the case of all three human capital variables (see changes in R^2 after inclusion of Steps 3 and 4 in Tables 46, 47, and 48). That is, the amount of variance that is explained with respect to each of the three human capital variables, *self-concept of ability*, *GPA*, and *educational expectations*, increases by 6 percent, 6 percent, and 3 percent respectively after the social capital variables are added. Furthermore, most of the increase in explained variance in each of these dependent variables, that is due to social capital, is attributable to the

support variables, *interaction with professors*, *interaction with students*, and *positive affect*. These results provide general support for the proposed relationship between social capital in the educational environment and the human capital development of students, but indicate that support has a greater influence than challenge.

More specifically, one social capital support variable, *interaction with students*, has a direct positive effect on two human capital variables *self-concept of ability* and *GPA*. That is, students who view their interactions with fellow students as being positive have higher academic self-concepts and higher GPAs than students who regard their interactions as less positive. In fact, *interaction with students* alone explains about 1 percent of the variance in *self-concept of ability* and about 2 percent in *GPA*.

The indirect effects of the social capital variables also provide support for the relationships suggested in the theoretical model. Examination of the indirect effects of the social capital variables on each of the human capital variables shows that the support variables, *interaction with professors*, *interaction with students*, and *positive affect*, mediate the effects of years of university on two of the human capital variables, *self-concept of ability* and *GPA* (see Step 4 on Tables 46 and 47). That is, some of the effect of years of university on *self-concept of ability* and *GPA* is

actually due to support received in the educational environment.

Moreover, the data show that challenge and support affect human capital in different ways. With the exception of the effect of *function* on *GPA*, neither of the challenge variables, *structure* or *function*, has a direct effect on the human capital variables, *self-concept of ability*, *GPA*, or *educational expectations*. Actually, almost all of the effects of challenge on human capital are mediated by support. This finding corresponds with socialization theory that proposes that students are facilitated in meeting academic challenges when they are supported by significant others, professors and other students. As noted previously in this discussion, positive interactions with other students are a particularly important source of support that facilitates students' acquisition of new knowledge, skills, and attitudes.

In addition, the effects of background variables, *credit hours* and *years of university*, on the human capital variables provides evidence supporting the hypothesis that there is a positive link between social capital and human capital. As argued in Chapter 2, from a social capital perspective the university background variables provide an indication of stability of student involvement in the social structure of the educational environment. As reported previously, students who take more credit hours

of course work perceive their interactions with their professors more positively than students taking fewer credit hours. And students who have attended university for a longer period of time view their interactions with other students more positively than students with less university experience. In other words, students who are more immersed in the university are more likely to develop and benefit from the social capital that is available within this educational environment.

Furthermore, the findings of this study indicate that *credit hours* and *years of university* have direct positive effects on at least two human capital variables, *GPA* and *educational expectations*. What these relationships indicate is that students who have a heavier course load tend to have higher *GPA*s and higher *educational expectations* than students who have a lighter course load, and students who have more university experience have higher *educational expectations* than students who have less university experience. These findings support the hypothesis that stability of students' involvement in the social structure of their educational program contributes to the development of social capital in this educational environment and to the development of their human capital.

On the other hand, as previously noted, some findings do not indicate the presence of a positive link between social capital and human

capital. First of all, the absence of any significant effects of students' perceptions of their interactions with professors on *self-concept of ability*, *GPA*, or *educational expectations* is surprising because it does not support the theoretical model, and because it runs contrary to previous work by Astin (1993) indicating that students who spend more time interacting with their professors have higher grades than students who spend less time in such interaction. However, Astin (1993) assessed the effects of amount of interaction occurring outside of class time as opposed to quality of interaction in the educational environment which was measured in this study. Based on students' perceptions of their interactions with their professors in this study, it would appear that students do not rely on supportive interactions with professors in order to meet academic challenges that are posed to them, probably by those same professors.

Also surprising in the data is the negative relationship between perception of challenge and GPA. That is, students who feel more challenged to apply and analyze information have lower GPAs than students who feel less challenged to do so. On the other hand, although the negative effect was not anticipated, the fact that there is an effect is consistent with the theoretical model hypothesis that challenge has an influence on GPA. The negative association may be due to an interaction

between challenge and ability that cannot be determined by this study.

Further research needs to address this issue.

Also contrary to the theoretical proposition that the social capital variables relate positively to the human capital variables in this study, is the finding that one social capital support variable, *positive affect*, has a direct negative effect on *self-concept of ability*. This rather surprising finding may be interpreted in several ways. The most likely interpretation relates to students' broader view of the Faculty. As noted in Chapter 3, the items comprising the *positive affect* scale are measures of how students feel about the Faculty of Education. It seems reasonable that, if students think their faculty provides a high standard of education, their view of themselves within that environment is more likely to translate into a positive academic self-concept. On the other hand, even if students find their experiences in the faculty meaningful, they may not have a positive academic self-concept if they do not think that their faculty provides a high standard of education.

Other research that examined the comments of the students who participated in this study (Clifton, Roberts, & Mandzuk, 1994) suggests that, generally, students had an overall negative view of the Faculty. For example, many students reported that the faculty is not respected and that many courses offered in the faculty are not academically challenging.

variance that is explained in each of the student effort variables increases by 5 percent after the social capital support variables are added to the analysis of these variables (see R^2 's for Step 4 of Tables 44 and 45). In other words, students who feel supported in the educational environment have more positive attitudes toward their time management and are better at planning their time to attain academic goals than are students who feel less support. The additional variance explained by the support variables provides evidence of the hypothesized link between students' perceptions of the educational environment and their actions with respect to managing their time to meet academic challenges.

More specifically, two of the social capital support variables, *interaction with students* and *positive affect*, have a positive effect on students' time planning. That is, students who feel supported in the educational environment in general, and specifically by other students, are more likely to engage in specific time planning behaviour on a daily and weekly basis than are students who do not feel supported in these ways. Also, all three of the support variables, *interaction with professors*, *interaction with students*, and *positive affect* have weak, although not statistically significant, positive effects on students' time attitudes, indicating that students who feel supported in the educational environment are

stimulated by conditions in the social environment influences students' time attitudes. This, however, has not been examined in this study.

Examination of this long term effect would be possible in studies using a longitudinal design.

The fact that some aspects of social capital have a positive effect on student effort leads to the third and fourth questions posed by this study. Does student effort affect the human capital development of students? And, does student effort act as an intermediary between social capital and human capital? In relation to the third question, the amount of variance that is explained in each of the human capital variables, *self-concept of ability*, *GPA*, and *educational expectations*, increases, by 9 percent, 8 percent, and 3 percent respectively (see R^2 s for Step 5 of Tables 46, 47, and 48), after the student effort variables, *time attitudes* and *time planning*, are added to the analysis. There is some evidence in the data then, that student effort does contribute to the development of their knowledge, skills, and attitudes. Considering these results in more detail shows more specifically that *time planning* has a strong positive effect on *GPA*. Also, *time attitudes* has a strong positive effect on *self-concept of ability*, which, in turn, has strong positive effects on both *GPA* and *educational expectations*. These findings support those findings of Britton and Tessor (1990) who

developed the *time planning* and *time attitudes* scales. They demonstrated that students who more frequently engage in planning their time to achieve academic goals, and students who have more positive time attitudes, have higher GPAs than students who are less goal directed and less positive in their time management behaviour and attitudes.

Furthermore, in relation to the fourth question--does student effort act as an intermediary between social capital and human capital?--student effort is shown to intervene between social capital and human capital. That is, some of the influence of students' perceptions of the educational environment affects students efforts which, in turn, affects their development of new knowledge, skills, and attitudes. For example, *interaction with students* and *positive affect* have positive effects on *time planning* which, in turn, positively influences *GPA*. Also, all of the support variables have a positive, although weak, effect on *time attitudes* which, in turn, affects the human capital variables as previously noted. And, as previously noted in Chapter 4, student effort suppresses the effect of *function* and *positive affect* on *self-concept of ability*, of *positive affect* on *GPA*, and of *positive affect* on *educational expectations*. That is, the effects of students' perceptions of being challenged to apply and analyze information, and the effects of their perceptions of the meaningfulness of

their educational experiences are influenced by the way they manage their time. In other words, students use time management to meet challenges to apply and analyze information, and to relate to the meaningfulness of their educational experiences. In addition, student effort mediates the effect of *interaction with students* on *self-concept of ability, GPA, and educational expectations*. That is, some of the influence of interaction with students on the human capital variables is a result of the influence that *interaction with students* has on students' time management. In other words, interaction with other students likely motivates and inspires students to manage their time to achieve their educational goals.

In addition to the four main questions addressed, the way in which the analyses in this study were conducted allows for the consideration of at least two secondary questions. The first relates to the relationship between the two social capital domains, challenge and support. That is, does challenge influence support? The theory underpinning the theoretical model presented in Chapter 2, posits that students who feel challenged are likely to feel dissatisfied with their existing knowledge, skills, and attitudes. These perceptions of challenge, in turn, are likely to affect their perceptions of support because support may be needed in order for them to change their knowledge, skills, and attitudes.

The findings of this study indicate that students' perceptions of challenge in the faculty do have effects on their perceptions of support. However, I conceptualized challenge as having two dimensions, *structure* and *function*, and each of these has a different effect on students' perceptions of support in the educational environment. Interestingly, students who feel more challenged to apply and analyze information are more likely to have positive perceptions of all three dimensions of support than students who feel less challenged to apply and analyze information. Conversely, students who feel more challenged to recall and interpret information are less likely to have positive interactions with professors than students who feel less challenged to recall and interpret information. Otherwise, their feeling of being challenged to recall and interpret information has no significant effect on their perceptions of support. That is, when students feel challenged to recall and interpret information they may feel a need to study on their own rather than seek support to meet these challenges by interacting with their professors or other students.

The last question to be addressed relates to the effects of the human capital variables on each other. The theoretical model depicts *self-concept of ability* as an intervening variable between background, social capital, and student effort and the human capital variables, *GPA* and

educational expectations. As expected, *self-concept of ability* has an effect on both *GPA* and *educational expectations*. In fact these effects are among the strongest found in this study. Also of interest is the fact that most of the influence of the social capital variables, specifically *interaction with students* and *positive affect*, and the student effort variable, *time attitudes*, on *educational expectations* is mediated through *self-concept of ability*. Thus, *self-concept of ability* is confirmed as an important influence on academic performance, with both direct effects on *GPA* and as mediating a significant part of the effects of other variables on both *GPA* and *educational expectations*.

The findings of this study are interesting and informative. But, beyond that, they are also important because they relate to the mandate that universities have to develop the human capital of students. More specifically, the findings of this study have implications for faculties and professional schools within universities in terms of the efforts they make to develop the knowledge, skills, and attitudes of their students. Implications for policies and practices are discussed next, followed by implications for further research.

POLICY AND PRACTICE IMPLICATIONS

There are several policy and practice implications to be derived

from the theoretical ideas and the empirical findings of this study.

From a theoretical perspective, this study articulates the relevance of socialization and social capital theory for the human capital development of university students. This articulation provides a way of thinking about the enterprise of educating university students that calls for attending to the social context of the educational environment so that students perceive this environment to be one in which they are challenged to acquire new knowledge, skills, and attitudes and to be one in which they feel supported to meet those challenges. In other words, the ideas presented in Chapter 2 and the results of this study reported in Chapter 4, raise a very important question for university educators: What can be done to ensure that the educational environment is perceived by students to be challenging and supportive?

In answering this question, planners in faculties and professional schools can use the concept of "social capital" to guide policies and practices in at least five areas. Specific policy and practice implications are discussed for four areas--admission policies, student grouping policies, teaching strategies, and professor/course evaluations. In addition, social capital can be used as an indicator of university accountability and has potential for broad application by administrators and professors. The

implications of social capital for accountability conclude the discussion of policy and practice implications.

First, faculties and professional schools can use the concept, social capital, to guide admission procedures. Social capital theory suggests that social capital is enhanced when individuals within a social context share the same ideology and goals. Also, the empirical findings of this study identify the importance of students' interactions with each other. An implication of these points is that students could benefit from being well informed about the goals of an education program and the expectations that will be placed on them, before they have been admitted to the program. Informing students about the goals of educational programs prior to admission could help to ensure that students who enter a program are self-motivated toward the same goals as their professors and other students with whom they will be interacting. Cohorts of informed and similarly goal-directed students are more likely to have appropriate matches between their abilities and motivation to meet the challenges of the education program, and are more likely to be supportive of one another because they have a common understanding of goals to be attained and expectations to be met.

Once students are admitted to a program, the social context of the educational environment can be experienced in many different ways.

Social capital theory suggests that social capital is greater and goal attainment enhanced when all individuals within a social structure share social relations and when social relations are stable over time. Also, the empirical findings of this study show that stability and closure in the educational environment, in the form of years of university experience and credit hours of enrolment, enhance the development of new knowledge, skills, and attitudes in students. One implication is that, in order to achieve stability and closure in social relations that occur in well-designed educational programs, they should be organized so that students are grouped in cohorts who share educational experiences in more than one course. In this way students are able to support one another more effectively because they are experiencing similar assignments, deadlines, and classroom experiences and, therefore, can confer with one another about those experiences across a number of courses.

The empirical findings of this study also support the importance of peer interaction among students. These interactions appear to influence both students' effort and their academic self-concepts and *GPA*s. Therefore, providing opportunities for students to interact through group assignments and group work within classrooms may be well worth the effort that is required to plan these types of opportunities and carry

through with engaging students in them. Also, program planning that results in students proceeding through a program together with others in a cohort may be a positive way to develop social capital through encouraging student interaction by allowing students to share many experiences and opportunities to influence each other.

In addition to guiding admission policies and student groupings, social capital theory can be used to guide teaching strategies. This theory posits that social capital is greater when there is considerable goal-directed interaction between students and professors and when there are conditions of interdependence among those who are interacting. The organization of students into work groups in which they problem-solve together and depend on one another to produce group assignments is one possible way of applying these concepts and generating resources of challenge and support. Students who are engaged in problem-solving together challenge each other to analyze and apply information. Co-operative group assignments produce conditions of dependence between group members. Students who are engaged in co-operative learning depend on one another to successfully complete assignments and, therefore, need to share obligations and expectations, exchange information with one another, and draw upon each others' strengths in order to facilitate goal achievement.

be presented with carefully designed problems which require that students find and interpret information and then apply the information in order to solve the problem (Barrows & Tamblyn, 1980)

The design of professor/course evaluations can also be guided by some of the findings of this study that relate to students' interactions with professors. For example, the negative relationship between students' perceptions of challenges to recall and interpret information and their perceptions of their interactions with professors can be interpreted to have important implications. One implication may be that, when course evaluations focus on students' feelings about their interactions with professors, professors who make demands upon students to recall and interpret information are not likely to be viewed as positively as professors who engage students in applying and analyzing information through problem-solving activities. This is an important point to note because it is likely more important to interpret student evaluations of their professors in relation to the types of challenges they place on students than on their feelings of liking or disliking their professors. Furthermore, it is equally important to evaluate whether or not an educational program challenges students in the ways in which it is designed to challenge them, recognizing that some types of challenges may not endear students to their professors,

accountability for their role in the human capital development of students. Based on the theory that education is a socialization process that involves individual students in a process of change in order to acquire new knowledge, skills, and attitudes, meaningful assessments of students' perceptions of the ability of the institution to influence positively the changes they must make are needed. Social capital represents the resources available within the educational environment that link the efforts of all of the people in the institution to the individual students. Social capital that is a resource for the human capital development of students is operationalized as students' perceptions of challenge and support available in the educational environment. These factors are considered by socialization theorists to be important elements of the socialization process.

Therefore, the final implication of this study is that the concept of social capital and its empirical assessment can be used by senior administrators in universities, by educational program planners in faculties and professional schools, and by professors, to attend intentionally to social-structural relations. Senior administrators may use assessments of social capital as an indicator of accountability. Many of the traditional indicators, such as number of tenured professors and size of endowment, that relate to the worth of universities have not been demonstrated to be

linked to the goals of universities (Tan, 1986; Association of Universities and Colleges of Canada, 1992). Therefore, social capital, which has been demonstrated, at least in this study, to facilitate student human capital development, may provide an important new indicator of accountability. That is, when the university is successful in creating an environment in which students feel challenged and supported, these conditions then contribute to the primary goal of universities of developing the human capital of their students.

Educational program planners in faculties and professional schools can use assessments of social capital to determine if efforts they make to develop social capital are in fact effective. For example, in relation to social capital, courses that involve didactic lectures during class time could be compared with classes that involve students in group discussions. Also, other types of teaching/learning strategies could be compared in terms of generating social capital. In addition, changes that are made by an educational unit, such as admission policies related to university background, or approaches to teaching and learning, can be assessed in terms of their effects on social capital resources available to students.

Also, individual course professors may use measures of social capital as part of their own course evaluations. They can use measures of social

capital formatively to guide their teaching/learning strategies or summatively to determine the effectiveness of their efforts to generate social capital. For example, formatively, professors can evaluate and adjust their efforts with respect to specific assessment items such as the degree to which students feel challenged to organize ideas in new ways and the degree to which they feel supported by other students. Summatively, professors can evaluate their efforts with respect to challenge and support in order to determine if student perceptions match their own intentions and to determine the outcome of their efforts to develop social capital.

In addition to these policy and practice implications, there are also research implications that arise from this study. The following discussion concludes the chapter and presents some important research implications.

RESEARCH IMPLICATIONS

There are at least three implications for further research that arise from this study. First, further research is needed to determine whether or not the findings in this study are unique to this sample of students. Second, further research is needed in order to study the effects of social capital on students in a longitudinal study. Finally, further research is needed to develop and examine other variables, in addition to those included in this study, that may further contribute to understanding the

significance of social capital for the development of the human capital of students.

First, it is acknowledged that the findings of this study are derived from only one relatively small sample of students at a Western Canadian university, and that some of the findings may be unique to these students or this university. Examination of the effects of social capital on other groups of students could provide evidence to validate, refute, or further refine the evidence and the interpretations that are made here. Data collected from students in other faculties, professional schools, and universities, using the same variables as used in this study, would augment our understanding of the generalizability of the effects of social capital on student effort and the human capital development of students.

Second, longitudinal studies would allow for the examination of the effects of social capital over time. For example, using a longitudinal approach, it would be possible to determine if levels of social capital had effects on attrition, or if levels of social capital changed over the period of time students are enrolled in a particular faculty or program. That is, longitudinal research could address the question: Does the level of social capital at different stages in an educational program affect student effort, attrition rates, and/or educational attainment?

Finally, it is possible that other variables could be used to examine social capital and its effects on the human capital development of students. For example, other university and social background variables, such as student cohort strength, learning styles, and levels of ability, may help to determine what things influence social capital. In addition, it may also be possible to determine whether other domains besides challenge and support are important forms of social capital in the educational environment or if other aspects of challenge and support are important in other ways. And, it may also be possible to determine if social capital in the educational environment relates positively with outcomes that are external to those assessed within the university. In other words, does social capital influence the ability of students to perform on certification exams, or does social capital influence their job performance when they graduate from university?

In conclusion, universities, faculties, and professional schools that are interested in enhancing the quality of their efforts to develop the human capital of their students can do so in a theoretically informed way. The concept of social capital can be used as a guide to attend intentionally to social structural factors that have important effects on students. Moreover, social capital assessment has important potential for faculties

and professional schools to demonstrate accountability for their efforts with respect to students.

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APPENDIX A



THE UNIVERSITY OF MANITOBA

QUALITY OF LIFE IN THE FACULTY OF EDUCATION

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This questionnaire is about your life in, and your attitudes toward, the Faculty of Education. There are no right or wrong answers — we are just trying to find out how students feel about their experience in the Faculty. We are interested in your honest opinions.

PART I

Each item below says that The Faculty of Education 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 "The Faculty of Education is a place where. . ." applies to each item. Check one box for each statement.

Table with 5 columns: Statement, Strongly Agree, Agree, Disagree, Strongly Disagree. Contains 30 statements about the Faculty of Education.

PART III

In the following four sections, we ask you to tell us how you feel about yourself, both as a prospective teacher and as a student in the Faculty of Education.

Section 1

The following statements concern your personal feelings and thoughts about becoming a teacher. Read each statement carefully since no two are exactly alike. If a statement is TRUE or MOSTLY TRUE as applied to you, circle the T in front of the statement. If a statement is FALSE or MOSTLY FALSE as applied to you, circle the F in front of the statement.

MOSTLY
TRUE

MOSTLY
FALSE

- | | | |
|---|---|---------------------------------------------------------------------------------------------------------------------------------|
| T | F | 1. When people are discussing the topic of teaching, I probably will listen and/or join the conversation. |
| T | F | 2. If I come across an article related to teaching, I probably will read it with interest. |
| T | F | 3. If problems develop in my life, I try to think them through as they will affect my teaching. |
| T | F | 4. With respect to teaching, I don't care if I make mistakes. |
| T | F | 5. During the past week, I have had no conversations about teaching. |
| T | F | 6. During the past week, I have made 10 or more decisions in which my interest in teaching has influenced the decision process. |
| T | F | 7. I rarely or never think about how I can become a better teacher. |
| T | F | 8. Compared to other concerns, I worry little about how good a teacher I will be. |
| T | F | 9. If I had to give up something, becoming a teacher is the last thing I would give up. |
| T | F | 10. When I am involved in activities related to teaching, I usually feel indifferent. |
| T | F | 11. If I become a better teacher than everyone else, it would make little difference to me. |
| T | F | 12. When I can, I seek out situations in which I can express myself as a teacher. |
| T | F | 13. Being a teacher is not important to me. |
| T | F | 14. I feel bad when I think I am not going to be a good teacher. |
| T | F | 15. I rarely devote much time to my teaching interests. |
| T | F | 16. When I meet new people, it is important to me that they know I will be a teacher. |
| T | F | 17. I typically organize my day so that I can work toward goals that are related to teaching. |
| T | F | 18. Being a teacher is of little value to me. |
| T | F | 19. Being a teacher will have virtually no effect on my life. |
| T | F | 20. I enjoy it when people encourage me to become a teacher. |
| T | F | 21. I would feel a great sense of loss if suddenly I were unable to be a teacher. |
| T | F | 22. I am strongly committed to being a good teacher. |
| T | F | 23. If people could know only one thing about me, I would want them to know I will be a teacher. |

SECTION 3

We are trying to learn more about how undergraduates feel about their own academic abilities. Please respond to the following items by checking the box that best answers each question.

1. Think of your university friends. Do you think you can do your university course work

| | |
|-------------------------------|--------------------------|
| ... better than all of them. | <input type="checkbox"/> |
| ... better than most of them. | <input type="checkbox"/> |
| ... about the same. | <input type="checkbox"/> |
| ... poorer than most of them. | <input type="checkbox"/> |
| ... poorer than all of them. | <input type="checkbox"/> |

2. Think of the students in your faculty. Do you think you can do your university course work

| | |
|-------------------------------|--------------------------|
| ... better than all of them. | <input type="checkbox"/> |
| ... better than most of them. | <input type="checkbox"/> |
| ... about the same. | <input type="checkbox"/> |
| ... poorer than most of them. | <input type="checkbox"/> |
| ... poorer than all of them. | <input type="checkbox"/> |

3. When you complete your undergraduate degree, do you think that you will be

| | |
|--------------------------------|--------------------------|
| ... better than all students. | <input type="checkbox"/> |
| ... better than most students. | <input type="checkbox"/> |
| ... about the same. | <input type="checkbox"/> |
| ... poorer than most students. | <input type="checkbox"/> |
| ... poorer than all students. | <input type="checkbox"/> |

4. Do you think you have the ability to complete a doctoral degree?

| | |
|-----------------------|--------------------------|
| ... Yes, for sure. | <input type="checkbox"/> |
| ... Yes, probably. | <input type="checkbox"/> |
| ... Maybe. | <input type="checkbox"/> |
| ... No, probably not. | <input type="checkbox"/> |
| ... No, for sure. | <input type="checkbox"/> |

5. Forget how your professors grade your work. How good do you think your work is?

| | |
|-----------------------------------|--------------------------|
| ... Excellent. | <input type="checkbox"/> |
| ... Good. | <input type="checkbox"/> |
| ... Same as most of the students. | <input type="checkbox"/> |
| ... Below most of the students. | <input type="checkbox"/> |
| ... Poor. | <input type="checkbox"/> |

6. How far do you believe you will go in university?

| | |
|------------------------------------|--------------------------|
| ... Less than a bachelor's degree. | <input type="checkbox"/> |
| ... A bachelor's degree. | <input type="checkbox"/> |
| ... A second bachelor's degree. | <input type="checkbox"/> |
| ... A master's degree. | <input type="checkbox"/> |
| ... A doctoral degree. | <input type="checkbox"/> |

7. How far do you think your parents believe you will go in university?

| | |
|------------------------------------|--------------------------|
| ... Less than a bachelor's degree. | <input type="checkbox"/> |
| ... A bachelor's degree. | <input type="checkbox"/> |
| ... A second bachelor's degree. | <input type="checkbox"/> |
| ... A master's degree. | <input type="checkbox"/> |
| ... A doctoral degree. | <input type="checkbox"/> |

8. How far do you think your peers believe you will go in university?

| | |
|------------------------------------|--------------------------|
| ... Less than a bachelor's degree. | <input type="checkbox"/> |
| ... A bachelor's degree. | <input type="checkbox"/> |
| ... A second bachelor's degree. | <input type="checkbox"/> |
| ... A master's degree. | <input type="checkbox"/> |
| ... A doctoral degree. | <input type="checkbox"/> |

9. How far do you think your most significant other believes you will go in university?

| | |
|------------------------------------|--------------------------|
| ... Less than a bachelor's degree. | <input type="checkbox"/> |
| ... A bachelor's degree. | <input type="checkbox"/> |
| ... A second bachelor's degree. | <input type="checkbox"/> |
| ... A master's degree. | <input type="checkbox"/> |
| ... A doctoral degree. | <input type="checkbox"/> |

10. Most people's ideas about their abilities are influenced by parents, peers, and significant others. How influential have each of these groups been to you? Using a scale from 1 to 10 (where 1 = low influence and 10 = high influence), rate the influence of each of these groups:

Parents ___ Peers ___ Most Significant Other ___

PART IV

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.

1. What gender are you? Male Female

2. How old are you? _____

3. What is your ethnic origin?

. . . English . . . Polish
 . . . French . . . Scandanavian
 . . . German . . . Ukrainian
 . . . Native Indian . . . Other
 If *Other*, please state your ethnic origin _____

4. What was the highest level of education that your parents received? Check one box for each parent.

| | Mother | Father |
|---------------------------------------------------------|--------------------------|--------------------------|
| . . . Elementary school | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Some high school | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Completed high school | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Some technical, vocational training | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Completed community college | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Some university | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Completed a Bachelor's degree (e.g., B.Ed., B.A.) | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Some education at the graduate level | <input type="checkbox"/> | <input type="checkbox"/> |
| . . . Completed graduate degree (e.g., M.Ed., Ph.D.) | <input type="checkbox"/> | <input type="checkbox"/> |

5. 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.) | <input type="checkbox"/> | <input type="checkbox"/> |
| Employed professional (e.g., accountant, school teacher, university teacher) | <input type="checkbox"/> | <input type="checkbox"/> |
| High level manager (e.g., president, vice-president, financial manager) | <input type="checkbox"/> | <input type="checkbox"/> |
| Semi-professional (e.g., cameraman, musician, photographer) | <input type="checkbox"/> | <input type="checkbox"/> |
| Technician (e.g., engineering technologist, life sciences technician) | <input type="checkbox"/> | <input type="checkbox"/> |
| Middle manager in business or government | <input type="checkbox"/> | <input type="checkbox"/> |
| Supervisor | <input type="checkbox"/> | <input type="checkbox"/> |
| Skilled clerical, sales, and service (e.g., insurance agent, salesperson) | <input type="checkbox"/> | <input type="checkbox"/> |
| Skilled crafts and trades (e.g., cabinet maker, painter, plumber) | <input type="checkbox"/> | <input type="checkbox"/> |
| Farmer | <input type="checkbox"/> | <input type="checkbox"/> |
| Semi-skilled clerical, sales, and service (e.g., office clerk, library file clerk) | <input type="checkbox"/> | <input type="checkbox"/> |
| Semi-skilled manual (e.g., bus driver, cook, taxi driver) | <input type="checkbox"/> | <input type="checkbox"/> |
| Unskilled clerical, sales, and service (e.g., mail carrier, nursing aide, orderly) . . | <input type="checkbox"/> | <input type="checkbox"/> |
| Unskilled manual (e.g., chambermaid, elevator operator, janitor) | <input type="checkbox"/> | <input type="checkbox"/> |
| Farm labourer | <input type="checkbox"/> | <input type="checkbox"/> |
| Other | <input type="checkbox"/> | <input type="checkbox"/> |
| Please describe _____ | | |

