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# Social Capital and Educational Attainment: A Study of Undergraduates in a Faculty of Education

*This research examines the effects of social capital on the development of knowledge, skills, and attitudes among a sample of undergraduate university students. A theoretical model containing 14 variables including university and social background, social capital, time management, and educational attainment is presented. The data obtained from questionnaires completed by 269 undergraduate students in the Faculty of Education at a western Canadian university are used to test the model. Structural equation modeling tests the relationships among the variables. The results indicate that when other variables are taken into account, students' perceptions of social capital resources have direct and indirect effects on their developing self-concepts and their educational achievement. Students' perceptions of support, specifically support derived from interactions with other students, are an important resource that relates positively to their academic self-concepts and their grades.*

*Cette recherche étudie les effets du capital social sur le développement de connaissances, d'habiletés et d'attitudes d'un échantillon d'étudiants du premier cycle. Dans cet article, les auteurs présentent un modèle théorique composé de 14 variables dont la formation universitaire, le contexte social, le capital social, la gestion du temps et le niveau de connaissance. Ce modèle est mis à l'épreuve par les résultats des questionnaires complétés par 269 étudiants du premier cycle à la faculté d'éducation d'une université dans l'Ouest du Canada. On a testé les rapports entre les variables par le biais de la modélisation par équation structurelle. Les résultats indiquent que, lorsqu'on tient compte d'autres variables, les perceptions qu'ont les étudiants des ressources de capital social agissent directement et indirectement sur le développement de leur concept de soi et sur leur niveau de connaissance. Les perceptions des étudiants sur l'appui, surtout celui découlant de leur contact avec d'autres étudiants, constituent une ressource importante qui a une influence positive sur leur concept de soi et sur leurs notes.*

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Universities exist to create and disseminate knowledge through the activities of teaching, research, and service (Association of Universities and Colleges of Canada, 1992; Roberts & Clifton, 1991; Smith, 1991; Tan, 1986). In this mission the process of educating students is central because students are the carriers of the enhanced human capital generated through new knowledge, skills, and attitudes (Bidwell, 1989). To fulfil their mandate and to achieve the important goal of educating students, all faculties in universities need to understand the relationship between the educational conditions in their units and the attainment of students.

Many educators believe that educational environments that are challenging and supportive facilitate students' educational achievement (Clifton & Roberts, 1993; Evans-Harvey, 1995; Kleinfeld, 1975). Social capital theory provides a conceptual framework for understanding how students' perceptions of these two conditions contribute to their educational attainment and support their development of new knowledge, skills, and attitudes. This study of undergraduate students conceptually and empirically examines how social capital in a faculty of education affects the educational attainment of students.

*Social Capital in the University*

University students have at least three types of resources or capital that they can use to achieve their educational goals. Financial capital consists of money that is needed to pay tuition fees, purchase books, and support daily living. Human capital is the ability and motivation of students themselves and the interest and motivation of professors who engage in the creation and dissemination of knowledge that they share with students. Social capital consists of exchanges that arise through the interactions between students and professors and among students as they cooperate in learning the material.

According to Coleman (1988, 1990) and others (Granovetter, 1985; Portes, 1998), social capital is embedded in the social relations in social structures. Coleman (1988) 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 aspects of social capital—obligations and expectations, information exchange, norms and sanctions, and authority relations—that can exist in social relations as resources. That is, he proposed that when there exists a network of interactions among individuals, when these interactions occur over time, and when individuals share goals and work interdependently, social capital is generated. Furthermore, social capital takes the form of shared obligations and expectations, information exchange, the development of norms and sanctions that guide behavior, and the assignment of authority relationships that facilitate the achievement of goals. These forms of social capital are universal, but they are expressed in unique ways in different social contexts such as families, communities, schools and universities (Coleman, 1993; Hofferth, Boisjoly, & Duncan, 1998). Teachman, Paasch, and Carver (1997) describe social capital as representing "resources that reside in function-specific relationships in which individuals are embedded" (p. 1344).

Social capital can be applied to university students because university education is a social enterprise in which students develop function-specific relationships with university personnel, including professors, teaching assistants, and so forth, and with other students. Effective universities provide a learning

environment that is rich in social capital that facilitates the changes students must make in order to achieve their educational goals. An important function of social relationships in a university is to challenge intellectually and to provide social support for students. Therefore, students' perceptions of the challenge (e.g., course expectations) and support (e.g., information exchange) they receive from faculty, other students, and administrators are social capital resources. These resources influence students' behaviors and their educational attainment by facilitating the changes they must make in order to acquire new knowledge, skills, and attitudes (Etcheverry, 1997). That is, when students are challenged and supported by professors and by each other, they are more likely to change (Bredemeier & Bredemeier, 1978; Brim, 1966; Clifton & Roberts, 1993; Kleinfeld, 1975). Having challenging experiences is an important prerequisite for the changes students are expected to make. The expectations and reactions of professors and other students guide these changes. For example, if students are expected to learn the meaning of new concepts and to be able to speak and write about them meaningfully, they will be challenged. Furthermore, if they want positive evaluations they will be motivated to learn the concepts. Effective education programs in universities challenge students to learn advanced or specialized knowledge, skills, and attitudes. Similarly, support from faculty members and other students also facilitates students' change. Listening, advising, guiding, and encouraging are all aspects of the support that faculty members provide to students, and these can motivate them to keep working on difficult intellectual issues. 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 difficult concepts and the professors' expectations by discussing and exchanging information among themselves.

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 actions of students is important. Although a considerable amount of educational attainment and professional socialization literature has identified both institutional and individual factors that are important in the educational process (Astin, 1993; 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 the challenge and the support they receive in their education provide limited but meaningful assessment of the social capital resources available to them in the university environment.

*The Theoretical Model*

Figure 1 outlines the theoretical model that guides the examination of social capital variables, specifically challenge and support, in the context of an educational attainment model. This model includes a number of measures of university background, social background, social capital, student effort, and educational attainment. It is similar to other educational attainment models that have encompassed both institutional and individual variables (Astin, 1993; Bidwell, 1989; Coleman, 1990; Merton, 1982; Pascarella & Terenzini, 1991; Simpson, 1979; Weidman, 1989; Zeichner & Gore, 1990). Unique to this model,
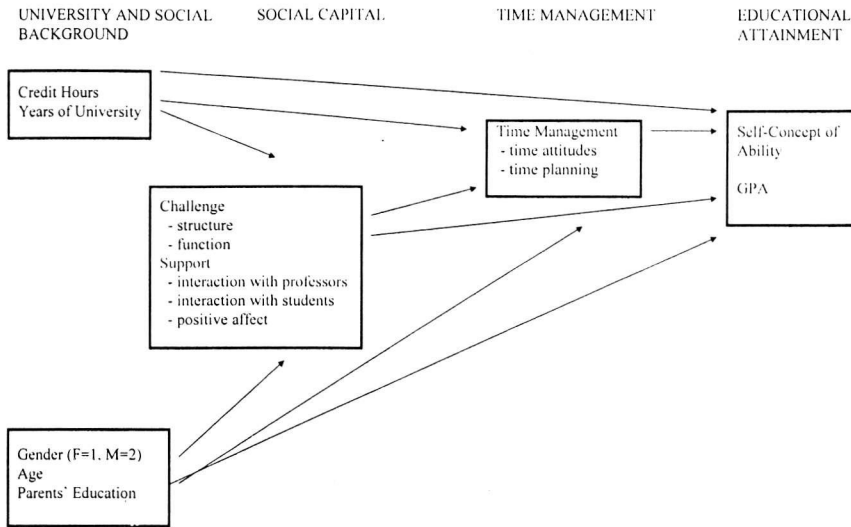
UNIVERSITY AND SOCIAL    SOCIAL CAPITAL    TIME MANAGEMENT    EDUCATIONAL
BACKGROUND                                                  ATTAINMENT

Credit Hours
Years of University

Time Management
- time attitudes
- time planning

Self-Concept of
Ability

GPA

Challenge
  - structure
  - function
Support
  - interaction with professors
  - interaction with students
  - positive affect

Gender (F=1, M=2)
Age
Parents' Education

*Figure 1. The theoretical model.*

however, is the inclusion of measures of the social capital variables that provide ways of thinking about and measuring the university environment.

The first set of variables in the model includes the university and social background variables. The university background variables *credit hours* and *years of university* relate to students' involvement in the social structure of the university. Students who are enrolled in more credit hours and in senior years are expected to have more positive academic self-concepts and higher grade point averages than those who are enrolled in fewer credit hours and are in junior years. The social background variables *gender, age*, and *parents' education* relate to individual characteristics of students that may influence their perceptions of social capital provided by the institution and their educational attainment. Earlier research suggests that men and women may differ in their perceptions of challenge and support (Clifton, 1997). Students' ages and their parents' education level may also influence their socialization and their perceptions of the challenges and the support they receive (Astin, 1993; Pascarella & Terenzini, 1991). Older students have been shown to achieve higher grade point averages than younger students (Clifton, 1997; Metzner & Bean, 1987) and so age needs to be taken into account when examining the effects of social capital on educational attainment. Parents' education also has been shown to affect educational achievement. Particularly, students whose parents have high levels of education are more likely to achieve high levels of education than those whose parents have less education.

The second set of variables includes two forms of social capital, challenge and support. Challenge includes the variables *structure* and *function*. These variables measure students' perceptions of the cognitive challenges they experience in their courses. Structure is a measure of the lower levels in Bloom et al.'s taxonomy, and function is a measure of the higher levels. It is proposed that when students perceive that they have been challenged, particularly at the higher levels, they have incentives to acquire new knowledge, skills, and

attitudes. Consequently, it is proposed that students' perceptions of challenge have positive effects on their academic self-concepts and their grade point averages. Support includes the variables *interaction with professors, interaction with students*, and *positive affect*. It is proposed that when students perceive that they have positive interactions with their professors, other students, and support staff, and when they feel positive about their educational experiences, they are encouraged and motivated to go through the changes required to attain their educational goals.

The third set of variables measures the way students manage their time. Students develop dispositions in many areas, the most important of which may be related to their effort to achieve academic goals. Students' time management in terms of both attitudes and planning seems to be important in this regard (Britton & Tesser, 1991). The location of the *time attitudes* and *time planning* variables in the model reflects the notion that students' efficiency at managing their time may be influenced by the social capital context of their educational experiences and that their ability to manage their time affects their educational attainment.

The fourth and final set of variables in the model measure the developing knowledge and attitudes of students. These variables are *grade point average (GPA)* and *self-concept of ability*. GPA represents students' acquisition of knowledge and skills in the university, and their self-concept of ability represents their attitudes about their developing abilities. These aspects of educational attainment are goals of universities as socializing agents, and they are important outcomes of undergraduate education (Astin, 1993; Pascarella & Terenzini, 1991; Weidman, 1989).

*Methodology*

*The Survey Instrument and Participants*

In February 1992 a sample of undergraduate students in the Faculty of Education at the University of Manitoba were surveyed using the Quality of Student Life Questionnaire developed by a group of researchers. A stratified random cluster sampling technique was used to select the sample of undergraduate students to receive the questionnaire. 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% of the population in each academic year, were selected. The survey was administered during class time and took approximately 25 minutes to complete. Two hundred, sixty-nine questionnaires were completed by the students, providing a response rate of approximately 74%. Nonresponse was attributable to the fact that some students were enrolled in more than one of the classes that were selected to complete questionnaires. The response rate was actually higher than estimated.

*The Variables*

As noted in the theoretical model, two university background variables credit hours and years of university are included in this study. Credit hours is a measure of the amount of course work students were taking during the academic year. At this university, 30 credit hours is considered a full-year load, and courses are generally either three or six credit hours long. Approximately

91% of respondents reported taking 18 or more credit hours of study in the academic year. Approximately 40% were taking 30 credit hours, and approximately 17% were taking more than 30 credit hours of course work. Data are recoded into three credit hour distinctions to normalize the distribution of responses. Years of university was measured by the question "How many years of university education do you have? If you have been a part-time student, then estimate the number of equivalent full-time years." Students' previous education at the university level range from none to eight years. Thirteen percent of students reported that they had completed no previous years of university education, approximately 71% reported that they had completed from one to four years, and approximately 17% reported that they had completed from five to eight years of previous education at university.

Three social background variables, gender, age, and parents' education, were also included in the model. Gender was treated as a dummy variable with women coded as 1 and men coded as 2. Seventy-five percent of respondents were female and 25% were male. Responses to the question "How old are you?" provided data for age. Ages greater than 32 are recoded to 32 to normalize the distribution of responses. Recoded ages of respondents range from 17 to 32, and the mean age is 22.57. Parents' education represents responses for the highest level of education attained by mothers and fathers. Students indicated the highest level of education attained by each of their parents on a nine-point scale with 1 representing elementary school and 9 representing completion of a 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 2 to 18. For approximately 50% of the respondents the combined education level of students' parents is less than a bachelor's degree for each parent. Only six students did not report the levels of education for both parents, and their scores were not used.

Five variables measure social capital, and each variable consists of an additive scale that includes items that students have rated on a four-point rating scale with 1 indicating *strongly disagree* and 4 indicating *strongly agree*. Two variables, structure and function, measure students' perceptions of the challenges they experience in the Faculty (see Appendix). Structure (Clifton, Etcheverry, Hasinoff, & Roberts, 1996) is a six-item scale that measures students' perceptions of being challenged to remember and interpret new facts. The inter-item correlations for this scale range from .36 to .78, the factor loadings range from .60 to .89, and the alpha reliability coefficient is .88. Reported scores range from 7 to 24, and the mean score is 16.18 with a standard deviation of 3.07. The higher the score, the greater is the student's perception of being challenged to remember, recall, and interpret information. Function (Clifton et al.) is an 11-item scale that measures students' perceptions of being challenged to engage in complex skills such as applying and analyzing information. The inter-item correlations for this scale range from .10 to .57, the factor loadings range from .46 to .74, and the alpha reliability coefficient is .85. Reported scores range from 18 to 43, and the mean score is 30.73 with a standard deviation of 4.10. The higher the score, the greater is the student's perception of being challenged to apply, synthesize, and analyze information.

Three variables, interaction with professors, interaction with students, and positive affect, measure students' perceptions of the support students receive in the Faculty (see Appendix). Interaction with professors (Roberts & Clifton, 1991) is a seven-item scale that measures students' perceptions of their interactions with professors. The inter-item correlations range from .25 to .68, the factor loadings range from .62 to .78, and the alpha reliability coefficient for this scale is .82. Reported scores range from 11 to 28, and the mean score is 20.21 with a standard deviation of 2.46. The higher the score the more positive are students' perceptions of their interactions with their professors. Interaction with students (Roberts & Clifton) is a six-item scale that measures students' perceptions of their interactions with other students. The inter-item correlations range from .19 to .47, the factor loadings range from .60 to .72, and the alpha reliability coefficient for this scale is .74. Reported scores range from 10 to 23, and the mean score is 17.55 with a standard deviation of 2.21. The higher the score the more positive are students' perceptions of their interactions with their other students. Positive affect (Roberts & Clifton) is a 12-item scale that measures students' general perceptions of their enjoyment, feeling positive, happiness, and liking of the institution. The inter-item correlations for this scale range from .22 to .68, the factor loadings range from .56 to .79, and the alpha reliability coefficient is .89. Reported scores range from 14 to 46, and the mean score is 34.52 with a standard deviation of 5.33. The higher the score the more positive are the students' perceptions of their general happiness.

Two variables, time attitudes and time planning, are used to measure students' time management (see Appendix). Each variable consists of an additive scale that includes items that students rated on five-point scales ranging from *never* to *always*. Time attitudes (Britton & Tesser, 1991) is a six-item scale that measures students' attitudes toward time management. The inter-item correlations range from .11 to .49, the factor loadings range from .50 to .79, and the alpha reliability coefficient for this scale is .71. Reported scores range from 10 to 30, and the mean score is 19.46 with a standard deviation of 3.39. The higher the score the more positive are students' time attitudes. Time planning (Britton & Tesser) is also a six-item scale that measures students' attitudes about their time management. The inter-item correlations range from .36 to .69, the factor loadings range from .60 to .85, and the alpha reliability coefficient for this scale is .87. Reported scores on this scale range from 6 to 30, and the mean score is 19.96 with a standard deviation of 4.83. The higher the score, the more positive are the student's time planning skills.

Two variables, self-concept of ability and grade point average, measure educational achievement. Self-concept of ability is measured with five questions modified from the Self-Concept of Ability Scale developed by Brookover, Patterson, and Thomas (1962) (see Appendix). The inter-item correlations range from .19 to .50, the factor loadings for the items range from .59 to .75, and the alpha reliability coefficient for this scale is .66. Reported scores on this scale range from 11 to 25, and the mean score is 17.84 with a standard deviation of 2.14. The higher the score, the more positive are students' academic self-concepts. Responses to the question "What is your cumulative grade point average?" provide data for GPA. There were eight response choices ranging from 0.0-0.9 (coded as 1) to 4.0-4.5 (coded as 8), each choice representing a

range of grade point averages. Forty-two percent of students report a GPA of 3.0 to 3.4; 30% of students report a GPA below 3.0; and 28% report a GPA higher than 3.4.

*The Procedure*

In order to test the theoretical model incorporating these 14 variables, the data were analyzed using structural equation modeling that involves a series of multiple regression analyses (Asher, 1976; Hoyle, 1995; Pedhazur, 1982). First, all variables in the model were examined for normality and homoskedasticity. All variables are normally distributed and meet the basic assumptions of multiple regression analyses. Second, Pearson Product Moment correlations between all pairs of variables in the model were calculated. Third, a series of regression analyses guided by the theoretical model were conducted in order to estimate the magnitude of relationships between the variables. Standardized and unstandardized regression coefficients are reported, and statistically significant coefficients are discussed.

*Results*

The theoretical model outlines the hypothesis that social capital has a positive effect on the educational attainment of students and that social capital affects educational attainment at least partly by affecting the way students manage their time with respect to their educational goals. Table 1 reports the zero-order correlation coefficients between all pairs of variables in the theoretical model. Some of these correlations support the hypotheses represented in the model. Specifically, there is a positive association (.15 $p\leq.01$) between years of university and interaction with students. Credit hours has positive association with GPA (.16 $p\leq.01$), and years of university has a positive association with self-concept of ability and GPA (.24 $p\leq.01$ and .22 $p\leq.01$ respectively). Three of the social capital variables, interaction with professors, interaction with students, and positive affect, each have positive associations with one or both of the student effort variables time attitudes and time planning. Specifically, the association between interaction with professors and time attitudes is .15 ($p\leq.05$); the associations between interaction with students and time attitudes and time planning are .14 ($p\leq.05$) and .21 ($p\leq.01$) respectively; and the associations between positive affect and time attitudes and time planning are .15 ($p\leq.05$) and .21 ($p\leq.01$) respectively. Also, there are positive associations between interaction with students and self-concept of ability and GPA (.14 $p\leq.05$ and .18 $p\leq.01$ respectively). Finally, time attitudes and time planning both have strong positive associations with educational attainment (time attitudes and self-concept of ability = .31 $p\leq.01$; time attitudes and GPA = .25 $p\leq.01$; time planning and self-concept of ability =.19 $p\leq.01$; time planning and GPA = .30 $p\leq.01$). To examine further the importance of the variables in relation to one another, as hypothesized in the theoretical model, multivariate analyses are used.

Table 2 reports the effect parameters for effects of the independent and intervening variables on self-concept of ability and grade point average. The effects of the independent variables on each of the educational attainment variables are reported in three steps. Step 1 of each analysis reports the effects of the university and social background variables, Step 2 adds in the effects of

Table 1
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| 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 |
| 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 |

*$p \leq .05$; **$p \leq .01$.
(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 Plannning; SCA=Self-Concept of Ability; GPA=Grade Point Average).

## Table 2
### Effect Parameters for the Model

| Independent Variables | Self-Concept of Ability | | | Grade Point Average | | |
|---|---|---|---|---|---|---|
| | Step 1 | Step 2 | Step 3 | Step 1 | Step 2 | Step 3 |
| *University and Social Background* | | | | | | |
| Credit Hours | .09 | .10 | .08 | .21** | .16** | .15* |
| | (.03) | (.04) | (.03) | (.03) | (.03) | (.02) |
| Years of University | .17* | .11 | .13 | .11 | .03 | .01 |
| | (.20) | (.12) | (.15) | (.05) | (.01) | (.01) |
| Gender | −.06 | −.07 | −.06 | −.11 | −.12 | −.08 |
| | (−.30) | (−.35) | (−.30) | (−.25) | (−.27) | (−.17) |
| Age | .12 | .16* | .11 | .21** | .23** | .23** |
| | (.06) | (.08) | (.06) | (.05) | (.05) | (.05) |
| Parents' Education | .00 | .02 | .01 | .03 | .04 | .02 |
| | (.00) | (.01) | (.00) | (.01) | (.01) | (−.01) |
| *Social Capital* | | | | | | |
| Structure | | −.05 | −.06 | | −.07 | −.08 |
| | | (−.03) | (−.04) | | (−.02) | (−.03) |
| Function | | .07 | .11 | | −.16* | −.13 |
| | | (.04) | (.06) | | (−.04) | (.01) |
| Interaction with Professors | | −.03 | −.05 | | .02 | .01 |
| | | (−.03) | (−.05) | | (.01) | (.01) |
| Interaction with Students | | .20** | .16* | | .24** | .19** |
| | | (.20) | (.15) | | (.10) | (−.09) |
| Positive Affect | | −.22** | −.26** | | −.06 | −.11 |
| | | (−.09) | (−.10) | | (−.01) | (−.02) |
| *Time Management* | | | | | | |
| Time Attitudes | | | .29** | | | .12 |
| | | | (.18) | | | (.04) |
| Time Planning | | | .07 | | | .22** |
| | | | (.03) | | | (.04) |
| R² | .07 | .13 | .22 | .11 | .17 | .25 |

*p≤.05 **p≤.01.
Standardized and unstandardized regression coefficients are reported.
Unstandardized regression coefficients are in parentheses.

the social capital variables, and Step 3 adds in the effects of the student effort variables as outlined in the theoretical model (Figure 1). Regression coefficients are examined to determine if there are significant direct and indirect effects of the independent and intervening variables on the dependent variables.

The first analysis in Table 2 reports the effects of the independent variables on self-concept of ability. In Step 1 the university and social background variables credit hours, years of university, gender, age, and parents' education, are taken into account. The regression coefficients indicate that years of university has a significant effect on self-concept of ability (.17 p≤.05). This positive effect indicates that, as expected, students who have more years of university have more positive academic self-concepts than students who have fewer years

of university. The effect of age is also positive but not statistically significant in Step 1. Overall, the $R^2$ for Step 1 indicates that university and social background variables account for 7% of the variance in self-concept of ability.

Step 2 adds into the analysis the effects of the social capital variables structure, function, interaction with professors, interaction with students, and positive affect. The regression coefficients indicate that interaction with students has statistically significant positive effects on self-concept of ability (.20 $p \leq .01$). This effect suggests that students who have positive interactions with other students have more positive academic self-concepts than students with less positive interactions with other students. In contrast, positive affect has a statistically significant negative effect on self-concept of ability (−.22 $p \leq .01$), which suggests that students who feel less positive about their education program are more likely to have more positive academic self-concepts than students who feel more positive. The $R^2$ for Step 2 indicates that university and social background and social capital variables together account for 13% of the variance in self-concept of ability.

Step 3 adds the effects of the time management variables time attitudes and time planning. The regression coefficients indicate that time attitudes has statistically significant direct positive effects on self-concept of ability (.29 $p \leq .01$), suggesting that students who have more positive time attitudes have more positive academic self-concepts than students with less positive time attitudes. In addition, when the time management variables are taken into account it is possible to determine if the addition of these variables has indirect effects that mediate the effects of the social capital variables on self-concept of ability. A mediating effect is evidenced by a reduction in the effect of a variable when new variables are taken into account. In this regard, there is a small mediating effect of the time management variables on self-concept of ability. The effects of age, interaction with students, and positive affect decrease from Step 2 to Step 3, indicating that some of the effects of these variables on self-concept of ability are due to effects of time attitudes on self-concept of ability. Moreover, the $R^2$ for Step 3 indicates that university and social background, social capital and student effort variables together account for 22% of the variance in self-concept of ability.

The second analysis in Table 2 reports the effects of the independent variables on grade point average. In Step 1 the university and social background variables credit hours, years of university, gender, age, and parents' education are taken into account. The regression coefficients indicate that credit hours and age have significant effects on grade point average (.21 $p \leq .01$ and .21 $p \leq .01$ respectively). These positive effects indicate that, as expected, students who are taking more credit hours and who are older have higher GPAs than students who are taking fewer credit hours and who are younger. Overall, the $R^2$ for Step 1 indicates that the university and social background variables account for 11% of the variance in grade point average.

In Step 2 the effects of the social capital variables structure, function, interaction with professors, interaction with students, and positive affect are added to the analysis. The regression coefficients indicate that function and interaction with students have statistically significant effects on grade point average. The effects of function (−.16 $p \leq .05$) suggest that students who have strong

perceptions of being challenged to apply and analyze information have lower GPAs than students who perceive less challenge to think in these ways. The effects of interaction with students on GPA (.24 $p \leq .01$) suggest that students who have more positive interactions with other students have higher GPAs than students with less positive interactions with other students. The $R^2$ for Step 2 indicates that university and social background and social capital variables together account for 17% of the variance in grade point average.

Finally, in Step 3 the effects of the time management variables, time attitudes and time planning, are added. The regression coefficients indicate that time planning has statistically significant direct positive effects on grade point average (.22 $p \leq .01$), suggesting that students who are good planners have higher GPAs than students who are not as good at planning how they use their time. In addition, the time management variables mediate to some extent the effects of interaction with students on GPA. That is, there is a reduction in the coefficients from .24 to .19 from Step 2 to Step 3, indicating that some of the effects of interaction with students on GPA are due to effects of time management, particularly time planning. Moreover, the $R^2$ for Step 3 indicates that university and social background, social capital, and student effort variables account for 25% of the variance in grade point average.

### Discussion

Overall, some of the effects found in this study indicate that certain aspects of social capital affect the educational attainment of students in the Faculty of Education at the University of Manitoba. That is, students' perceptions of support, specifically support derived from interactions with other students, are an important resource that relates positively to their self-concept of ability and their grades. In addition, as predicted by social capital theory and earlier educational attainment research (Astin, 1993; Pascarella & Terenzini, 1991), students are given an advantage not only by having previous experience at university, but also by enrolling in more credit hours. In other words, students who take more credit hours are more integrated into the Faculty and have higher grades than students who are less integrated.

Also, some of the effects found in this study indicate that certain aspects of social capital are mediated by students' efforts to manage their time. Time management has previously been reported to have an important association with educational attainment (Britton & Tesser, 1991), but this study provides additional evidence that the effects of time management mediate some of the effects of social capital on educational attainment. These mediating effects are rather small and do not overshadow the effects of social capital and the students' efforts on both self-concept of ability and GPA.

On the other hand, some findings in this study do not indicate the presence of a positive link between social capital and educational attainment. First, the absence of any significant effects of students' perceptions of their interactions with professors on self-concept of ability or GPA is surprising because it does not support the theoretical model and because it runs contrary to work by Astin (1993), which suggests that students who spend more time interacting with their professors have higher grades than students who spend less time in such interaction. However, Astin assessed the effects of amount of interaction occurring outside of class time as opposed to the quality of interactions in the

educational environment that 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 facing them, at least not in the Faculty of Education at this university. However, because students are strongly influenced by their interactions with each other, it is important for university professors to attend to the social structural characteristics of the educational environment vis-à-vis students' interactions in their classrooms. Student cohorts, small class sizes, and cooperative learning strategies are examples of social structural characteristics that may facilitate student interaction and promote greater social capital for them resulting in higher grade point averages.

Contrary to expectations is the finding that positive affect has a statistically significant 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 of Education. The items comprising the positive affect scale are measures of how students feel about the Faculty. It seems reasonable that if students think their faculty provides a high standard of education, their positive affect is more likely to be positively related to their academic self-concept. On the other hand, even if students find their experiences meaningless, they may not have a positive self-concept of ability. Other researchers have examined the comments of the students who participated in this study (Clifton, Mandzuk, & Roberts, 1994) and suggest that generally students had a negative view of the Faculty. For example, many students reported that the Faculty is not respected and that many courses offered are not perceived as being academically challenging. Perhaps the negative association between positive affect and self-concept of ability is unique to this Faculty, or at least unique to faculties where the standards are not highly regarded by students.

Universities are agents of socialization (Bidwell, 1989; Pascarella & Terenzini, 1991; Zeichner & Gore, 1990) that inadvertently or by design influence the developing educational attainment of students. It is meaningful and important to gain information about students' perceptions of their experiences in the educational environment and to determine whether conditions in the environment facilitate or inhibit students' abilities to make the changes they need to make in order to acquire new knowledge, skills, and attitudes (Roberts & Clifton, 1991). Social capital theory as tested in this study offers a rich perspective from which to consider the importance of social structural relations that are part of students' day-to-day experiences in the institution. This study introduces scales that can be used to assess the availability of social capital in an educational environment and a model for examining the effects of social capital on student effort and educational attainment. The results of testing the model in one faculty in a single university indicate that both the scales and the theoretical model provide a promising contribution to assessments related to the goals and objectives of universities. Further study of other faculties and other universities are needed in order to validate, refute, or refine the results and interpretations presented here. Nevertheless, this study suggests that there is a theoretically informed way for universities, faculties, and professional schools to attend intentionally to social structural factors that have important

effects on students. Attending to the intellectual demands and the social support that is provided by the institution is essential for achieving one of the university's most important goals, that of educating students.

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## *Appendix*
## *Scale Items Measuring Social Capital*

(Clifton, Etcheverry, Hasinoff, & Roberts, 1996; Roberts & Clifton, 1991)

*Challenge—Structure.* 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.

*Challenge—Function.* 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.

*Interaction With Professors.* 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

*Interaction with Students.* 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

*Positive Affect.* 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

*Scale Items Measuring Time Management* (Britton & Tesser, 1991)

*Time Attitudes*

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 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?

*Time Planning Scale*

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 work days?
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?

*Scale Items Measuring Self-Concept of Ability* (Brookover, Patterson, & Thomas 1962)

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