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ABSTRACT

This document presents the variable definitions utilized in a study of the impacts of two- and four-year college attendance on learning orientations. The authors identify the specific survey items that compose the four orientations to learning explored in this study (i.e., openness to diversity/challenge, learning for self-understanding, internal locus of attribution for academic success, and preference for higher-order cognitive activities) and summarize the research findings in two tables: (1) Estimated Total and Direct Effects of Attending a Two-Year (versus a Four-Year) College on Orientations to Learning; and (2) Significant Conditional Effects of Attending a Two-Year (versus a Four-Year) College on Orientations to Learning. With statistical controls for an extensive array of confounding influences, including pre-college learning orientations, attendance at a two- versus a four-year college significantly enhanced student growth in first- and second-year Openness to Diversity, second-year Learning for Self-Understanding, and first-year Internal Locus of Attribution for Academic Success. The generally positive impacts of two-year college attendance, however, varied in magnitude for students who differed on such characteristics as race, sex, socioeconomic background, academic ability, and English fluency. (Author/RC)

Impacts of 2-Year and 4-Year College Attendance on Learning Orientations*

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Abstract

With statistical controls for an extensive array of confounding influences, including precollege learning orientations, attendance at a 2-year versus a 4-year college significantly enhanced student growth in first- and second-year Openness to Diversity, second-year Learning for Self-Understanding, and first-year Internal Locus of Attribution for Academic Success. The generally positive impacts of 2-year college attendance, however, varied in magnitude for students who differed on such characteristics as race, sex, socioeconomic background, academic ability, and English fluency.

Table 1

Constituent Items and Alpha Reliabilities for Four Orientations to Learning

Scale/Item	Alpha Reliabilities
Openness to Diversity/Challenge	.83 to .84
I enjoy having discussions with people whose ideas and values are different from my own.	
The real value of a college education lies in being introduced to different values.	
I enjoy talking with people who have values different from mine because it helps me understand myself and my values better.	
Learning about people from different cultures is a very important part of my college education.	
I enjoy taking courses that challenge my beliefs.	
The courses I enjoy most are those that make me think about things from a different perspective.	
Contact with individuals whose background (e.g., race, national origin, sexual orientation) is different from my own is an essential part of my college education.	
I enjoy courses that are intellectually challenging.	
Learning for Self-Understanding	.73 to .76
One of the most important benefits of a college education is a better understanding of myself and my values.	
Developing a clearer sense of who I am is very important to me.	
I prefer courses in which the material helps me understand something about myself.	
Internal Locus of Attribution for Academic Success (All items coded in reverse)	.62 to .69
The grade I get in a course depends on how hard the instructor grades, not on how carefully I study.	
Good luck is more important for college academic success than hard work.	
Getting a good grade in a college course depends more on being "naturally smart" than on how hard I work.	
When I have trouble learning the material in a course it is because the professor isn't doing a very good job.	
Preference for Higher-Order Cognitive Activities	.65 to .68
I prefer exams requiring me to organize and interpret information or ideas over exams that ask me only to remember facts or information.	
I prefer to do assignments in which I have to analyze and interpret what I've read rather than just summarize and report.	

Table 2

Variable Definitions

Category/Variable

Independent Variable

Attendance at a 2-Year or a 4-Year College: A dummy variable coded: 1 = attended a 2-year college, 0 = attended a 4-year college.

Dependent Variable

End-of-First or Second Year Learning Orientations: Openness to Diversity/Challenge; Learning for Self-Understanding; Internal Locus of Attribution for Academic Success; and Preference for Higher-Order Cognitive Activities. Constituent items and scale reliabilities are shown in Table 1.

Control Variables

Precollege (Fall 1992) Learning Orientation: Openness to Diversity/Challenge; Learning for Self-Understanding; Internal Locus of Attribution for Academic Success; or Preference for Higher-Order Cognitive Activities. The appropriate parallel precollege measure was employed in predicting each dependent variable.

Sex: 1 = female, 0 = male.

Ethnicity: 1 = person of color, 0 = white

Socioeconomic Status: Average of parental education and income.

Precollege (Fall 1992) Academic Motivation: An 8-item, Likert-type scale (5 = strongly agree to 1 = strongly disagree) with an internal consistency reliability of 0.65. The scale items were based on existing research on academic motivation (e.g., Ball, 1977). Examples of constituent items are: "I am willing to work hard in a course to learn the material even if it won't lead to a higher grade," "When I do well on a test, it is usually because I was well-prepared not because the test was easy," "In high school I frequently did more reading in a class than was required simply because it interested me," and "In high school I frequently talked to my teachers outside of class about ideas presented during class."

Age: A continuous variable calculated by subtracting year of birth from 1992.

Volunteer Work in Secondary School: A single item that asked students how often they engaged in volunteer work in secondary school; coded: 4 = very often, 3 = often, 2 = occasionally, and 1 = never.

Self-Reported High School Grades: An individual's response to the question: "What is your best estimate of your grade point average in high-school?" (Coded: 1 = D+ or lower, 2 = C, C-; 3 = B-, C+; 4 =B; 5 = A-, B+; 6 = A).

English as a Second Language: An individual's precollege response to the question: "Is English the language in which you are most fluent (i.e., speak and read the best)? (Coded 1 = no , 0 = yes)

Precollege Composite Cognitive Development: An individual's score on a composite of the Fall 1992 administration of the CAAP reading comprehension, mathematics and critical thinking modules; alpha reliability = .83.

Cumulative Credit Hours Completed: Number of credit hours completed through the first or second years.

Table 2 (continued)

Average Hours Per Week Spent Studying: Single-item, 6-point self-report of average hours spent studying per week, where 1 = none and 6 = more than 20 hours (designated separately for first and second years).

Average Hours Worked Per Week: Combination of average number of hours of on- or off-campus work per week during the school year, coded: 1 = none to 9 = more than 35 (designated separately for first and second years).

Cumulative College Grades: Self-reported grades through the first or second years, where 5 = A; 4 = A-, B+; 3 = B; 2 = B-, C+, and 1 = C, C-, or lower.

Perceived Instructional Skill/Clarity: An individual's responses on a five-item scale that assessed the extent to which the overall instruction received was characterized by pedagogical skill and clarity. Examples of constituent items were: "Instructors give clear explanations," "Instructors make good use of examples to get across difficult points," and "Instructors interpret abstract ideas and theories clearly." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .86. The scale was averaged across the first or second years.

Perceived Instructional Organizational and Preparation: An individual's responses on a five-item scale that assessed the extent to which the overall instruction received was characterized by good organization and preparation. Examples of constituent items were: "Presentation of material is well organized," "Instructors are well prepared for class," and "Class time is used effectively." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .87. The scale was averaged across the first or second years.

Course-Related Interaction with Peers: An individual's responses on a ten-item scale that assessed the nature of one's interactions with peers focusing on academic coursework. Examples of constituent items were "Studying with students from my classes," "Tried to explain the material to another student or friend," "In classes students teach other in groups instead of having only instructors teach," and "Attempted to explain an experimental procedure to a classmate." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .79. The scale was averaged across the first or second years.

Academic Effort/Involvement: An individual's response on a 37-item, factorially derived, but modified scale that assessed one's academic effort or involvement in library experiences, experiences with faculty, course learning, and experiences in writing. The scale combined four, 10-item involvement dimensions from the CSEQ, minus three items that were incorporated into the Course-Related Interactions with Peers Scale described above. Examples of constituent items were: "Ran down leads, looked for further references that were cited in things you read," "Discussed ideas for a term paper or other class project with a faculty member," "Did additional readings on topics that were discussed in class," and "Revised a paper or composition two or more times before you were satisfied with it." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .92. The scale was averaged across the first or second years.

Science Effort/Involvement: An individual's response on a 7-item scale that assessed one's academic effort or involvement in science. The scale was the CSEQ science scale, minus 3 items employed in the Course-Related Interaction With Peers Scale described above. Examples of constituent items were: "Read articles (not assigned) about scientific theories or concepts," "Went to an exhibit or demonstration of some new scientific device," and "Completed an experiment or project using scientific methods." Response options were 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .85. The scale was averaged across the first or second years.

Using Computers: An individual's response on a three-item scale indicating extent of computer use: "Using computers for class assignments," "Using computers for library searches," and "Using computers for word processing." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .65. The scale was averaged across the first or second years.

Reading and Writing Involvement: An individual's response to four single items taken from the CSEQ:

1. Number of textbooks or assigned books read during the school year.
2. Number of non-assigned books read during the school year.
3. Number of essay exams in your courses during the school year.
4. Number of term papers or other written reports during the school year.

Response items were 1 = none, to 5 = more than 20. The scale was averaged across the first or second years.

Non-Course-Related Interactions with Peers: An individual's response on a ten-item scale that assessed the nature of one's interactions with peers focusing on non-class, or non-academic issues. Examples of constituent items were: "Talked about art (painting, sculpture, architecture, artists, etc.) with other students at the college," "Had serious discussions with students whose philosophy of life or personal values were very different from your own," "Had serious discussions with students whose political opinions were very different from your own," and "Discussed with other students why some groups get along smoothly and other groups don't." Response items were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .84. The scale was averaged across the first or second years.

Extracurricular involvement: An individual's response on a 30-item, factorially-derived scale that assessed one's effort or involvement in campus union activities, campus clubs, and campus athletic and recreational facilities. The scale combined three 10-item involvement dimensions from the CSEQ. Examples of constituent items were: "Heard a speaker at the student union or center," "Worked in some student organization or special project (Publications, student government, social event, etc.)," and "Played on an intramural team." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .92. The scale was averaged across the first or second years.

Interpersonal Involvement: An individual's response on a 38-item, factorially-derived, but modified scale that assessed one's effort or involvement in art, music, and theater, personal experiences, student acquaintances and conversations with other students. The scale combined items from five involvement dimensions of the CSEQ, minus eight items that were incorporated into the Non-Course-Related Interactions With Peers Scale described above. Examples of constituent items were: "Seen a play, ballet, or other theater performance at the college," "Been in a group where each person, including yourself, talked about his/her personal problems," "Made friends with students whose interests were different from yours," "Had conversations with other students about major social problems such as peace, human rights, equality, and justice," and "In conversations with other students explored different ways of thinking about the topic." Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. Alpha reliability = .92. The scale was averaged across the first or second years.

Volunteer Work: A single item that asked the students how often during the school year they had engaged in volunteer work. Response options were: 4 = very often, 3 = often, 2 = occasionally, and 1 = never. The scale was averaged across the first or second years.

Social Sciences Courses Taken: Cumulative number of college courses taken through first or second years in anthropology, audiology/speech pathology, child and family services, communications, economics, geography, history, political science, psychology, sociology, or social work.

Mathematics Courses Taken: Cumulative number of college course taken through the first or second years in pre-algebra, algebra, calculus, statistics, computer science, geometry, matrix algebra, accounting, or business math.

Technical/Pre-Professional Courses Taken: Cumulative number of college courses taken through the first or second years in drawing, drafting, architectural design, criminology, education, agriculture, business, physical therapy, pharmacy, physical education, nursing, or computer programming.

Arts and Humanities Courses Taken: Cumulative number of college courses taken through the first or second years in art history, art appreciation, studio art, dance, theater, music appreciation, music performance, composition of writing, English literature, foreign language, humanities, philosophy, linguistics, classics, or religious studies.

Natural Sciences and Engineering Courses Taken: Cumulative number of college courses taken through the first or second years in astronomy, botany, chemistry, physics, geology, zoology, microbiology, or engineering.

Table 3

Estimated Total (T) and Direct (D) Effects of Attending a 2-year (versus a 4-year) College on Orientations to Learning[a]

	Openness to Diversity/Challenge		Learning for Self-Understanding		Internal Locus of Attribution for Academic Success		Preferences for Higher-Order Cognitive Activities	
	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]
First-Year								
Attended a 2-year College	1.013* (.098)	.680* (.066)	.142 (.031)	.040 (.009)	.675* (.119)	.555* (.098)	-.154 (-.040)	-.208 (-.054)
R^2 Total Model	.426*	.485*	.349*	.385*	.266*	.318*	.230*	.258*
Second-Year								
Attended a 2-year College	1.092* (.099)	.960* (.087)	.471* (.097)	.418* (.086)	.302 (.052)	.199 (.038)	.086 (.013)	.139 (.022)
R^2 Total Model	.397*	.480*	.320*	.384*	.224*	.310*	.223*	.274*

[a]Top number is the metric or unstandardized regression coefficient (b), number in parentheses is the standardized regression coefficient (Beta).

[b]Regression equation also includes controls for: parallel precollege learning orientation score, sex, age, ethnicity, socioeconomic status, involvement in volunteer work prior to college, self-reported high school grades, precollege academic motivation, English as a second language, and precollege composite academic ability.

[c]Regression equations also includes controls for all variables in superscript "b" plus: cumulative credit hours completed; hours per week spent studying, hours worked per week, self-reported college grades, perceptions of teacher clarity and teacher organization/preparation in the overall instruction received; a measure of course-related interaction with peers; a measure of academic effort/involvement; a measure of science effort/involvement; computer use; number of assigned and non-assigned books read; number of essay exams and term papers written; a measure of non-course-related interaction with peers; a measure of extracurricular involvement; a measure of interpersonal involvement; volunteer work during college; and pattern of coursework taken in five areas.

*$p < .01$

Table 4

Significant Conditional Effects of Attending a 2-year (versus a 4-year) College on Orientations to Learning

Learning Orientation/Conditional Effect		Metric (b) Coefficient for Attendance at a 2-year (versus a 4-year) College	
<u>First-Year Openness to Diversity/Challenge</u>			
Sex x 2-year College Attendance	Men	=	1.242**
	Women	=	.116
Age x 2-year College Attendance	21 or Younger	=	.992**
	22 or Older	=	-.247
<u>First-Year Learning for Self-Understanding</u>			
Sex x 2-year College Attendance	Men	=	.311*
	Women	=	-.222
Precollege Learning for Self-Understanding x 2-year College Attendance	High Precollege Learning for Self-Understanding	=	.042*
	Low Precollege Learning for Self-Understanding	=	-.216*
English as a Second Language x 2-year College Attendance	English as a Second Language	=	.466*
	English as a First Language	=	-.070
<u>First-Year Preference for Higher-Order Cognitive Activities</u>			
Precollege Preference for Higher-Order Cognitive Activities x 2-year College Attendance	High Precollege Preference for Higher-Order Cognitive Activities	=	-.120*
	Low Precollege Preference for Higher-Order Cognitive Activities	=	-.248*
Socioeconomic Status x 2-year College Attendance	High Socioeconomic Status	=	-.826**
	Low Socioeconomic Status	=	.257

Table 4 (continued)

Second-Year Openness to Diversity/Challenge			
Sex x 2-year College Attendance	Men	=	1.884**
	Women	=	.313
Ethnicity x 2-year College Attendance	Students of Color	=	.483
	White	=	.982**
Precollege Academic Ability x 2-year College Attendance	High Precollege Academic Ability	=	2.327**
	Low Precollege Academic Ability	=	.145
English as a Second Language x 2-year College Attendance	English as a Second Language	=	4.034**
	English as a First Language	=	.719**
Second-Year Learning for Self-Understanding			
Ethnicity x 2-year College Attendance	Students of Color	=	.056
	White	=	.408*
Socioeconomic Status x 2-year College Attendance	High Socioeconomic Status	=	-.258
	Low Socioeconomic Status	=	.626**
Precollege Learning for Self-Understanding x 2-year College Attendance	High Precollege Learning for Self-Understanding	=	.543**
	Low Precollege Learning for Self-Understanding	=	.050*
Precollege Academic Ability x 2-year College Attendance	High Precollege Academic Ability	=	1.098**
	Low Precollege Academic Ability	=	.176
English as a Second Language x 2-year College Attendance	English as a Second Language	=	1.427**
	English as a First Language	=	.286*

Table 4 (continued)

Second-Year Preference for Higher-Order Cognitive Activities			
Ethnicity x 2-year College Attendance	Students of Color	=	.388*
	White	=	-.022
English as a Second Language x 2-year College Attendance	English as a Second Language	=	-1.388*
	English as a First Language	=	.268*

*$p < .05$ **$p < .01$

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