

Examining Effective Faculty Practice: Teaching Clarity and Student Engagement

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As colleges and universities shift to a learning-centered paradigm, a growing emphasis is being placed on understanding which teaching practices are effective in promoting student learning (Barr & Tagg, 1995). Reviewing the literature, there are varying ideas on what constitutes effective teaching; however, one that is often referenced when discussing the characteristics of effective teaching is teaching clarity (Feldman, 1989; Hativa, Barak, & Simhi, 2001; Sherman et al., 1987). Teaching clarity can be thought of as a teaching method where faculty demonstrate a level of transparency in their approach to instruction and goal setting in an effort to help students better understand expectations and comprehend subject matter (Ginsberg, 2007b). This includes providing examples and summarizing key points of lectures (Chesebro & McCroskey, 2001; Myers & Knox, 2001). Teaching clarity has been shown to have a positive effect on key outcomes of an undergraduate education (see Chesebro & McCroskey, 2001; Myers & Knox, 2001; Pascarella, Edison, Nora, Hagedorn, & Braxton, 1996). Unfortunately, little is known about the extent to which students are exposed to specific teaching clarity behaviors and the relationship to other important elements of an undergraduate education, such as student engagement, deep learning, and self-reported gains.

Review of the Literature

Providing an overview of studies on undergraduate education, Pascarella and Terenzini (2005) highlight the positive relationship between teaching clarity and student learning and achievement. Studies have identified a relationship between teaching clarity and student comprehension of material (e.g., Chesebro & McCroskey, 2001; Myers & Knox, 2001), greater satisfaction and achievement (Hativa, 1998), and motivation (Ginsberg, 2007b). Student perceptions of instructor behaviors, such as explanation of course goals and assignments, have

been positively associated with general measures of cognitive growth in the first year of college (Pascarella, Edison, Nora, Hagedorn, & Braxton, 1996). Hativa (1998) found students struggled to comprehend material and expressed dissatisfaction with the course when the instructor lacked clarity. Based on a comprehensive review of the research, Pascarella (2006) concluded that student perceptions of instructional practice, such as teaching clarity, had moderate correlations with various measures of course learning including grades and final examination performance.

Despite teaching clarity being generally promoted as an effective teaching practice, we know little about how widely students are exposed to this practice in undergraduate education. In addition, little research has been done to link teaching clarity to other forms of effective educational practice such as student-faculty interaction or active and collaborative learning. This study explores the teaching clarity behaviors students are exposed to and the extent to which these behaviors relate to student engagement, deep learning, and self-reported gains in college. The three research questions guiding this study are:

1. What teaching clarity behaviors are students exposed to most and least frequently? How does this vary across eight major field categories?
2. What is the relationship between teaching clarity and student engagement?
3. How does teaching clarity relate to deep learning and students' reports of gains in college?

Methodology

Data Source and Sample

The data for this analysis come from the 2010 administration of the National Survey of Student Engagement (NSSE). NSSE was designed by a team of assessment experts to measure student behaviors and the time and energy students invest in activities linked to learning and

personal development (Hayek & Kuh, 2004; Kuh, 2001a; Kuh, 2001b). The 2010 NSSE was administered to a sample of first-year and senior college students at over 600 participating colleges and universities. Students attending 38 of these institutions were given an additional set of items at the end of the survey asking about the extent to which their instructors exhibited various teaching clarity behaviors. These items were adapted from the Wabash National Study (www.liberalarts.wabash.edu/study-overview/) and have been tested in the study's research (see, Pascarella, Salisbury & Blaich, 2009). The sample for the current study consists of 8,102 (41%) first-year students and 11,761 (59%) senior students. For additional information about student demographics and characteristics see Table 1.

Variables

Several scales and collections of items serve as variables in this study alongside various student-level and institution-level demographic items. The teaching clarity scale (Table 2) was created using the additional items about teaching clarity that were administered at the end of the NSSE. These items asked students how often their instructors behaved in various ways such as giving clear explanations of assignments or making abstract ideas and theories understandable. The remaining scales and benchmarks used in this study were created using items from the core NSSE survey.

Student engagement was measured with individual engagement items from the core NSSE survey as well as four of NSSE's benchmarks of effective educational practice: Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, and Supportive Campus Environment. The deep learning and students' self-reported gains in college were measured with scales created from the NSSE survey. Deep learning was measured with the combined scales: Higher Order Learning, Integrative Learning, and Reflective Learning.

Students' self-reports of gains were measured using the scales Gains in Practical Competence, Gains in General Education, and Gains in Personal and Social Development. See Table 2 through Table 5 for the component items and reliability coefficients of the scales and NSSE's benchmarks of effective educational practice used in this study. Various student-level and institution-level controls were used in the regression analyses. Table 6 contains information about the student-level and institution-level characteristics.

Analysis

For all research questions, first-year and senior data were analyzed separately in order to present distinct results reflective of the first-year and senior experience in college. To answer the first research question, frequencies of teaching clarity items were examined to identify which behaviors students frequently observed. Pearson's r correlations were used to answer the second research question in order to relate the teaching clarity scale with four of NSSE's benchmarks of effective educational practice and individual engagement items. Evidence for the third research question was gathered using multivariate OLS regressions to determine the relationship between students' reports of teaching clarity and the dependent measures of deep learning and student-reported gains. Models in this paper include all student-level characteristics and institution-level characteristics as controls. All continuous independent and dependent variables were standardized before being entered into the regression analyses so that the unstandardized coefficients can be interpreted as effect sizes (Rosenthal & Rosnow, 1991).

Findings

For both first-year (FY) and senior students (SR), the most frequently observed teaching clarity behaviors were instructors coming to class well-prepared (FY: 91.1%, SR: 90.8%) and instructors explaining course goals and requirements clearly (FY: 87%, SR: 89.2%). The least

often observed teaching clarity behaviors were instructors reviewing and summarizing course material effectively (FY: 80.3%, SR: 83.5%) and instructors making abstract ideas and theories understandable (FY: 75.9%, SR: 79%). Although these observations generally remained true when examining responses by major field category, subtle differences by majors were observable. For example, 83% of senior students in the social science field reported that their instructors frequently made abstract ideas and theories understandable compared to only 69% of students in the engineering field reporting the same. Frequently observed behaviors by major are reported in Table 7 and Table 8.

For both first-years and seniors, the teaching clarity scale had a significant ($p < .001$), positive relationships with four of NSSE's benchmarks of effective educational practice. For first-year and senior students, the highest relationship was found between teaching clarity and Supportive Campus Environment (FY: $r = .537$, SR: $r = .553$) followed by Academic Challenge (FY: $r = .397$, SR: $r = .364$). Although seniors still had small positive relationships between teaching clarity and Student-Faculty Interaction (SFI) ($r = .287$) and Active and Collaborative Learning (ACL) ($r = .200$), these relationships were larger for first-year students (SFI: $r = .301$, ACL: $r = .276$).

Individual items on the NSSE survey also had significant ($p < .001$), positive relationships with the teaching clarity scale. For both first-years and seniors, the items with the highest correlations with the teaching clarity scale were about students' ratings of their relationships with faculty members (FY: $r = .478$, SR: $r = .515$), of their institution's emphasis on providing the support they need to succeed academically (FY: $r = .473$, SR: $r = .517$), and of their entire educational experience at their institution (FY: $r = .507$, SR: $r = .525$).

Controlling for a wide variety of student-level characteristics, regressions indicated significant, positive relationships between teaching clarity and all subscales of deep learning and student-reported gains. For both first-years and seniors, the teaching clarity scale had the strongest relationships with student-reported gains in college. Seniors, in particular, had the strongest relationships between the teaching clarity scale and student-reported Gains in Practical Competence and student-reported Gains in General Education. For both first-years and seniors, there were slightly stronger relationships between the teaching clarity scale and the Integrative Learning scale and the Higher Order Thinking scale than with the Reflective Learning scale. More details about the sizes of these relationships can be found in Table 9. Relationships between the teaching clarity scale and the other NSSE scales and benchmarks by disciplinary major field can be found in Table 10 through Table 17.

Implications, Limitations and Next Steps

This study adds to research demonstrating that faculty who are perceived by students to be well prepared for class and design assignments that students consider clear and meaningful have consistently positive effects on student engagement and desired educational gains. The strength of the relationship between teaching clarity and the four NSSE benchmarks for first-year students suggests the need to emphasize the value of teaching clarity, particularly among faculty teaching first-year courses. In general, as all institutions are challenged to improve student learning and success, it is essential to focus on expanding students' exposure to practices that can make a significant difference in engagement and learning. Greater instructional clarity helps students understand expectations for the course and better identify with the instructor, and it can also promote the kinds of deep learning and educational gains desired for all students.

This study reflects an initial exploration of teaching clarity and student engagement, thus limitations exist. First, the 38 institutions in this study were purposefully selected to represent a wide cross-section of colleges and universities. Second, by not including faculty perceptions of teaching clarity, this study presents a one-dimensional picture of teaching clarity. To provide a more comprehensive picture, the researchers have begun exploring faculty perceptions of the importance of teaching clarity behaviors and the relationship between teaching clarity and other effective educational practices (e.g., active and collaborative learning) using data from the 2011 administration of the Faculty Survey of Student Engagement.

As colleges and universities strive to improve undergraduate education and are challenged to enact a culture that assesses teaching quality based on the impact on student learning, it is important to emphasize the value of measurable practices like students perception of teaching clarity. Past research has shown that teaching clarity is important for student learning, motivation, and achievement. The positive relationships between teaching clarity and learning and engagement shown here continue to support the position that teaching clarity is valuable and should be promoted as a goal in faculty development. While significant proportions of first-year students and seniors report that their instructors came to class well-prepared and explained course goals clearly, far fewer students experienced teaching clarity behaviors associated with higher levels of cognitive processing including reviewing course material and making abstract theories understandable. It is important that all students, and particularly seniors who ought to be most challenged by abstract reasoning, experience a greater range of teaching clarity practices.

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Table 1 Student and Institution Characteristics

Student Characteristics		First-Years (%)	Seniors (%)
Female		65	66
Transfer student		12	55
Full-time enrollment		91	73
Fraternity or Sorority member		7	11
Student-athlete		11	5
Living on campus		65	18
First generation		49	56
Traditional age		88	48
Race or ethnicity	African American/Black	15	12
	Asian/Pacific Islander	7	5
	Caucasian/White	54	57
	Hispanic/Latino	13	14
	Other	7	6
Primary major field	Arts & Humanities	12	11
	Biological Sciences	9	5
	Business	16	22
	Education	9	10
	Engineering	6	4
	Physical Science	4	3
	Professional	13	12
	Social Science	12	13
Grades	Mostly A's	39	51
	Mostly B's	47	43
	Mostly C's	13	6
Institution Characteristics			
Control	Public	45	49
	Private	55	51
Carnegie Classification	Doctoral	19	17
	Master's	49	49
	Baccalaureate	31	34

Table 2 Component Items and Reliability Coefficients for the Teaching Clarity Scale

Teaching Clarity (Cronbach's α =.93 for first-year students and α =.94 for seniors)	
<i>In your experience during the current school year, about how often did your instructors do each of the following? (never, sometimes, often, very often)</i>	
	Gave clear explanations of assignments
	Used examples or illustrations to explain difficult points
	Reviewed and summarized course material effectively
	Made abstract ideas and theories understandable
	Gave assignments that helped you learn the course material
	Presented course material in an organized way
	Came to class well-prepared
	Used class time effectively
	Explained course goals and requirements clearly

Table 3 Component Items and Reliability Coefficients for the Deep Learning Subscales

Higher Order Learning (Cronbach's α=.82 for first-year students and α=.84 for seniors)	
<i>During the current school year, how much has your coursework emphasized... (very much, quite a bit, some, very little)</i>	
	Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
	Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships
	Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
	Applying theories or concepts to practical problems or in new situations
Integrative Learning (Cronbach's α=.70 for first-year students and α=.71 for seniors)	
<i>During the current school year, how much has your coursework emphasized... (very much, quite a bit, some, very little)</i>	
	Worked on a paper or project that required integrating ideas or information from various sources
	Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments
	Put together ideas or concepts from different courses when completing assignments or during class discussions
	Discussed ideas from your readings or classes with faculty members outside of class
	Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)
Reflective Learning (Cronbach's α=.80 for first-year students and α=.81 for seniors)	
<i>During the current school year, how much has your coursework emphasized... (very much, quite a bit, some, very little)</i>	
	Examined the strengths and weaknesses of your own views on a topic or issue
	Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
	Learned something that changed the way you understand an issue or concept

Table 4 Component Items and Reliability Coefficients for the Gains Scales

Gains in Practical Competence (Cronbach's α=.83 for first-year students and α=.82 for seniors)	
<i>To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in... (very much, quite a bit, some, very little)</i>	
	Acquiring job or work-related knowledge and skills
	Working effectively with others
	Using computing and information technology
	Analyzing quantitative problems
	Solving complex real-world problems
Gains in General Education (Cronbach's α=.84 for first-year students and α=.84 for seniors)	
<i>To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in... (very much, quite a bit, some, very little)</i>	
	Writing clearly and effectively
	Speaking clearly and effectively
	Acquiring a broad general education
	Thinking critically and analytically
Gains in Personal and Social Development (Cronbach's α=.87 for first-year students and α=.88 for seniors)	
<i>To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in... (very much, quite a bit, some, very little)</i>	
	Developing a personal code of values and ethics
	Understanding yourself
	Understanding people of other racial and ethnic backgrounds
	Voting in local, state, or national elections
	Learning effectively on your own
	Contributing to the welfare of your community
	Developing a deepened sense of spirituality

Table 5 Component Items and Reliability Coefficients for the NSSE Benchmarks

Level of Academic Challenge (Cronbach's $\alpha=.73$ for first-year students and $\alpha=.77$ for seniors)	
<i>During the current school year, about how much reading and writing have you done (None, 1-4, 5-10, 11-20, more than 20)</i>	
Number of assigned textbooks, books, or book-length packs of course readings	
Number of written papers or reports of 20 pages or more	
Number of written papers or reports between 5 and 19 pages	
Number of written papers or reports of fewer than 5 pages	
<i>During the current school year, how much has your coursework emphasized... (very much, quite a bit, some, very little)</i>	
Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	
Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships	
Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	
Applying theories or concepts to practical problems or in new situations	
<i>In your experience at your institution during the current school year, about how often have you done... (very often, often, sometimes, never)</i>	
Worked harder than you thought you could to meet an instructor's standards or expectations	
<i>About how many hours do you spend in a typical 7-day week doing...(0, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, more than 30)</i>	
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	
<i>To what extent does your institution emphasize... (very much, quite a bit, some, very little)</i>	
Spending significant amounts of time studying and on academic work	
Active and Collaborative Learning (Cronbach's $\alpha=.67$ for first-year students and $\alpha=.67$ for seniors)	
<i>In your experience at your institution during the current school year, about how often have you done... (very often, often, sometimes, never)</i>	
Asked questions in class or contributed to class discussions	
Made a class presentation	
Worked with other students on projects during class	
Worked with classmates outside of class to prepare class ass	
Tutored or taught other students (paid or voluntary)	
Participated in a community-based project (e.g., service learning) as part of a regular course	
Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	
Student-Faculty Interaction (Cronbach's $\alpha=.71$ for first-year students and $\alpha=.74$ for seniors)	
<i>In your experience at your institution during the current school year, about how often have you done... (very often, often, sometimes, never)</i>	
Discussed grades or assignments with an instructor	

Discussed ideas from your readings or classes with faculty members outside of class
Talked about career plans with a faculty member or advisor
Received prompt written or oral feedback from faculty on your academic performance
Worked harder than you thought you could to meet an instructor's standards or expectations
<i>Which...have you done or do you plan to do before you graduate from your institution (done, plan to do, do not plan to do, have not decided)</i>
Work on a research project with a faculty member outside of course or program requirements
Supportive Campus Environment (Cronbach's α=.79 for first-year students and α=.80 for seniors)
<i>To what extent does your institution emphasize... (very much, quite a bit, some, very little)</i>
Providing the support you need to thrive socially
Providing the support you need to help you succeed academically
Helping you cope with your non-academic responsibilities (work, family, etc.)
<i>Mark the box that best represents the quality of your relationships with people at your institution</i>
Relationships with other students (<i>unfriendly, unsupportive, sense of alienation...friendly, supportive, sense of belonging</i>)
Relationships with faculty members (<i>unavailable, unhelpful, unsympathetic...available, helpful, sympathetic</i>)
Relationships with administrative personnel and offices (<i>unhelpful, inconsiderate, rigid...helpful, considerate, flexible</i>)

Table 6 Student-Level and Institution-Level Characteristics

Student-Level Characteristics	
Gender	Male=0, Female=1
Transfer status	Started college at the current institution=0, Started college elsewhere=1
Enrollment Status	Part-time=0, Full-time=1
Fraternity or sorority membership	Fraternity or sorority member=1, not a member=0
Student-athlete	Student-athlete=1, not a student-athlete=0
Living situation	Lives in a dormitory, fraternity or sorority house, or other campus housing=1; Does not live in a form of campus housing=0
Race or ethnicity	African American/Black, Asian/Pacific Islander, Hispanic/Latino, Caucasian/White, Other; dummy coded 0 = not in group, 1 = in group with Caucasian/White left out as reference group
Primary major field	Arts and Humanities, Biological Sciences, Business, Education, Engineering, Physical Science, Professional, Social Science, Other; dummy coded 0 = not in group, 1 = in group with Other left out as reference group
Grades	Mostly A's, Mostly B's, Mostly C's; dummy coded 0 = not in group, 1 = in group with Mostly A's left out as reference group
First Generation	Student has at least one parent with a baccalaureate degree=1, Student does not have a parent with a baccalaureate degree=0
Age	23 or younger=0, 24 or older=1
Institution-Level Characteristics	
Private/public control	Public = 0, Private = 1
Carnegie classification	Doctoral granting, Masters granting, Baccalaureate granting; dummy coded 0 = not in group, 1 = in group with doctoral granting left out as reference group

Table 7 Percent of First-Year Students Frequently Observing Teaching Behaviors by Major-Field Categories

	Arts and Humanities	Biological Sciences	Business	Education	Engineering	Physical Science	Professional	Social Sciences
Gave clear explanations of assignments	88%	88%	86%	87%	84%	86%	85%	85%
Used examples or illustrations to explain difficult points	86%	87%	84%	83%	86%	84%	84%	84%
Reviewed and summarized course material effectively	84%	82%	80%	81%	77%	80%	79%	82%
Made abstract ideas and theories understandable	79%	78%	76%	75%	73%	77%	74%	80%
Gave assignments that helped you learn the course material	82%	82%	82%	83%	82%	85%	77%	80%
Presented course material in an organized way	88%	88%	86%	84%	87%	87%	83%	87%
Came to class well-prepared	93%	94%	91%	91%	91%	94%	90%	91%
Used class time effectively	88%	92%	89%	87%	89%	89%	87%	87%
Explained course goals and requirements clearly	88%	88%	87%	87%	84%	86%	87%	89%

Table 8 Percent of Senior Students Frequently Observing Teaching Behaviors by Major-Field Categories

	Arts and Humanities	Biological Sciences	Business	Education	Engineering	Physical Science	Professional	Social Sciences
Gave clear explanations of assignments	89%	87%	88%	83%	80%	86%	87%	89%
Used examples or illustrations to explain difficult points	85%	89%	84%	80%	83%	87%	83%	86%
Reviewed and summarized course material effectively	84%	78%	84%	81%	75%	78%	84%	85%
Made abstract ideas and theories understandable	81%	76%	78%	77%	69%	75%	81%	83%
Gave assignments that helped you learn the course material	83%	77%	83%	82%	82%	84%	85%	83%
Presented course material in an organized way	86%	86%	88%	84%	83%	86%	88%	89%
Came to class well-prepared	91%	91%	92%	88%	87%	89%	92%	92%
Used class time effectively	86%	87%	85%	82%	83%	90%	89%	87%
Explained course goals and requirements clearly	89%	88%	90%	86%	84%	85%	91%	91%

Table 9 Relationship between Teaching Clarity and Deep Learning and Gains¹

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	+	+++	+++	+++
Seniors	++	++	+	++++	+++	+++

Table 10 Relationship between Teaching Clarity and Deep Learning and Gains for Arts and Humanities Students²

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	++	+++	+++	+++
Seniors	++	++	+	+++	+++	++++

Table 11 Relationship between Teaching Clarity and Deep Learning and Gains for Biological Sciences Students²

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	+	++		+++	++	+++
Seniors	++	++	+	+++	++	+++

¹ Models controlled for gender, transfer status, enrollment status, fraternity or sorority membership, athletic participation, race or ethnicity, primary major field, grades, first-generation status, age, institutional control, and institutional Carnegie classification. All variables standardized before entered into models. Key: p < .001; + unstandardized B > .2, ++ unstandardized B > .3, +++ unstandardized B > .4, ++++ unstandardized B > .5, +++++ unstandardized B > .6.

Table 12 Relationship between Teaching Clarity and Deep Learning and Gains for Business Students²

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	+	++++	+++	+++
Seniors	+++	++	++	++++	+++	++++

Table 13 Relationship between Teaching Clarity and Deep Learning and Gains for Education Students³

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	+	+++	+++	+++
Seniors	++	++	+	++++	+++	+++

Table 14 Relationship between Teaching Clarity and Deep Learning and Gains for Engineering Students³

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	+	+++	+	++++	+++	+++
Seniors	++	++		++++	+++	+++

Table 15 Relationship between Teaching Clarity and Deep Learning and Gains for Physical Sciences Students³

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	+++	++	++++	++++	++++
Seniors	++	++	+	++++	+++	++

² Models controlled for gender, transfer status, enrollment status, fraternity or sorority membership, athletic participation, race or ethnicity, primary major field, grades, first-generation status, age, institutional control, and institutional Carnegie classification. All variables standardized before entered into models. Key: p < .001; + unstandardized B > .2, ++ unstandardized B > .3, +++ unstandardized B > .4, ++++ unstandardized B > .5, +++++ unstandardized B > .6.

Table 16 Relationship between Teaching Clarity and Deep Learning and Gains for Professional Students³

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	+	++++	+++	++++
Seniors	++	++	+	+++++	+++	++++

Table 17 Relationship between Teaching Clarity and Deep Learning and Gains for Social Sciences Students⁴

	Integrative Learning	Higher Order Thinking	Reflective Learning	Gains in Practical Competence	Gains in Personal and Social Development	Gains in General Education
First-Years	++	++	+	+++	++	+++
Seniors	++	++	+	++++	++	++++

³ Models controlled for gender, transfer status, enrollment status, fraternity or sorority membership, athletic participation, race or ethnicity, primary major field, grades, first-generation status, age, institutional control, and institutional Carnegie classification. All variables standardized before entered into models. Key: p < .001; + unstandardized B > .2, ++ unstandardized B > .3, +++ unstandardized B > .4, ++++ unstandardized B > .5, +++++ unstandardized B > .6.