Examining Effective Faculty Practice: Teaching Clarity and Student Engagement

Allison BrckaLorenz
Eddie Cole
Jillian Kinzie
Anthony Ribera

Indiana University Bloomington

Paper presented at the annual meeting of the American Educational Research Association in New Orleans, April 2011

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At the core of any agenda to improve undergraduate education is an emphasis on effective teaching practices. Colleges and universities are moving beyond simply providing instruction to promoting student learning and judging teaching based on its impact on student learning (Barr & Tagg, 1995). There are various perspectives on what constitutes effective teaching (Chism, 2004b); however, teaching clarity is considered an important characteristic of effective teaching and is correlated with student learning (Feldman, 1989; Hativa, Barak, & Simhi, 2001; Sherman et al., 1987). Teaching clarity can be thought of as a byproduct of the methods faculty members use to shape academic curricula, and through reflection, how faculty consider evidence and past experiences to inform their future efforts to address student learning needs (Chism, 2004a).

Although clarity of instruction is 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.

Review of the Literature

Research on the relationship between effective undergraduate instruction and student learning gains at the course-level, and to more general measures of cognitive growth, is extensive (see Pascarella & Terenzini, 1991, 2005). For example, engaging pedagogies such as active and collaborative learning, problem-based learning, and experiential activities influence student achievement and learning outcomes. In addition, specific aspects of classroom instruction,

namely students' perceptions of instructor behaviors such as use of class time, course organization and preparation, and 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). Based on a comprehensive review of the research, Pascarella (2006) concluded that student perceptions of instructional practice, such as instructional clarity, teacher expressiveness, and feedback to students, had moderate correlations with various measures of course learning including grades and final examination performance.

Faculty who exhibit clarity in instruction demonstrate a level of transparency in regards to their approaches to and goals for student learning that helps students better understand teaching methods and expectations for the course as well as better identify with the instructor (Ginsberg, 2007b). Teaching clarity includes providing examples and summarizing key points of lectures (Chesebro & McCroskey, 2001; Myers & Knox, 2001) and is linked to a level of caring and reflection among faculty as well (Ginsberg, 2007a; 2007b). Various definitions of teaching clarity center around the practices' vague ability to improve student learning such as teaching clarity as "a cluster of teaching behaviors that result in learners' gaining knowledge or understanding of a topic" (Cruickshank & Kennedy, 1986, p. 43) or "the ability of the teacher to provide instruction, expositional or otherwise, which helps students come to a clear understanding of material" (Metcalf, 1992, p. 275). Other definitions are more specific such as teacher behaviors that facilitate communication of content to students in order to help them understand (Hines, Cruickshank, & Kennedy, 1981, pp. 16-17).

Providing an overview of studies on teacher clarity, Pascarella and Terenzini (2005) highlight the relationship between teacher 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). Hativa (1998) found students struggled to comprehend material and expressed dissatisfaction with the course when the instructor lacked clarity. Many of the studies were conducted at the course level; however, there has been a growing number of studies at the program and institution level which support these findings (Pascarella & Terenzini, 2005).

Teaching clarity, however, may be expressed differently by faculty across disciplines as well as appear more or less clear by different types of students. For example, hard sciences are typically specific and concrete in course explanations and expectations while the majority of concepts in social science courses are abstract in nature (Lattuca & Stark, 2009). Regardless, students across various disciplines prefer an instructor who is clear and organized (Hativa & Birenbaum, 2000).

This study seeks to understand the extent to which students are exposed to behaviors associated with teacher clarity and how teacher clarity relates to student learning, engagement, and developmental gains. The three research questions guiding this study are:

1. What teaching clarity behaviors are students exposed to most frequently or least frequently?
2. How does teaching clarity relate to student engagement?
3. How does teaching clarity relate to deep learning and students' reports of gains in college?

Methods

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 they invest in activities linked to student learning and personal development (Hayek & Kuh, 2004; Kuh, 2001a; Kuh, 2001b). NSSE asks students how often they engage in effective educational practices as well as what their perceptions are of their college environment and their educational and social gains while in college. The 2010 NSSE was administered to a random sample of first-year and senior college students at over 600 participating colleges and universities. Students attending thirty-eight of these institutions were given an additional set of items at the end of the survey asking about how often the students' 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 8102 (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. 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. Table 6 contains information about the student-level and institution-level characteristics. 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 individual items in this scale were analyzed to answer this study's first research question.

The remaining scales and benchmarks used in this study were created using items from the core NSSE survey. In the second research question in this study, 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 (Table 5): 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 referenced in the third research question were measured with various scales created from the NSSE survey. Deep learning was measured with the scales Higher Order Learning, Integrative Learning, and Reflective Learning (Table 3). 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 (Table 4).

Various student-level and institution-level controls were used in the regression analyses in this study (Table 6). The student-level characteristics include gender, transfer status, enrollment status, fraternity or sorority membership, school-sponsored athletic team membership, on or off campus living situation, race or ethnicity, primary major field, student-reported grades, first-generation status, and age. Institution-level characteristics include private/public control and Carnegie classification.

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 used to identify which behaviors students frequently[1] 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 proposal included 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).

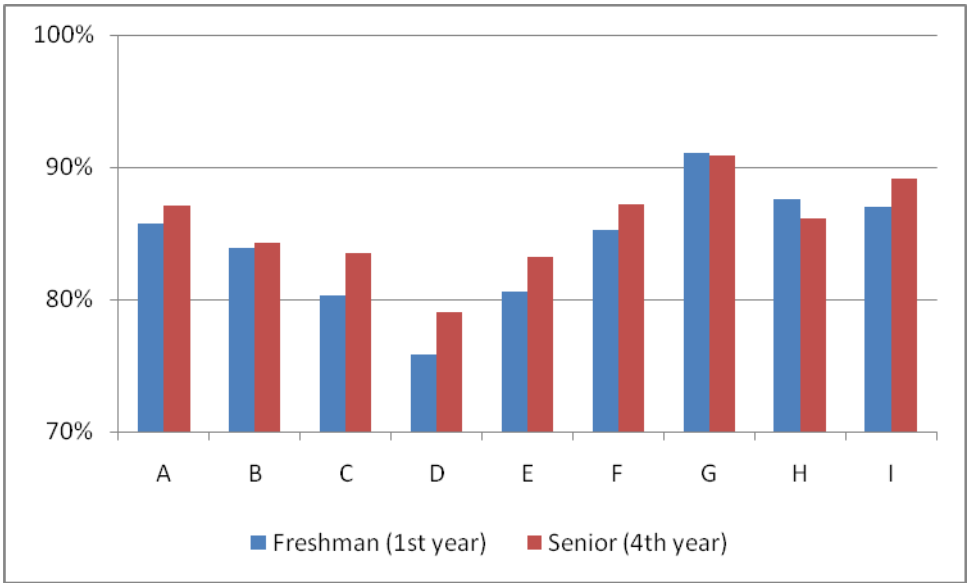
Results

For both first-year and senior students, the most frequently observed teaching clarity behaviors were instructors coming to class well-prepared and instructors explaining course goals and requirements clearly. The least often observed teaching clarity behaviors were instructors reviewing and summarizing course material effectively and instructors making abstract ideas and theories understandable. The percentage of frequently observed behaviors can be seen in Figure 1, where items are coded as follows: A) Gave clear explanations of assignments, B) Used examples or illustrations to explain difficult points, C) Reviewed and summarized course material effectively, D) Made abstract ideas and theories understandable, E) Gave assignments that helped you learn the course material, F) Presented course material in an organized way, G)

[1] Frequently refers to student responses of "very often" or "often"

Came to class well-prepared, H) Used class time effectively, and I) Explained course goals and requirements clearly.

Figure 1 Percent of Frequently Observed Teaching Behaviors



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 significant, 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 NSSE's Supportive Campus Environment (FY: $r = .537$, $p < .001$; SR: $r = .553$) followed by Academic Challenge (FY: $r = .397$, $p < .001$; SR: $r = .364$, $p < .001$). Although seniors still had small positive relationships between Teaching Clarity and Student-Faculty Interaction ($r = .287$, $p <$

.001) and Active and Collaborative Learning (r = .200, p < .001), these relationships were larger for first-year students (SFI: r = .301, p < .001; ACL: r = .276, p < .001).

Individual items on the NSSE survey also had significant, 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., p < .001; SR: r = .515, p < .001), of their institution's emphasis on providing the support they need to succeed academically (FY: r = .473, p < .001; SR: r = .517, p < .001), and of their entire educational experience at their institution (FY: r = .507, p < .001; SR: r = .525, p < .001).

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 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.

Discussion and Implications

This study documents the extent to which students are exposed to teaching clarity behaviors, and reveals noteworthy variation in the levels of teaching clarity that students

experience. Specifically, 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. The frequency of clarity practices focusing on instructor preparation and course goals is positive in that these practices are essential to helping students better understand expectations in their courses. However, 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.

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 can not only help students understand expectations for the course and better identify with the instructor, but it can also promote the kinds of deep learning and educational gains desired for all students.

Teaching clarity, however, may not be an approach that all instructors support without exception. In a recent online discussion about teaching clarity among members of the Professional and Organizational Development Network in Higher Education, scholars identified intentional opaqueness as beneficial to student learning. Here, a lack of clarity results in students seeking out the instructor in order to better understand an assignment. This provides an

opportunity for greater student-faculty interaction outside of the classroom. Additionally, through opaqueness, instructors create situations where students must think for themselves and work collaboratively with peers to reach an understanding. This setting is more comparable to a real world setting where students will struggle with opaqueness. However, some expressed concerns about unintentional opaqueness among instructors who are experts in a specific field but lack instructional training.

It is important to recognize that teaching clarity practices are learnable, thus a possible priority for faculty development programs. In order to understand the extent to which faculty exhibit teaching clarity behaviors, their efforts in the classroom must first be evaluated. There are various ways to evaluate teaching in the college classroom with teaching portfolios and classroom observations among the most popular examples. Student evaluations, however, serve as the primary method for evaluating teaching at most colleges and universities in the US (Berk, 2005). Such evaluation efforts can provide faculty with a better understanding of how students experience them and the course, and could be a source of course-level information about clarity of instruction. However, few end-of-term course evaluations include tested items on clarity of instruction; instead favoring questions that assess students level of agreement about instructor preparation and enthusiasm for the subject matter.

Issues are present with student evaluations however, with students questioning whether or not faculty actually review evaluations in shaping their efforts (Shao, Anderson, & Newsome, 2007; Sojka, Gupta, & Deeter-Schmelz, 2002; Spencer & Schmelkin, 2002). Furthermore, even if faculty take student evaluations seriously, because most evaluations are distributed following the completion of the course, those students are not able to benefit from any changes the professors might make. Many (e.g., Lewis, 2001) encourage evaluations to also take place at

mid-semester when students have had time to engage in the material and the instructor still has time to make improvements if necessary. Small Group Instructional Diagnosis (SGID) is an example of a midsemester evaluation. This form of evaluation provides students with the opportunity to share their opinions as a group and provides faculty with the opportunity to respond to this feedback in class (Wulff, Nyquist, Ropp and Hess, 1990). SGID is a process designed to improve instruction and further promote student learning.

As colleges and universities strive to improve undergraduate education and are challenged to enact a culture that evaluates teaching based on the impact on student learning, it is important to emphasize the value of very 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 should be promoted as a goal in faculty development and evaluation.

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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
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)
In your experience during the current school year, about how often did your instructors do each of the following? (never, sometimes, often, very often)
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)
During the current school year, how much has your coursework emphasized… (very much, quite a bit, some, very little)
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)
During the current school year, how much has your coursework emphasized… (very much, quite a bit, some, very little)
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)
During the current school year, how much has your coursework emphasized… (very much, quite a bit, some, very little)
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)
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)
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)
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)
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)
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)
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 α=.73 for first-year students and α=.77 for seniors)
During the current school year, about how much reading and writing have you done (None, 1-4, 5-10, 11-20, more than 20)
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
During the current school year, how much has your coursework emphasized… (very much, quite a bit, some, very little)
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
In your experience at your institution during the current school year, about how often have you done… (very often, often, sometimes, never)
Worked harder than you thought you could to meet an instructor's standards or expectations
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)
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)
To what extent does your institution emphasize… (very much, quite a bit, some, very little)
Spending significant amounts of time studying and on academic work
Active and Collaborative Learning (Cronbach's α=.67 for first-year students and α=.67 for seniors)
In your experience at your institution during the current school year, about how often have you done… (very often, often, sometimes, never)
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 α=.71 for first-year students and α=.74 for seniors)
In your experience at your institution during the current school year, about how often have you done… (very often, often, sometimes, never)
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	
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)	
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)	
To what extent does your institution emphasize… (very much, quite a bit, some, very little)	
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.)	
Mark the box that best represents the quality of your relationships with people at your institution	
Relationships with other students (*unfriendly, unsupportive, sense of alienation…friendly, supportive, sense of belonging*)	
Relationships with faculty members (*unavailable, unhelpful, unsympathetic…available, helpful, sympathetic*)	
Relationships with administrative personnel and offices (*unhelpful, inconsiderate, rigid…helpful, considerate, flexible*)	

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 and 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

	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

	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 Gains[2]

	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 Students[2]

	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 Students[2]

	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 12 Relationship between Teaching Clarity and Deep Learning and Gains for Business Students[3]

	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 Students[3]

	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 Students[3]

	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 Students[3]

	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.

Table 16 Relationship between Teaching Clarity and Deep Learning and Gains for Professional Students[4]

	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 Students[4]

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

[4] 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.