

AC 2010-1749: STUDENTS' KNOWLEDGE OF INSTRUCTORS AND ITS INFLUENCE ON STUDENT MOTIVATION

Jessica Lower, Purdue.edu

PhD Student & Graduate Instructor Building Construction Management Purdue University 401 N Grant Street, Knoy 453 West Lafayette, IN 47907 jlower@purdue.edu 765-494-2452

Research Area Sustainable renovation and preservation in residential construction

Brief Resume Jessica Lower has spent seven years working in the construction industry for multiple home builders including The Jones Company of St. Louis, MO; Citation Homes of Lafayette, IN; Pulte Homes of Indianapolis, IN; and Centex Homes of Indianapolis, IN. For the past four years she has been an instructor for the Building Construction Management Department at Purdue University while completing her Masters in May 2008 and currently working on her PhD to be completed in December of 2010.

Mark Shaurette, College of Technology, Purdue University

Mark Shaurette, Ph.D. Assistant Professor, Purdue University, West Lafayette BBCN, Building Construction, University of Florida, 1975 MS, Civil Engineering, Massachusetts Institute of Technology, 1980 Ph.D., College of Technology, Purdue University, 2007

Mark's 30+ years of construction industry experience includes owning and operating a custom homebuilding company in addition to senior management positions with one of the largest homebuilders in the nation as well as a regional commercial/residential development company in Florida. He has also worked as a research engineer for the National Association of Home Builders Research Foundation where he was a project manager for the EER energy efficiency research and demonstration residence. He recently completed his Ph.D. concentrating on reconstruction and demolition with a cognate specialty in education. He currently teaches in and administers the Purdue Department of Building Construction Management's Demolition and Reconstruction concentration, the first college level program in the nation with an emphasis on the management of demolition projects.

Students' Knowledge of Instructors and its Impact on Student Motivation

Abstract

In trying to connect with students both inside and outside of the classroom, instructors often tell personal stories or share past experiences of their time in industry. This is especially common in the construction technology classroom because instructors are typically required to have significant construction experience. This article describes a research study which examines whether or not this information has any effect on students' motivation in the classroom as well as what information may be inappropriate for the instructor to share with their students. The study surveyed construction management students and faculty within the construction management department of a Midwestern University. Both faculty and students answered questions based on a 5-point Likert scale to determine whether they agreed or disagreed with different factors that may affect a student's motivation within the classroom. The faculty survey results were compared to the student survey results to ascertain any difference in perceptions. Overall few significant differences were found between faculty and students. The results were also compared across grade levels to determine differences in motivation depending on a student's year in school. Here, trends were found that showed upperclassmen were more likely to understand the significance of an instructor's impact on student motivation and in turn find informal interaction more motivating.

Introduction

Studies have been conducted on student motivation and its relation to instructional practices at the university level and are discussed in the next section. This study focuses on informal interaction between students and faculty both inside and outside of the classroom. An example of informal interaction inside the classroom could be an instructor sharing a personal story about themselves. Outside informal interaction would be any interaction between a student and instructor out of the classroom that does not relate to the course.

Instructors in construction technology typically rely on personal stories or past work experiences to relate to students, get their message across, and hopefully motivate students within the classroom. In addition many instructors socialize with students outside of the classroom either in student organization activities or in other settings unrelated to the classroom. The purpose of this study was to verify that these informal interactions do have a positive impact on student motivation and to see if any of the information shared with the students may be de-motivating or inappropriate for the classroom.

Both faculty and students of an entire construction management department at a Midwestern University were surveyed to ascertain any differences in perception of how much influence an instructor has on student motivation as well as any difference in student perceptions between different grade levels. While studies have been done on student motivation, few if any are done that compare different grade levels or that look at the instructors' perspectives. By understanding differences between instructors and students as well as between grade levels, instructors should

be better equipped to design their courses to gain the highest level of motivation out of their students.

Background

A significant body of literature exists relating the impact instructors have on student motivation. Instructors' behaviors⁵ and interactions between students and instructors outside of the classroom³ can have an impact on student motivation and in turn student learning outcomes². Motivating students to engage in education is critical to the learning process and to the success of the students¹.

In a study conducted by Etten, Pressley, McInerney and Liem⁴ ninety-one college seniors were interviewed in small groups to determine what these students' believed influenced their motivation. Students mentioned that intellectual development, while important, is not as motivating a factor as obtaining their desired grade⁴. Motivational factors identified by students in other studies include aptitude and type of instruction, background knowledge, and instructor behavior⁵.

Within the classroom there are many opportunities for instructors to impact students' motivation levels. In addition, instructors spending time with students outside of the classroom on course related materials can also make an impact². Instructors may influence students' willingness to talk within the classroom and their willingness to seek out the instructor for communication outside of the classroom⁸. Studies have been conducted that have asked students their perception of how instructors influence student motivation. Non personal items such as curriculum design, delivery method³, and course content including whether or not the course is within the students' major⁴ can influence motivation. Instructor behaviors can also influence student motivation. Positive verbal behaviors include humor, encouraging students, self-disclosure or using personal examples, and addressing students by their name. Non-verbal behaviors include eye-contact, body language, facial expressions, vocal expressiveness, and proximity to the students⁵.

In Etten, Pressley, McInerney and Liem's⁴ study involving college seniors, the students also commented on how an instructor could be motivating in the classroom. Students stated that instructors who provided detailed course requirements, identified critical information, provided past material such as old exams for students to review, gave adequate time for assignments, and could connect course material to relevant issues would increase their motivation. While instructing in the classroom, traits of the instructors can also increase a students' motivation. Treating students like adults, being responsible and knowledgeable, providing timely feedback, and caring and being empathetic to students' personal and academic concerns are all examples of positive instructor traits⁴.

Sass¹⁰ surveyed over 700 of his students in 22 different class sections over the course of eight years. His survey asked the students what they believed made their classes more or less motivating. The three main topics that stood out year after year were enthusiasm, relevance, and organization. The remaining top eight items include appropriate difficulty level, active involvement, variety, rapport, and use of appropriate examples. In regards to rapport with the

instructor, students commented that instructors who are approachable and are interested in the students' learning help student motivation¹⁰.

Out of classroom interaction can either be directly related to or unrelated to course material. Unrelated interaction is generally referred to as informal interaction⁹. In 1980 Pascarella compiled pertinent previous studies relating to student-faculty informal interaction and its impact on college outcomes. These studies show positive relationships between student-faculty informal contact and academic performance. Students that do interact with faculty are able to become more familiar with the instructor's intellectual values, interests, and attitude. Familiarity with instructors showed a positive correlation with GRE scores, educational development, and personal development⁹.

Cotten & Wilson³ performed a study to determine the dynamics of student-faculty interactions. In their study 49 students participated in nine focus groups with group size ranging from two to ten. When discussing student-faculty informal interactions the students reported that they felt more comfortable approaching an instructor when the instructor showed a sense of humor or revealed something personable about themselves. On the other hand, students said they were sometimes wary of initiating contact. They felt that once a relationship was established they could no longer slack off in class. The students also stated they were motivated to increase their efforts in class the more familiar they became with the instructor³.

The use of email has allowed increased communication between faculty and students. With increased communication has come more familiarity with the faculty. Instructors are more likely to share hobbies, interests, or other personal information through email than in the classroom¹¹. The more informal contact students have with faculty, the more the students trust their instructor and the more motivated the students become within the classroom⁷. When students see their instructors more as friends, their quality of effort and commitment to work are directly proportional to the degree of informal contact⁶. Overall, informal interactions between faculty and students both inside and outside the classroom have a stronger impact on motivation and student learning than do formal interactions³.

Given the results from the previous studies, the hypothesis of the reported study was that informal student-faculty interaction will correlate positively with student motivation. Additional research questions answered in this study include: Is there a difference in the way students and faculty perceive how their informal interactions impact student motivation? And, is there a difference in perception between different grade levels on the impact student-faculty informal interaction has on student motivation?

Method

Participants

The faculty and undergraduate students within a construction management department at a Midwestern University were surveyed for this study. Eight of the twenty faculty responded to the survey giving a response rate of 40%. The student response rate was slightly over 20% with 98 of the 481 student population completing the survey. Both the faculty and the students completed

the same survey. All were asked to specify whether they were a faculty member or a student, to give their gender, and to report their age. Seven of the faculty were male while one was female. Age for the faculty ranged from 45 to 70 with a mean of 60. The students' mean age was 22 and ranged from 18 to 41. The student gender division included seven females and ninety-one males. Since females represent approximately five percent of the total student body and faculty, this is a representative sample based on gender.

In addition, the students completed four questions relating to their grade level, grade point average (GPA), the number of construction related courses they have taken, and the amount of construction related work experience they have obtained. The breakdown for grade level included 10 freshmen, 19 sophomores, 20 juniors, 33 seniors, and 13 senior plus, with three students not reporting. Senior plus students are defined as those who are in their fifth year and above at the university. Both the number of construction courses and construction experience were split relatively equally among the participants. One student respondent had a GPA below 2.4 with 24 respondents between 2.5 and 2.9. The other GPA categories of 3.0-3.4 and 3.5-4.0 had responses of 50 and 21 respectively.

Research Design & Procedure

The research design for this study was a survey. The survey was developed with a 5-point Likert scale. A copy of the survey can be found in Appendix A. Online survey software was used to distribute the survey to the participants. It was distributed by sending an email to each individual with a link to the survey site. Participants were given two weeks to complete the 35 question survey and were told that the survey would take approximately 10-15 minutes to complete. For each of the questions, the students and faculty were asked to state whether they strongly agree (1), agree (2), neither agree or disagree (3), disagree (4), or strongly disagree (5) with the statements included in the survey. The last question of the survey asked the respondents to choose a graph that represented what they believed the relationship was between student motivation and the knowledge level students have about their instructors.

Results

Verifying Instructor Impact on Student Motivation

Since none of the reviewed studies focused solely on construction management students, the first priority of the study was to verify that instructors do impact construction students' motivation before differences could be established between faculty and students and between grade levels. The results from the student data agreed with the previously reviewed literature. The students answered in agreement on statements relating informal interaction both inside and outside of the classroom to positive influences on student motivation. Means and standard deviation were calculated on each of the questions. The means were then compared to the neutral answer of "neither agree or disagree" and independent t-tests were run. All but three questions showed significant differences of $p=.000$ for a 95% confidence level.

The only information that students thought inappropriate for an instructor to share in the classroom were views on religion ($x=3.54$) and politics ($x=3.43$). Of the instructor traits, a bad

instructor ($x=4.07$) was the only trait that would not increase a student's motivation. An interesting observation was that even though the students believed their motivation would increase if they shared hobbies, work experience, ideals, and research interest with an instructor, they did not believe their motivation would decrease if they did not share these same items with the instructor.

Comparisons between Faculty and Students

Independent t-tests with a 95% confidence level were run on each of the survey questions to compare the student responses to the instructor responses. All except two of the questions yielded non-significant results. The two areas where the students differed from the instructors were on questions relating to whether preconceived notions were typically true and whether out-of-classroom interaction with an instructor influences course grades. Preconceived notions are defined as any opinions or assumptions students form about an instructor before taking a class from that instructor. As shown in Figure 1, students agreed more than faculty that preconceived notions about instructors are typically true $t(8.622) = 3.272, p = .010$. As shown in Figure 2, students also agreed more than faculty that out-of-classroom interaction with an instructor influences course grades $t(11.067) = 4.106, p = .002$. Standard error bars have been added to the graphs to show the significant difference.

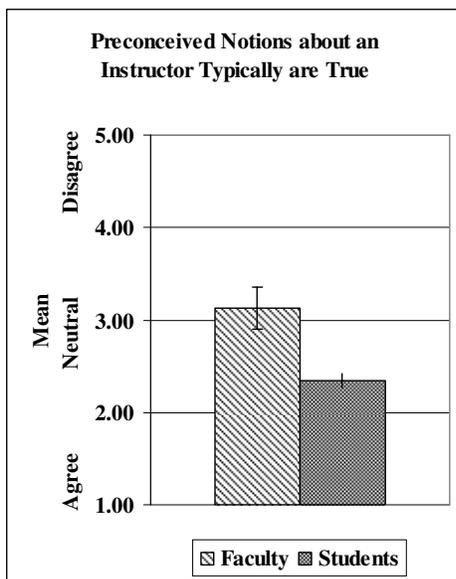


Figure 1. True Preconceived Notions.

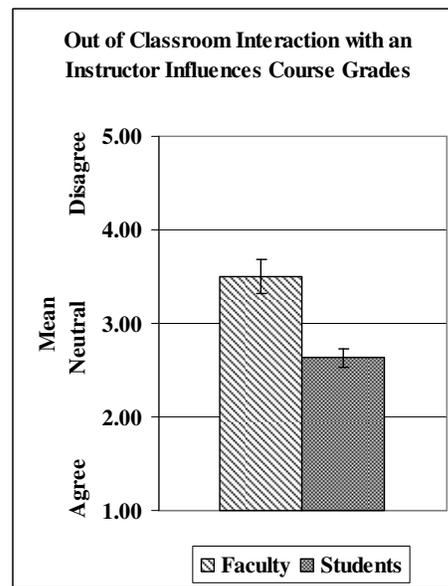


Figure 2. Interaction Influence on Grades.

Comparisons between Grade Levels

Analyses of variance (ANOVAs) were then run on each of the questions to compare the mean student response from each grade level. One difference noted in the responses resulted from students' preconceived notions about their instructor before taking the class. The trend shows that as students progress in their studies the more likely they are to believe that preconceived notions exist $f(4,90) = 2.482, MSE = 1.295, p = .049$. As Figure 3 shows, the significant break occurs between the Junior and Senior grade levels.

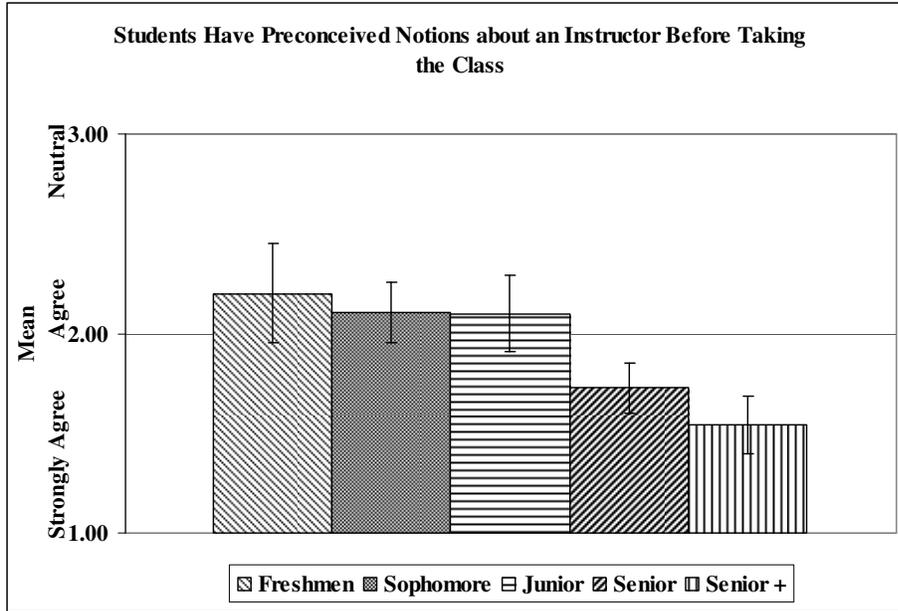


Figure 3. Preconceived Notions between Grade Levels.

Students differed on whether they believed an instructor has no impact on student motivation. As the grade level increased the students were more likely to disagree that instructors had no impact. Or in other words, as the grade level increased the students were more likely to agree that instructors do have an impact $f(4,90)=4.863$, $MSE=3.225$, $p=.001$. As Figure 4 shows, the significant break is again between the Junior and Senior levels.

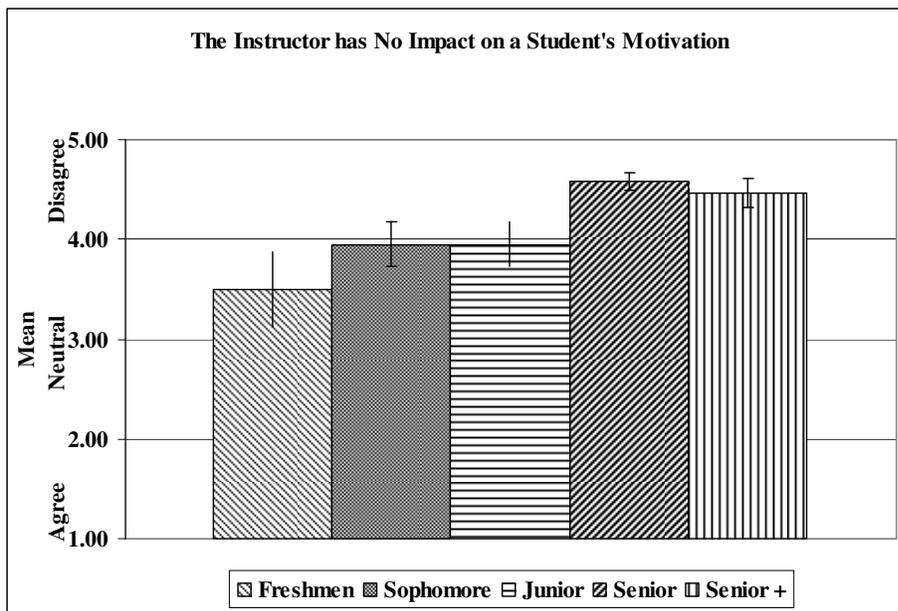


Figure 4. Instructor Impact on Motivation between Grade Levels.

Students also differed on whether they believed students are more motivated by instructors who share personal information in class. As the grade level increased, students were more likely to

agree that sharing personal information had a positive effect on motivation $f(4,88)=3.263$, $MSE=1.602$, $p=.015$. The significant break is between the Senior level and the Senior+ level (Figure 5).

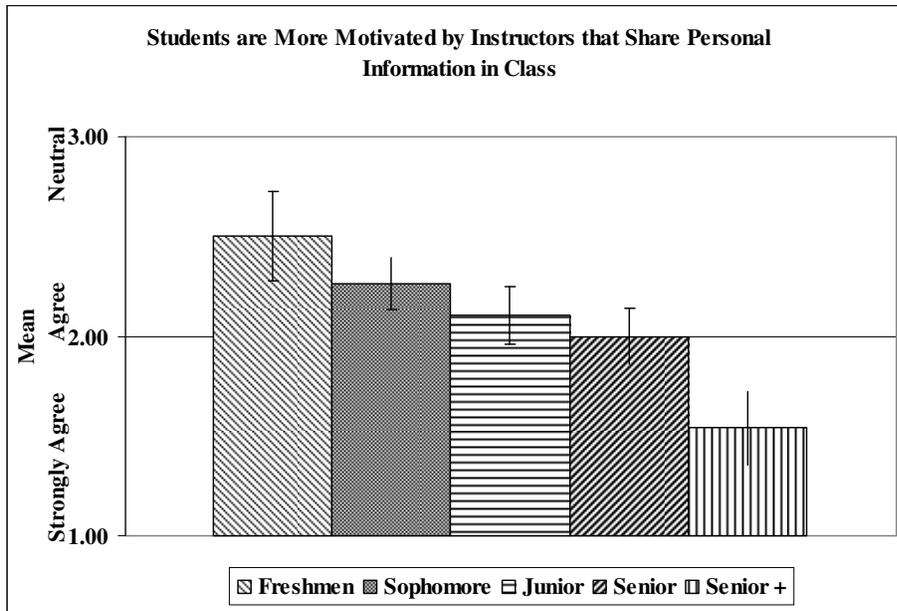


Figure 5. Personal Information Impact on Student Motivation between Grade Levels.

Students disagreed on the level of appropriateness for an instructor to share their research interests in class. The response for this question, while still dependent on grade level, did not show trending as students progressed in their studies $f(4,89)=2.689$, $MSE=1.251$, $p=.036$. While all students agreed that sharing research interests are appropriate, as Figure 6 shows, Sophomore and Senior+ students showed significant differences from the other grade levels.

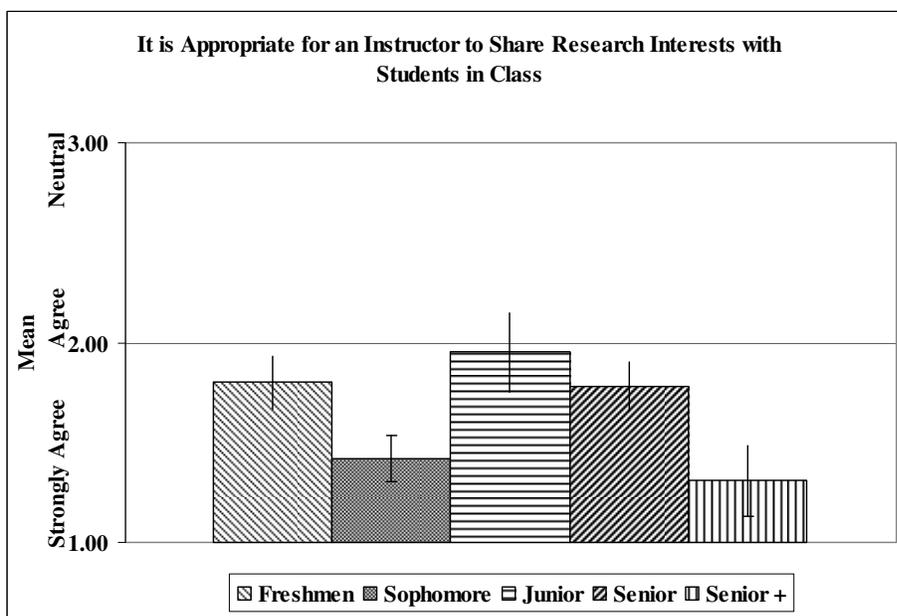


Figure 6. Appropriateness of Sharing Research Interests between Grade Levels.

Discussion

Given that the survey was set up with a 5-point Likert scale, the chances for finding significant differences were reduced by the natural tendency to avoid the extreme answers. The faculty were less likely than students to agree that preconceived notions about instructors are true. This may be because faculty do not want to admit that preconceived notions may be true; however, more than likely the students have a more difficult time letting go of preconceived notions and are looking for traits within their instructors that fit what they believe to be true. Also, students are more likely to agree that out-of-classroom interaction has an influence on course grades. This may help explain a student's motivation to seek out interaction with an instructor outside of the classroom. The students may believe the interaction will favorably impact their grade while the instructor is basing the students' grades on in class participation and achievement.

The same restricted range in the answer choices made finding significant differences between the grade levels more difficult. The trend regarding whether students tend to have preconceived notions about instructors increased as the students moved up in grade level. Understandably, as the students progress in their academic career, they may make more contacts with students and share information more easily about instructors and courses.

The next difference between grade levels was whether students believe instructors have no impact on student motivation. The trend here showed that upperclassmen were less likely to agree with this statement showing that they believe instructors do have an impact. Again, as students progress through the grade levels, they encounter additional opportunities to interact with instructors in more informal settings such as student organizations and departmental functions. Freshmen and sophomore motivation may also be influenced by their instructors but the students may be unaware that the influence is occurring. This same reasoning may also be applied to the difference regarding whether students believe they are motivated by instructors that share personal information in class. Upperclassmen are more likely than underclassmen to realize the importance of the entire college experience and see their instructors as vital contacts rather than just teachers.

There may be some confounding variables that come into play in regards to the previous two differences. Maturity may be a confounding variable since upperclassmen in general are older than underclassmen and therefore may have more life and work experience. Another confounding variable may be the length of time of informal interaction. As students progress in their college careers, not only do they have more opportunities for informal interaction but the amount of informal interaction also increases.

While the students did agree that sharing research interests in class was appropriate, the level of agreement differed among the grade levels. Sophomore and Senior+ students may have thought that instructors' research interests are directly related to course content and therefore thought it would be more appropriate for the classroom. Unlike many other areas in academia, undergraduate students in construction management rarely become involved in research with professors. Since the students are less aware of research occurring in their department, they may simply have not understood the question.

Conclusion

The purpose of this article is to start the discussion about differences in perceptions between students and faculty relating to motivation as well as different motivational factors between different grade levels. The results suggest that more in depth questioning needs to occur in many areas relating to student motivation. Additional research should define more specific motivational factors between grade levels by asking students to rank different factors rather than simply agreeing or disagreeing. Also, any further research may look more at the length of time of informal interaction and maturity as confounding variables.

This article is suggesting that motivational factors among university level students needs to be researched at the grade level rather than lumping college students into one large category. By identifying motivational factors at each grade level, this information will allow instructors to design courses more effectively depending on grade level when developing curricula at the college level.

Since this study occurred within one construction management department at a single Midwestern University, the results are not generalizable to all construction management departments across the United States. Additional studies with a more representative sample could help develop a motivational model for construction management students.

Bibliography

1. Allen, M., Witt, P. L., & Wheelless, L. R. (2006). The role of teacher immediacy as a motivational factor in student learning: Using meta-analysis to test a causal model. *Communication Education, 55*(1), 21-31.
2. Cleveland-Innes, M. F. & Emes, C. (2005). Social and academic interaction in higher education contexts and the effect on deep learning. *NASPA Journal, 42*(2), 241-262.
3. Cotten, S. R. & Wilson, B. (2006). Student-faculty interactions: Dynamics and determinants. *Higher Education, 51*, 487-519.
4. Etten, S. V., Pressley, M, McInerney, D. M., & Liem, A. D. (2008). College seniors' theory of their academic motivation. *Journal of Educational Psychology, 100*(4), 812-828.
5. Furlich, S. A. & Dwyer, J. F. (2007). Student motivation and instructor immediacy in community college mathematics classes. *The Mathematics Educator, 10*(2), 55-70.
6. Halawah, I. (2006). The impact of student-faculty informal interpersonal relationships on intellectual and personal development. *College Student Journal, 40*(3), 670-678.
7. Jaasma, M. & Koper, R. (1999). The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation. *Communication Education, 48*(1), 41-47.
8. Myers, S. A. (2004). The relationship between perceived instructor credibility and college student in-class and out-of-class communication. *Communication Reports, 17*(2).
9. Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. *Review of Educational Research, 50*(4), 545-595.
10. Sass, E. J. (1989). Motivation in the college classroom: What students tell us. *Teaching of Psychology, 16*(2), 86-88.
11. Sheer, V. C. & Fung, T. K. (2007). Can email communication enhance professor-student relationship and student evaluation of professor?: Some empirical evidence. *Journal of Educational Computing Research, 37*(3), 289-306.

Appendix A

For each question, the students and faculty were asked to state whether they strongly agree (1), agree (2), neither agree or disagree (3), disagree (4), or strongly disagree (5) with the statements included in the survey

1. Students have preconceived notions about an instructor (not the class) before taking the class (hard/easy, good/bad)
2. Preconceived notions about an instructor typically are true
3. The instructor has no impact on a student's motivation
4. Students are more motivated by instructors that share personal information in class
5. Out of classroom interaction with an instructor influences course grades

Students are more motivated in a course if they share:

6. a hobby with an instructor
7. similar work experience with an instructor
8. the same construction ideals as an instructor
9. similar research interests with an instructor

Students feel alienated or de-motivated in a course if they do not share:

10. a hobby with an instructor
11. similar work experience with an instructor
12. the same construction ideals as an instructor
13. similar research interests with an instructor

Answer based on whether you believe the following are determining factors in a student's motivation

14. Instructor knowledge of the course material
15. Course content/subject matter
16. Instructional methods used
17. Personal information about the instructor
18. Out of classroom interaction with an instructor that is school related
19. Out of classroom interaction with an instructor that is not school related

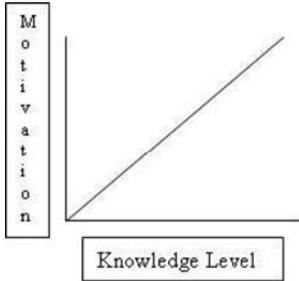
Answer based on whether you believe the following instructor traits increase a student's motivation

- | | |
|--------------------------------|---------------------------|
| 20. A fair instructor | 24. A hard instructor |
| 21. A knowledgeable instructor | 25. A good instructor |
| 22. A sympathetic instructor | 26. A bad instructor |
| 23. An easy instructor | 27. A friendly instructor |

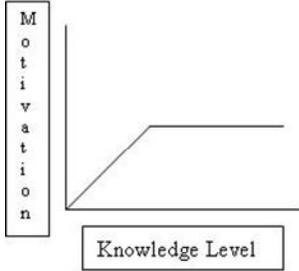
Answer based on whether you believe it is appropriate for an instructor to share the following information with students in class

- | | |
|----------------------------|---------------------------|
| 28. Work Experience | 32. Hobbies and Interests |
| 29. Research Interests | 33. Religious Views |
| 30. Educational Background | 34. Political Views |
| 31. Family Background | |

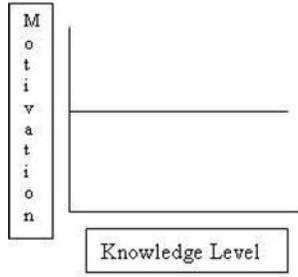
35. If you were to graph a student's motivation level versus the knowledge level the student has about an instructor (not the knowledge level of the instructor), the graph would look like:



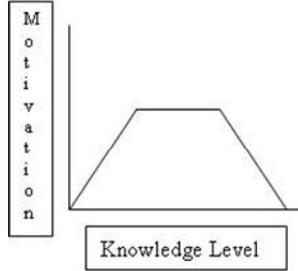
Increasing



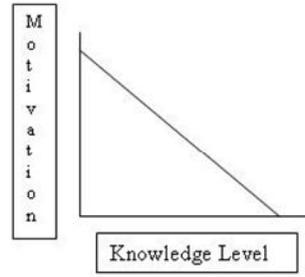
Increasing to a point then leveling off



Non-changing



Increasing, leveling off, then decreasing



Decreasing