

# **AC 2007-1741: STUDENTS' PERCEPTIONS OF THE IMPORTANCE OF FACULTY COMMITMENT TO STUDENT SUCCESS FOR THEIR LEARNING SUCCESS**

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# STUDENTS' PERCEPTIONS OF THE IMPORTANCE OF FACULTY COMMITMENT TO STUDENT SUCCESS FOR THEIR LEARNING/ SUCCESS

## Abstract

The objective of this study was to explore the relationships between students' perceptions of the importance of the faculty commitment to student success to their learning/success, expressed in terms of self-reported technical competencies and GPA in a technology-based baccalaureate electronics engineering technology (EET) program at a teaching university. The sample (N=225) represented seniors of the BSEET program from 13 geographically diverse campuses of a teaching university. Regression analyses revealed significant and direct relationships between faculty commitment to student success (FCSS) and student learning/success in terms of self-reported technical competency (effect size is medium). Student GPA failed to reveal any significant relationships with faculty commitment to student success (FCSS).

## I. Introduction

Predicting the success of students engaged in higher education is important. Many models have been developed to predict student success in chosen fields of study, as well as at the chosen college or university. Success in education has been linked to a variety of intellectual and non-cognitive skills<sup>1-9</sup>.

## II. Purpose of the Study

The purpose of this research project was to explore the relationship between students' perceptions of the importance of faculty commitment to student success and their self-reported learning and success. The research project answers the following questions:

1. How do students perceive the importance of faculty commitment to student success, for their learning and success?
2. Are there associations between students' perception of the importance of faculty commitment to student success [in terms of dedication to students, high expectations of students, being approachable by students, encouraging student accomplishment, and concern for student success] and student's self-reported success/learning (expressed in terms of self-reported technical competency, and GPA), as perceived by seniors in the EET program?

The proposed study used a quantitative paradigm. The associational research approach was used to study the relationship between independent variables and dependent variables (see Table 1).

**Table 1** Description of Variables

Variable Type	Variable Description
<b>Independent Variable</b>	
<p>Student perceptions of the importance of Faculty Commitment to Student Success</p>	<p>Faculty commitment to student success construct is represented by:</p> <ul style="list-style-type: none"> <li>• Dedication to students</li> <li>• Requiring high expectations</li> <li>• Being approachable</li> <li>• Encouraging student accomplishments</li> <li>• Concern for student success</li> </ul>
<b>Dependent Variables</b>	
<p>Students' perception of their learning / success in terms of:</p> <ol style="list-style-type: none"> <li>1. GPA</li> <li>2. Self-reported technical competency (SRTC1) [Critical Thinking]</li> <li>3. Self-reported technical competency (SRTC2) [Job Preparation]</li> <li>4. Self-reported technical competency (SRTC3) [Construction of a Prototype]</li> </ol>	<p>Student learning / success measured is terms of:</p> <ul style="list-style-type: none"> <li>• GPA</li> <li>• Self-reported technical competency (SRTC) [in terms of analytical and critical thinking, knowledge of EET, and design and implementation of a system]</li> <li>• Given a technical challenge, a student can analyze a problem by thinking critically (SRTC1 [Critical Thinking])</li> <li>• Student has confidence in his/her technical knowledge to be successful as an electronics engineering technology (EET) job (SRTC2) [Job Preparation]</li> <li>• Given a technical problem or specification for a system design, a student can propose a solution by designing the necessary sub-system/circuits and by constructing a</li> </ul>

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prototype of the system (SRTC3)  
[Construction of a prototype]

- Number of job offers
  - Starting salary offer
  - Professional /honor society membership
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### **III. Description of Sample and Sampling Design**

#### ***Sampling***

Considering the time and cost limitations, a convenience sampling approach was employed.

#### ***Participants***

The study investigated seniors, through a survey, in the B.S.E.E.T program for the Fall 2003 term at 13 DeVry University campuses spread all over the country. These campuses were chosen to incorporate diversity of study population and diversity of geographic locations. The sample size was 225 seniors, and the response rate was in the range of 29% - 100% for all 13 campuses. The survey sought descriptive information about the student perceptions about the importance of several faculty characteristics for their learning.

#### ***Instrument***

The survey instrument (Appendix A) sought descriptive information about the students' perceptions of the importance of faculty technical currency faculty teaching techniques, and faculty commitment to student success (FCSS) for their learning/success expressed in terms of 3 areas of self-reported technical competency and GPA. The instrument used twenty 7-points. Likert scales to collect data about student perceptions of their faculty.

### **IV. SUMMARY OF RESULTS**

Table 2 presents a summary of strongest relationships ( $r \geq .30$ ) between students' perceptions of the importance of faculty technical currency, faculty teaching techniques, and faculty commitment to student success and students' perceptions of learning/success expressed in terms of their self-reported technical competency. The first dependent variable, critical thinking has two relationships of  $r \geq 0.30$  with the independent variables: use of individual laboratory project of the summated faculty teaching techniques. The second dependent variable, job preparation, also has two relationships of  $r \geq 0.30$  with the independent variables: summated faculty teaching techniques, and summated faculty commitment to student success. The third dependent variable,

construction of a prototype has six relationships of  $r \geq 0.30$  with the independent variables: computer software skills, use of individual laboratory projects, timely feedback on class and laboratory projects, summated faculty teaching techniques, high expectation of students, and summated faculty commitment to student success. And, the fourth dependent variable, summated self reported technical competency, which is the sum of critical thinking, job preparation and construction of a prototype, has seven relationships of  $r \geq 0.30$  with the independent variables, two with faculty technical currency constructs, two with faculty teaching techniques constructs, and three with faculty commitment to student success constructs.

**Table 2**

*Summary of Results: Pearson Correlation Coefficients for the Relationship Between Students' Perceptions of the Importance of Faculty Technical Currency (FTC), Faculty Teaching Techniques (FTT), and Faculty Commitment to Student Success (FCSS) and Students' Perceptions of Learning/Success Expressed in Terms of Their Self-reported Technical Competency (N = 225)*

<b>Faculty Sub-Construct (Construct)</b>	<b>Self-reported technical competency (SRTC1) [Critical Thinking]</b>	<b>Self-reported technical competency (SRTC2) [Job Preparation]</b>	<b>Self-reported technical competency (SRTC3) [Construction of a Prototype]</b>	<b>Summated SRTC</b>
Statistically Most Significant Relationships ( $r \geq .30$ )				
High expectations of students (FCSS)	-	-	0.31	0.32
Concern for student success (FCSS)	-	-	-	0.30
Summated FCSS	-	0.30	0.31	0.34

Note: For all listed correlations  $p < 0.001$  and the effect size is medium.

SRTC1: Given a technical challenge, a student can analyze a problem by thinking critically.

SRTC2: Student has confidence in his/her technical knowledge to be successful at an electronics engineering technology (EET) job.

SRTC3: Given a technical problem or specification for a system design, a student can propose a solution by designing the necessary sub-system/circuits and by constructing a prototype of the system.

## **V. Discussion of the Findings**

Question 1: How do students perceive the importance of commitment to student success for their learning and success?

### ***Faculty Commitment to Student Success***

The study revealed that EET seniors perceive that faculty commitment to student success is important for their learning and success. About 80 percent of seniors agreed that the faculty commitment dimensions of dedication to students, being approachable, providing encouragement towards student accomplishment are important to their success and learning. Further, more than 75 percent of seniors agreed that professor's high expectations and concern for student success are important for their learning/success.

These results support Guskey's<sup>10</sup> findings about the teaching behavior of effective teachers. Guskey found that effective teachers have a positive regard for students and encourage student participation.

### ***Association Between the Students' Perception of the Importance of Faculty Commitment to Student Success and Self-reported Learning/Success***

Question 2: Are there associations between students' perception of the importance of faculty commitment to student success [in terms of dedication to students, high expectations of students, being approachable by students, encouraging student accomplishment, and concern for student success] and student's self-reported success/learning (expressed in terms of self-reported technical competency and GPA), as perceived by seniors in the EET program?

The Pearson correlation coefficients for the relationship between faculty commitment to student success and students' perceptions of learning/success expressed in terms of their self-reported technical competency revealed small to medium effect sizes. However, the following relationships between the faculty commitment sub-constructs and self-reported technical competency reveal positive significant associations with medium sized effects.

- a. High expectations of students, and summated FCSS are related to self-reported technical competency (Critical thinking).
- b. High expectations of students, encouraging student accomplishment, concern for student success, and summated FCSS are related to self-reported technical competency (Job preparation).
- c. High expectations of students, encouraging student accomplishment, concern for student success, and summated FCSS are related to self-reported technical competency (Job preparation).

- d. High expectations of students, encouraging student accomplishment, concern for student success, and summated FCSS are related to self-reported technical competency.

These findings indicate that students perceive that faculty members' high expectations of students, encouraging student accomplishment and concern for student success are important for their learning and success. The findings also agree with Chickering and Gamson's<sup>11</sup> research-based principles of effective undergraduate education. They proposed that good practice in undergraduate education (1) encourages contacts between faculty and students, (2) develops reciprocity and cooperation among students, (3) uses active learning techniques, (4) provides prompt feedback, (5) emphasizes time on task, (6) communicates high expectations, and (7) respects diverse talents and ways of learning. These results also support the findings of Guskey<sup>10</sup> that effective teachers have positive regard for their students.

The fourth predictor of student learning/success, GPA, failed to yield any significant relationship with sub-constructs of faculty commitment with student, except for the sub-construct of high expectations of students where the value ( $r = 0.13$ ) indicates a small effect size. This indicates that students who rate themselves high on technical competency perceive that faculty commitment in terms of high expectations of students is more related to student learning/success in terms of student GPA.

## VI. Conclusion

In the domains of engineering technology to improve student learning/success faculty should enhance their commitment to student success. The results of this study show that students' perceive that faculty commitment [in terms of dedication to students, high expectations of students, being approachable by students, encouraging student accomplishment, and concern for student success] is important for their student's self-reported success/learning.

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## Appendix A

### Student Survey

Consider your **technical professors'** influence on your learning and success. Your input is needed regarding various aspects of these **professors' commitment to student success**, and how these factors influenced **your learning and success**. Please indicate the extent to which you agree or disagree with the following statements (Questions 1-12) about your professors' influence on your learning and success using the following rating scale.

- 1 = This was not at all important for my learning/success, I strongly disagree (SD)  
 2 = I disagree with this statement (D)  
 3 = I moderately disagree with this statement (MD)  
 4 = I neither agree nor disagree with this statement (N)  
 5 = I moderately agree with this statement (MA)  
 6 = I agree with this statement (A)  
 7 = This was very important for my learning/success, I strongly agree (SA)

Please circle the appropriate number.

	SD	D	MD	N	MA	A	SA
1. My learning/success is due to my professors' dedication to their students.	1	2	3	4	5	6	7
2. My learning/success is due to my professors' high expectations.	1	2	3	4	5	6	7
3. My learning/success is due to my professors being approachable.	1	2	3	4	5	6	7
4. My learning/success is due to my professors'	1	2	3	4	5	6	7



encouragement towards my accomplishments in class and laboratory.							
5. My learning/success is due to my professors' concern for my success.	1	2	3	4	5	6	7
Students self-perception of competency	SD	D	MD	N	MA	A	SA
6. Given a technical challenge, I can analyze a problem by thinking critically.	1	2	3	4	5	6	7
7. I have confidence in my knowledge of electronics engineering technology (EET).	1	2	3	4	5	6	7
8. Given a technical problem or specifications for a system design, I can propose a solution by designing the necessary sub-system/circuits and by constructing a prototype of the system.	1	2	3	4	5	6	7
9. What is your GPA? <span style="float: right;">My GPA = _____ out of 4.00</span>							
10. Do you have any job offers presently? <input type="checkbox"/> Yes <input type="checkbox"/> No  If you answered yes, how many job offers do you have?  Number of job offers = _____							
11. If you have a job offer, what is the highest salary offered to you?  Highest salary offered = \$_____							
12. Are you working presently? <input type="checkbox"/> Yes <input type="checkbox"/> No  If you answered yes, how many hours a week do you work?  Number of hours/Week = _____							