

Characteristics of Students Who Do Not Do Homework

Research Initiation Grant: Increasing Student Engagement in Homework

Introduction

- All freshman engineering students take a common Introductory Engineering course
- A customized web-based homework system is used (Schleter and Bennett, 2006)
- Recently a bonus system (Schilling, 2010) was implemented:
 - students receive a 10% bonus for homework problems completed 24 hours or more in advance of the due date

Group	Passing Rate
All (N = 407)	82.8%
Students completed at least 80% of the homework	96.9%
Students did less than 80% of the homework	33.3%

The present study

- This paper examines characteristics of students who do not complete at least 80% of homework.
 - Interview
 - Data analysis of relationship among
 - students' completion rate of homework
 - students' preparation
 - class performance
 - class engagement
 - persistence

Measurement

Quantitative Data

- students' completion rate of homework
- students' preparation
 - Math ACT Score
 - High School courses
- class performance
 - Math ACT Score
 - High School courses
- class engagement -- clicker responses
- persistence-- grit survey (Duckworth and Quinn, 2009)

Qualitative Data

- Students who were completing less than 80% of their homework in Fall 2012 were invited to participate in a 30-45 minute interview.
- 20 out of 100 students participated in the interview

Conclusions

Students who do not homework:

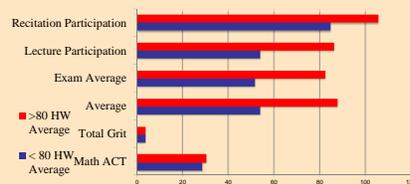
- Do not have good high school background
- Have slightly less persistence
- Not participating as much in class.

Identifying the characteristics helps develop appropriate intervention techniques

Relationship between HS courses and Homework Performance

Parameter	< 80 Average	>80 Average	Significance
HS Math Class Had Calculus	62%	79%	
Quality of Math Class	All: 3.82 Calc: 3.88	All: 4.19 Calc: 4.29	All: $p < .05$ Calc: $p < .05$
HS Physics	AP: 13% None: 29% Other: 58%	AP: 22% None: 19% Other: 59%	
Quality of Physics Class	3.38	3.71	$p=0.0541$

Relationship between Parameters and Homework Performance



Parameters	Correlation
Math ACT	0.275
Total Grit	0.060
Average	0.907
Exam Average	0.807
Lecture Participation	0.680
Recitation Participation	0.749

Interview Result

Based on a preliminary analysis, several reasons were identified for why students do not do homework, which are listed below:

- Time management
- Struggling with academic studies
- Part-time job
- Too many credit hours
- Transition problems
- Family problem which takes time
- Other activities which take time, such as religious activities and band rehearsal
- Do not like physics
- Get frustrated because of their low scores on tests and homework
- EF151 homework is harder and more than other courses' homework
- Easily distracted
- No physics class in high school
- Like/use early homework bonus, mostly, and then less during semester
- The process of completing complex HW frustrates them and they cannot get help immediately at a key point

