Impact of Goal-Setting during Student Advisement Sessions on Academic Performance, Study Skills, and Happiness in Major

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Abstract

The goals of this Work In Progress (WIP) paper are to 1) provide suggestions to engineering program administrators on including goal-setting activities as a best-practice in developmental advising and 2) begin a conversation of how goal-setting conversations might affect advising effectiveness, as well educational and professional development outcomes in undergraduate students. To determine if this practice should be implemented across an engineering program, we will determine if there is a relationship between engaging in goal-setting conversations and study skills, happiness with major, and academic performance (GPA).

This study uses an online, pre-advising survey to gather information about perceived effectiveness of study skills, happiness with major, and demographic data. Additionally, an interview is conducted during advising sessions to initiate goal-setting conversations (the treatment). Finally, a post-advising survey will ask students to reassess study skills and happiness with major. Academic performance will also be analyzed at this time based on student GPAs.

Keywords

Academic Advising, Developmental Advising, Goal-setting, Advising in Engineering, Advising in STEM

Introduction

At many universities, undergraduate students are required to meet with their academic advisor each semester to discuss their degree requirements and academic plan. Beyond setting a plan of study, advisors contribute to the development of students by offering opportunities for engagement in extracurricular activities and also by connecting students to campus resources such as tutoring, career consultants, etc. Due to the rigorous, sequential nature of engineering curriculums, as well as large student case-loads, advisors often focus on prerequisite sequences and the path to graduation. Because there is minimal prior research in engineering education on the effects of developmental advising, specifically including goal-setting conversations in advising sessions, the investigators will study the effects of goal-setting in advising on study skills, happiness with major, and academic performance.

Theory

Goal-setting theory has evolved over recent decades and originated in the field of Industrial Organizational Psychology. Through the work of Edwin Locke and Gary Latham, goal-setting

has been accepted as a highly useful motivational tool. Locke originally hypothesized that "higher levels of intended achievement would contribute to higher levels of performance[1]." The theory has been refined to include that performance after goal-setting is moderated by goal commitment, goal importance, self-efficacy, feedback, and task complexity[2]. While Locke and Latham's work is applied to motivation and performance in the work place, their goal-setting theory can also be applied to education. A study conducted at a Canadian university found that a group of students that engaged in goal setting showed a higher GPA than the group that did not engage in goal setting[3].

Results from these studies point to the potential of goal-setting as an effective tool for improving academic performance in college students. Through this study, the authors seek to add to the body of existing research by observing if there are any effects of goal-setting on students' perceived effectiveness of study, time management, and organizational skills, as well as happiness with choice of major. We will also examine the potential impact of goal-setting on academic performance as measured through GPA.

Participants

The participants in this study include students who are majoring in Electrical Engineering and Computer Systems Engineering at Regional University. Additionally, any students with an Unspecified Engineering major who are assigned to the Primary Investigator (PI; also the first author of this paper) for Academic Advising are included in the study. The participants are divided into two groups.

Group 1: Students assigned to the PI for Academic Advising

Group 2: Students assigned to the other Advisor in the School of Electrical and Computer Engineering for Academic Advising

Method

This study uses an online, advising survey to gather information about perceived effectiveness of study skills, happiness with major, and demographic data. The advising survey asks students to rate their study skills, organizational skills, time management skills, and happiness with major using a 5-point Likert scale. Students in Group 1 and Group 2 will complete the survey.

Additionally, an interview is conducted during advising sessions by the PI with participants in Group 1. The purpose of the interview is to initiate goal-setting conversations. The goal-setting interview questions are as follows:

1. Tell me about something you did last semester/summer that you are proud of.
2. Name some strengths and weaknesses.
3. How can you improve on those weaknesses?
4. What are some goals you have for this semester?

5. What resources are you going to use to meet those goals?

The first question is used as an ice breaker, but also as means of prompting self-evaluation in the student. Self-evaluation has been shown to improve motivation, skill, and task-orientation, and is an important part of the goal-setting process[1, 4]. The second question continues the self-evaluation process, and allows the student to consider areas they should work on. In question 3, the PI encourages the student to consider ways they can improve on their weaknesses, and then offers suggestions for improvement, including offering resources to connect with. For example, several students mention their lack of time management skills. When they mention this, the advisor suggests they attend a time management workshop put on by the Department of Academic Enhancement.

Finally, the same survey will ask students in Group 1 and Group 2 to reassess study skills and happiness with major in the following semester. Academic performance will also be analyzed at this time based on student GPAs.

The data will be analyzed through a paired t-test (post survey - pre survey responses) if the data are normally distributed. Otherwise, the paired samples Wilcoxon test will be used if the data are not normally distributed. For comparison between the two advisors, the same statistical tests will be used depending on the normality of the data. All statistical analysis will be done in R.

Results and Discussion

At this stage, only one semester of data has been recorded. Students in both groups have completed the initial survey, and students in Group 1 have completed the goal-setting interview. Due to a low survey response in Group 2, there is not sufficient data to compare the groups. Moving forward, students in Group 2 will be asked to complete the initial survey earlier on in the semester to encourage a higher response rate.

In the beginning stages of the study, we expected to see a correlation between goal-setting conversations and an increase in perceived effectiveness of study skills, organizational skills, time management, and happiness with major choice. Because of the number of confounding variables on academic performance (such as personal issues, work commitments, demographic considerations, etc.), we do not expect to see a relationship between the treatment and academic performance; although, we would expect for students to report anecdotes of improved academic performance.

After examining preliminary survey responses, we expect that there may not be a relationship between goal-setting conversations and increase in perceived effectiveness of organizational skills. This is due to the fact that several students have very highly perceived organizational skills. 76% of the students in Group 1 responded that their organizational skills are Somewhat or Extremely Good (Figure 1). We think this high rating may be because 46% of the students in Group 1 are in their first semester of college, and as such, are likely to have not been as challenged as students in later years. It is likely that their organizational skills have not yet been challenged and accurately self-assessed. Their perception of their organizational skills may decrease as a function of experiencing the challenges of college and engineering-specific rigor.

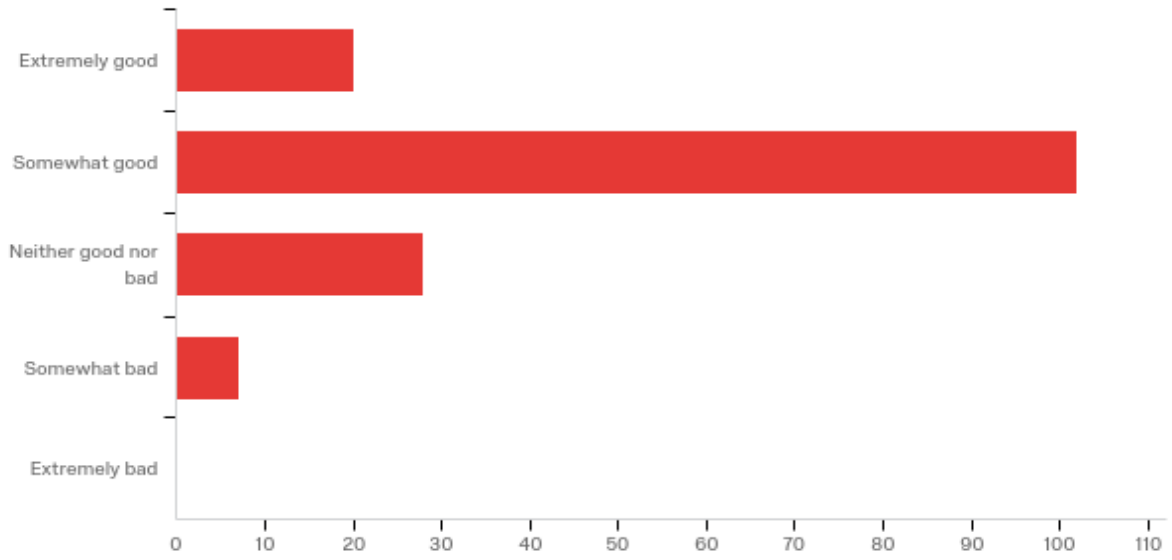

Figure 1 Organizational Skills Rating of Group 1

Even though this study is in the beginning stages, the PI did report a benefit of the goal-setting interview anecdotally: the advisor was able to connect with the students more consistently and effectively with the implementation of the goal-setting interview. The formalized goal-setting questions forced the advisor to ask important questions with each student, which often led to the student identifying their concerns, ways they could improve, and their goals. As a result, the advisor was also able to suggest more appropriate resources. The interview helped to build a rapport between the students and advisor, which will improve the advising outcomes.

Conclusion

In the coming months, we will continue collecting pre- and post-advising survey data. After this, we will analyze the data to determine if there is a difference between survey response data and GPA before and after advising. We will determine if there is a difference in survey responses and GPA between Group 1 and Group 2.

This study is acting as a pilot study. Next year, we plan to change some of the methods and instruments to improve the study design. For example, we may change the goal-setting interview to a pre-developed interview. Changes in the design will help to reduce limitations of the study and improve the external validity. Between this pilot study and future iterations, we hope to provide suggestions for engineering programs to improve the advising experience for students.

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