

## **SURVEY RESULTS OF EIGHTH GRADERS' INTEREST AND KNOWLEDGE OF ENGINEERING CAREERS**

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### **ABSTRACT**

This paper describes the results of a survey administered to Richmond, Indiana area eighth graders regarding their job career plans. The survey attempted to determine their interest in the fields of engineering as possible career choices. The survey also attempted to determine if the students grasped what types of functions are involved in the engineering workplace. The survey questions and responses are detailed. Conclusions are made based on student responses. The strategy used in the creation of the questions is discussed. The shortcomings of the questions are detailed. Both yes/no and open ended questions were asked during the survey. There were 175 students responding to the survey. The students were at the author's campus as part of a college career day event. Students were also asked to rate their individual math and English skills and the degree of relevance of math and English skills to the engineering workplace. The survey results were desired to help the author refine a recruitment strategy. The impact of the survey results on the author's recruitment strategy is discussed.

### **2. THE QUESTIONS**

The author lists the questions in the order they were asked, the survey result, and information pertaining to the question. There were 175 students surveyed.

#### *2.1 Have you decided what career field to enter? 122 Yes responses (70%)*

The author wanted to determine what percentage of students had some type of idea what their work life might involve. This result is relevant to the confidence that might be inferred from results of questions that followed. That is, if few students had selected a career, then they may not have given much thought about career planning in general.

#### *2.2 Do you plan to attend college? 162 Yes responses (93%)*

This result seems to reflect a view that college is necessary for success in the job market. Even students that didn't have a feel for the type of career they would pursue answered that they planned to attend college.

*2.3 Have you considered engineering as a career? 28 Yes responses (16%)*

The author was encouraged by what seems to be a significant proportion of students being interested in the engineering fields.

*2.4 Do you know an engineer? 92 Yes responses (53%)*

This question was aimed at determining if the student sample knew what engineering was. The thinking was, if they knew an engineer they were more likely to know what type of activities the engineering field involved.

*2.5 If you know an engineer, do you know what they do at work? 47 Yes responses (27%)*

Question 5 attempted to further determine if the students were familiar with engineering activities. After asking this question the author asked the students that answered yes to this question to describe what the engineer acquaintance did. The responses indicated many misperceptions. Aside from the usual 'drives a train' response, answers relating to car repair were quite common. Question 4 results indicate that only half of the students think they know an engineer and question 5 results indicate that approximately half of those think they know what the engineer acquaintance does. Far less than a quarter of the students know the nature of the work of an actual engineer. There are, of course, other ways for a student to familiarize themselves with the work of engineers besides personal acquaintances. The naming of non-engineering employed acquaintances as engineers does however show that significant number of the students are not familiar with what engineers do at work. This would cause one to infer that an informed response to question 3 would result in a lower affirmative response percentage.

*2.6 Do you think math classes are important for engineers? 165 Yes responses (94%)*

The students overwhelmingly feel that math classes are important for engineering. This result would seem to indicate some knowledge of what is involved in engineering. The students being surveyed were on the author's campus as part of a college for a day event to familiarize the students with the college campus and the programs of study available. The author tries to make sure the students understand the importance of the students taking upper level math courses is they might be interested in an engineering career. It would seem that the polled group of students already realize the correlation between math and engineering.

*2.7 Do you think science classes are important for engineers? 153 Yes responses (87%)*

The surveyed eighth graders generally and correctly perceive science classes to be germane to the fields of engineering.

*2.8 Do you think English classes are important for engineers? 88 Yes responses (50%)*

Question 8 responses show that only half of the eighth graders understand the need for engineers to be able to communicate effectively. During such campus visits the author tries to inform the

students of the relevance of communication to engineering fields. The responses to question 8 are not surprising and lend some credibility to the students having tried to answer the survey questions honestly.

*2.9 Do you do well in math classes? 121 Yes responses (69%)*

Question 9 was aimed at determining the possible pool of students that might do well in engineering. The 69% rating somewhat surprised the author since there seems to be a great deal of math anxiety expressed by the general public. At any rate there are many more of the subject students that rate themselves good in math than have considered engineering as a career.

*2.10 Do you do well in English classes? 125 Yes responses (71%)*

The intention of question 10 was similar to 9's but the author was also interested in seeing how math and English self-assessments would compare to each other. The author is encouraged that more than 2/3 of the students felt they were doing well in English and/or math.

*2.11 Do you like surveys? 77 Yes responses (44%)*

Question 11 was included to end the survey on a less serious note. The author does not care for surveys and thought many more of the eighth graders would feel the same way. The author was encouraged by this question's response for the survey as a tool for extracting useful and valid information from the students.

### 3. SUMMARY

The author administered the survey to gain insight as to how to improve his recruitment efforts. It is apparent to the author that many of the eighth graders have little knowledge of what engineers do in the workplace. This is evident from the responses given when asked what engineers do at work. The survey shows a need to educate the students with respect to what engineers do in the workplace so they can make an informed choice towards considering a career in engineering. The survey also shows a need to continue to stress the importance of the language arts for those that might want to consider a career in engineering. The main questions all required yes/no answers for the sake of brevity and ease of analysis. However, the open-ended follow up to question 5 'tell me what your engineering acquaintances provided the most insight that many of those surveyed did not have an accurate picture of what fields are considered engineering. Future surveys should contain more open ended questions.