

Emphasizing Individual Responsibility within an Undergraduate Project Structure

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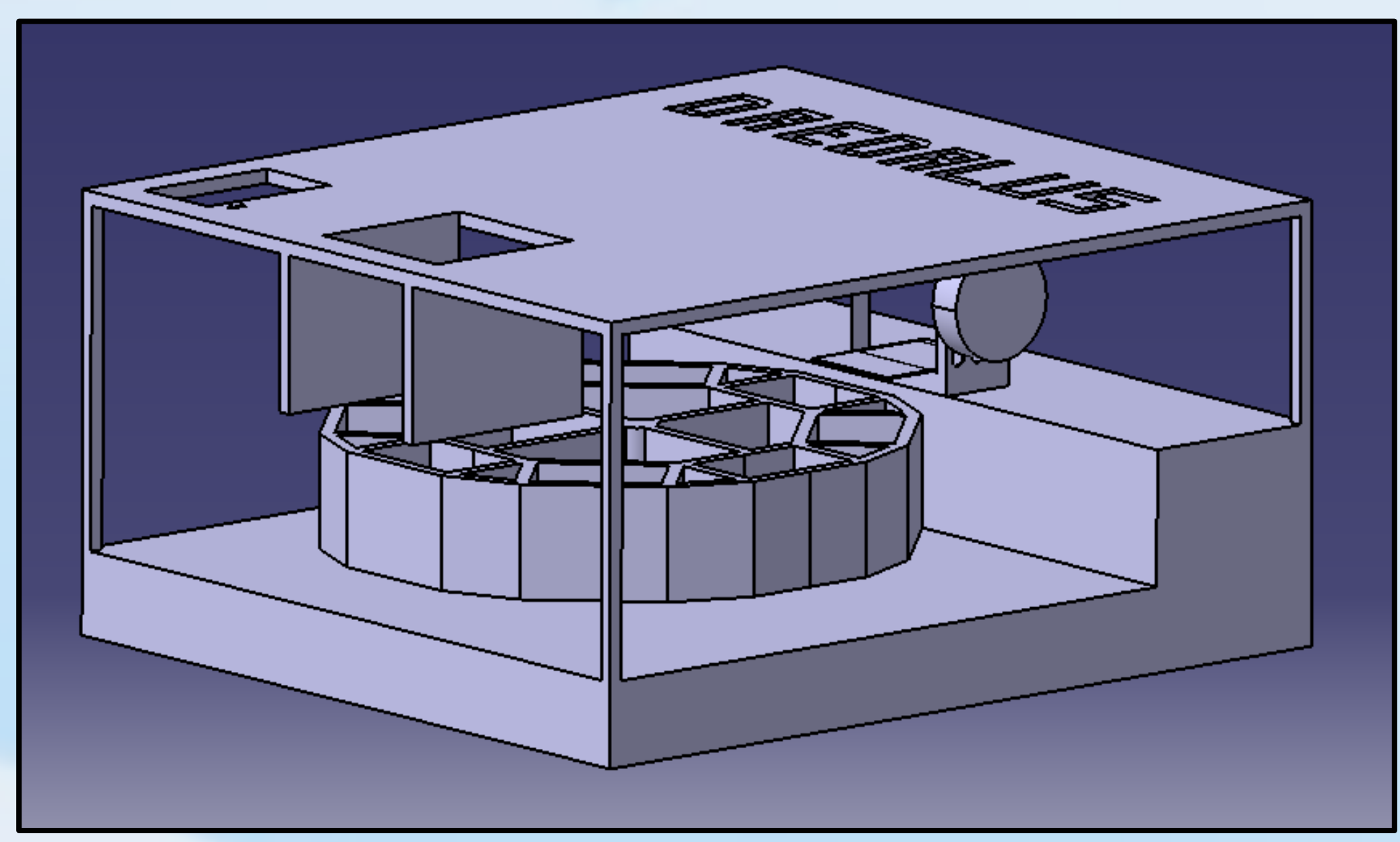


INTRODUCTION

Secondary education provides a unique opportunity to increase a person's independence, professionalism, and creativity. Extra-curricular organizations within an individual's career interests have the ability to inhibit or catalyze these characteristics. But can a group of students support this mindset on their own - without authoritative guidance or faculty instruction? **Is a responsibility-driven organization especially productive for first and second year students?** This team delves into the field of management research to answer these questions that are not often exceptionally emphasized.

PROJECT DAEDALUS

Our project, called Project Daedalus, has established two goals to be accomplished by the end of the spring semester of 2016. The primary goal of our organization is to design and manufacture a 3D-printing vending machine, for use by all students and housed in our university's student center or engineering building. The secondary goal is to use the project environment as a catalyst for personal and professional growth among our members. To accomplish this secondary goal we do not enforce attendance or assign tasks to each person, which results in each individual being entirely responsible for their own success in Daedalus.



METHODOLOGY

The undergraduate organization at the center of this study runs a research and design project that doesn't take attendance, that allows students to generate tasks and goals independently of the leadership, and encourages groups to meet only when it serves those best in order to accomplish the singular objective of building a 3D-printing vending machine.

The control group for this study is another undergraduate project who takes attendance regularly, whose leadership assigns tasks directly, and whose work is achieved within a set time by the majority of the participants. This study aims to highlight the effects the different structures have on the students and their project's respective successes or failures. An original poll will be administered to both groups after each semester of participation that will allow the students to self-report on their growth. The questions in the poll include:

1. How often did you enjoy the work you were given/chose?
2. How did your communication skills change as a result of this project?
3. How did your time management skills change as a result of this project?
4. How did your leadership skills change as a result of this project?
5. How did your technical skills change as a result of this project?
6. Did you feel you made an impact in the project?

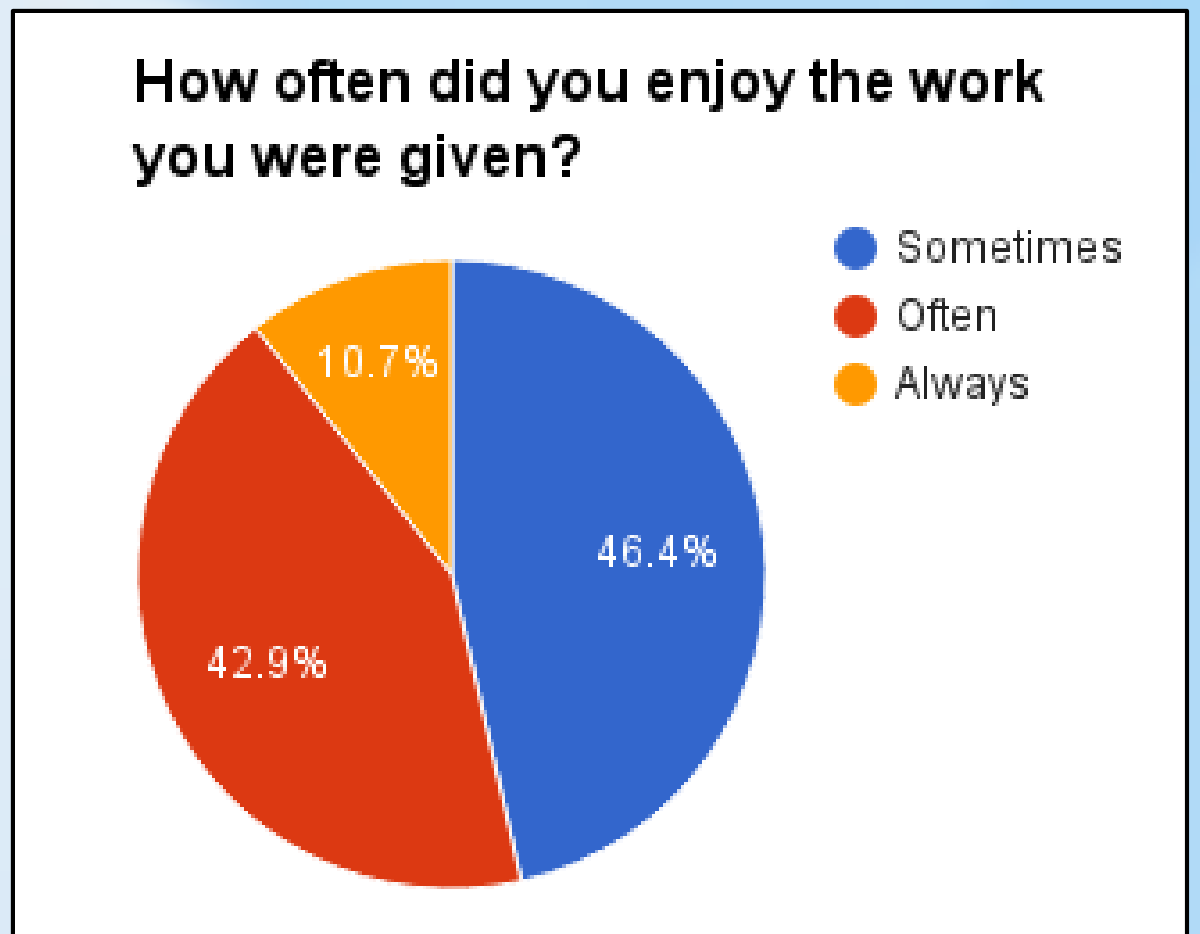
These questions were intended to analyze how the task structure of each organization directly affected individual improvement in key areas, and the results were meant to provide helpful criticism to other projects and to our own.

RESULTS OF SURVEY

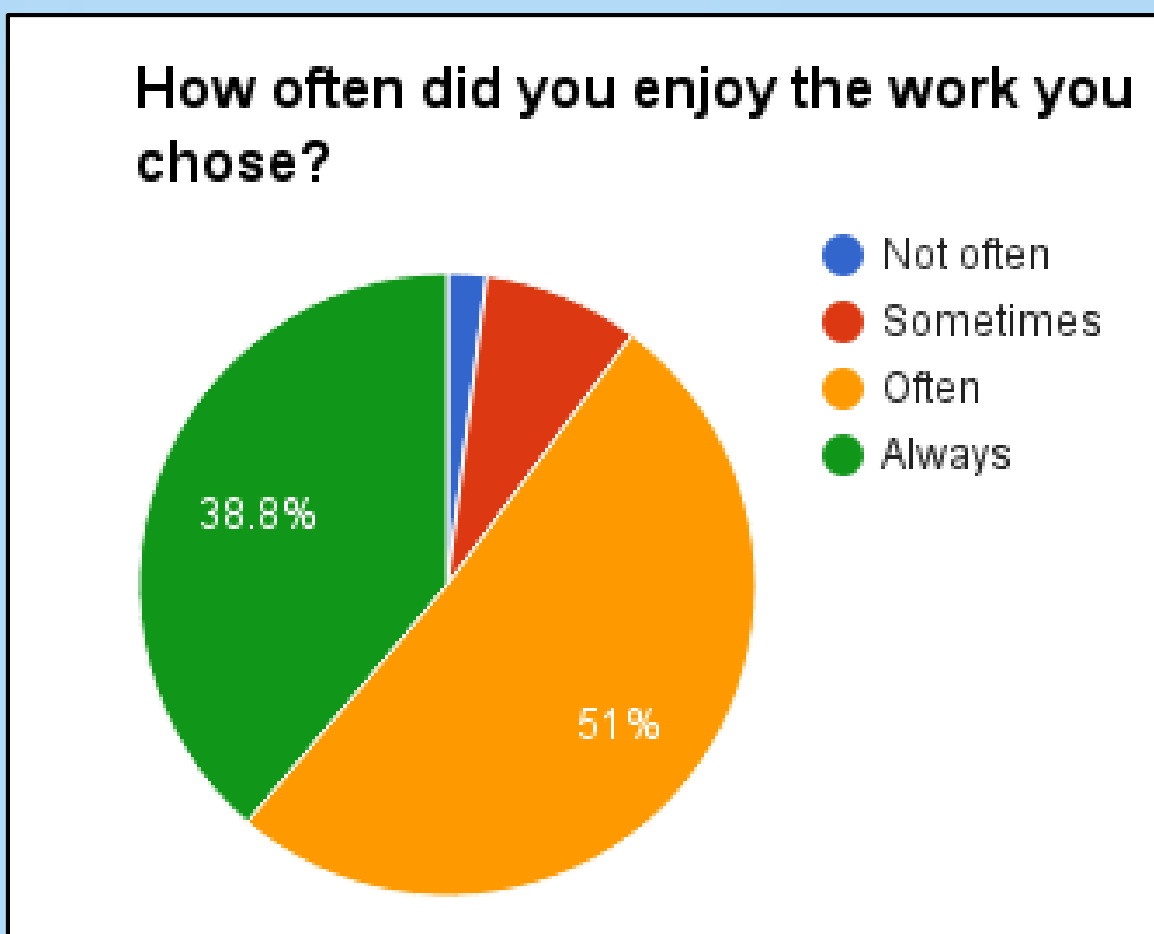
For our results we focused on the answers to the 6 questions mentioned in Methodology in relation to the task structure of the person's organization. Thus, our results are determined by only two independent variables reliant on each project's internal structure: tasks are given and tasks are taken. The plots for each I.V. are shown below:

QUESTION 1

GIVEN:



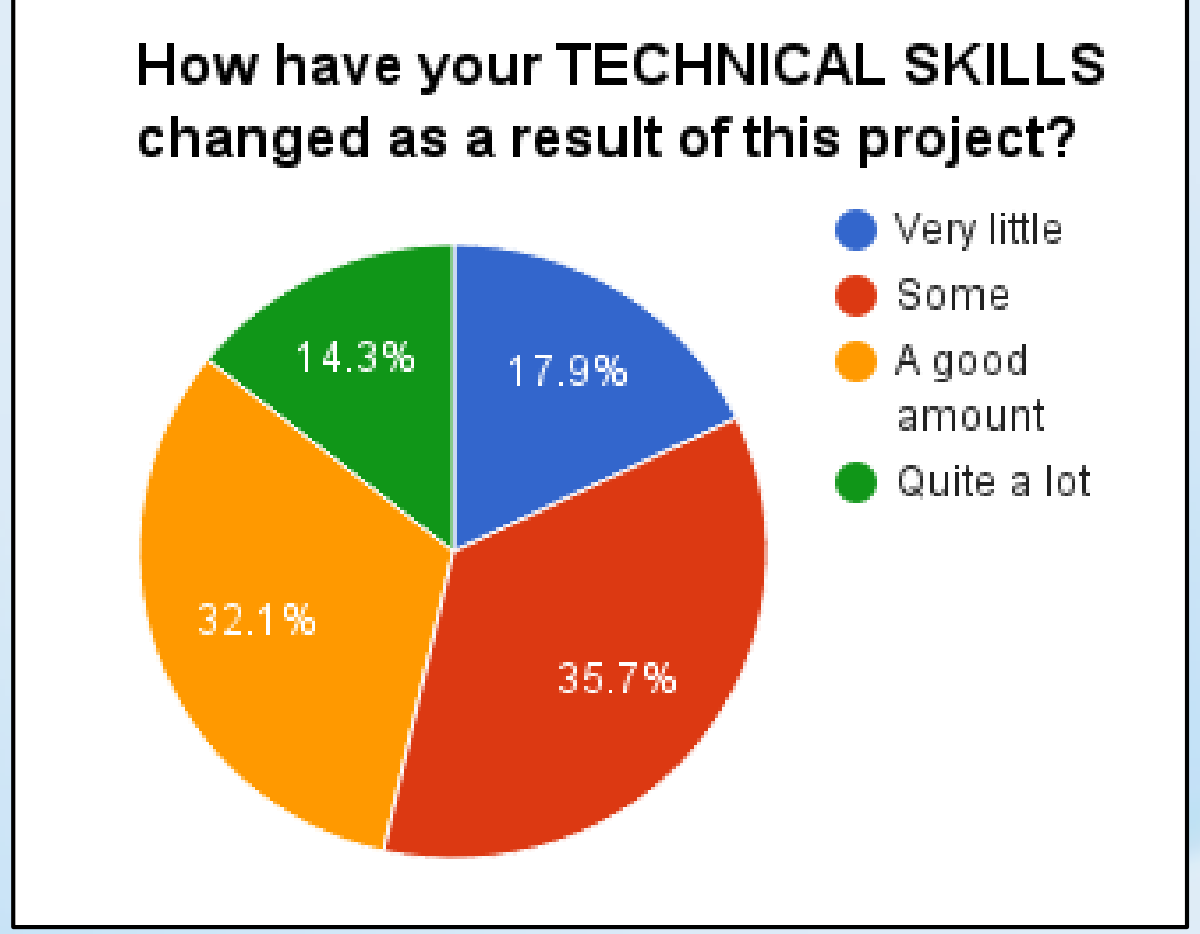
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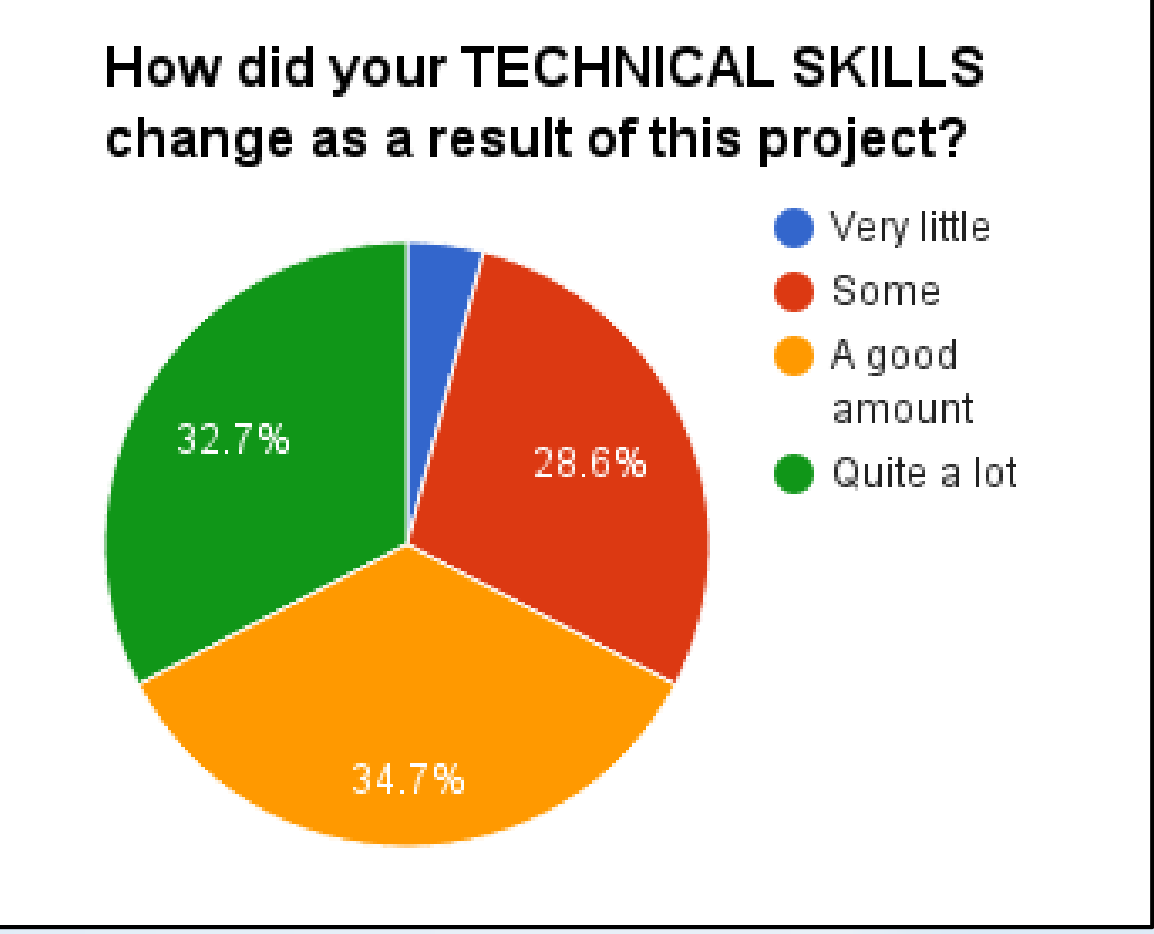
The plots show a higher percentage of people reporting positive experiences (often or always) with their tasks when they got to choose them. 53.6% of those who were given a task enjoyed them often or always, compared to 89.8% of those who chose their tasks. This suggests that **those who take tasks of their choosing may approach them with a more positive attitude than those who are assigned work they have no prior interest in.**

QUESTION 2

GIVEN:



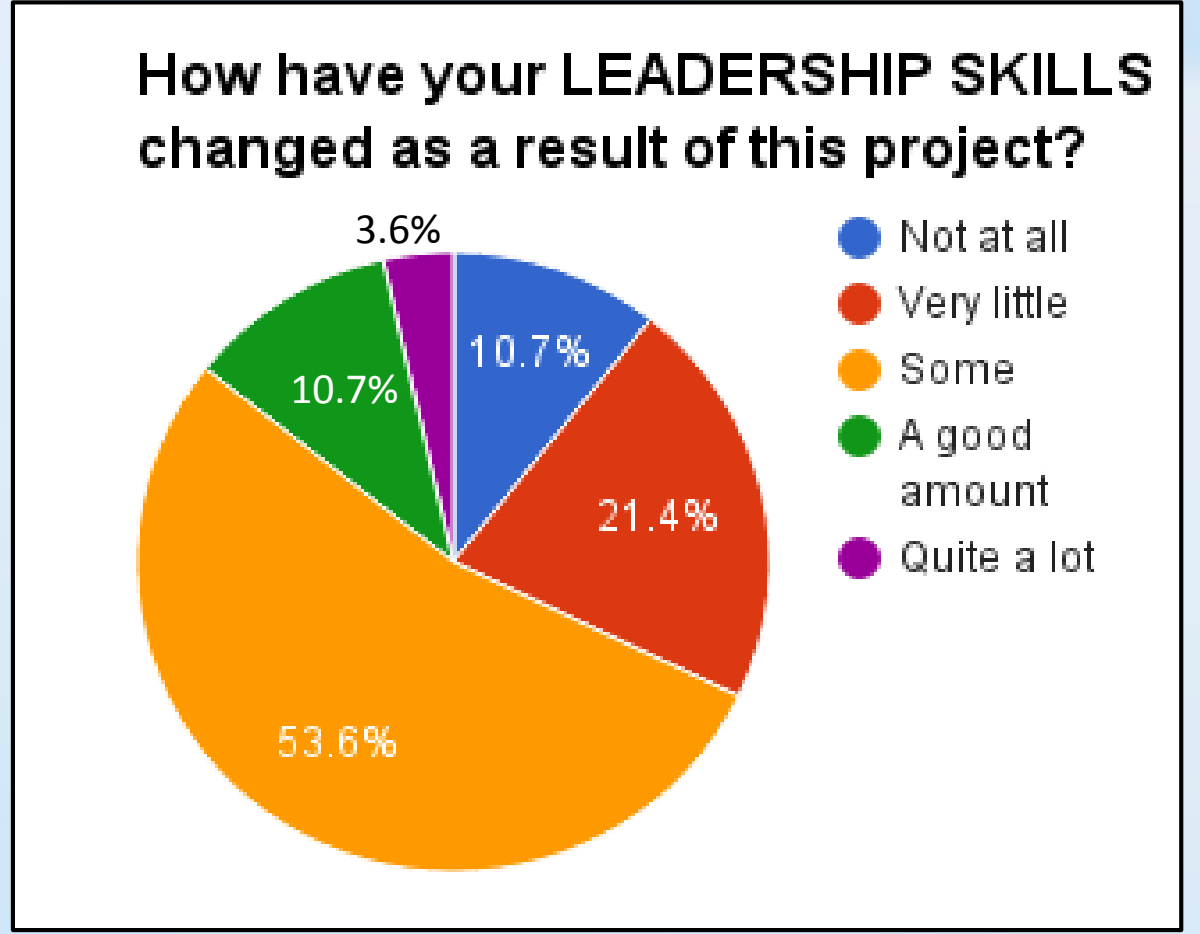
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Here the plots show that 46.4% of those who are given tasks and 67.4% of those who take tasks believe their technical skills to have improved because of their respective project. **This does not imply that those who take tasks often take harder ones, but it does suggest that they invest themselves more heavily into accomplishing the work they are responsible for.**

QUESTION 3

GIVEN:



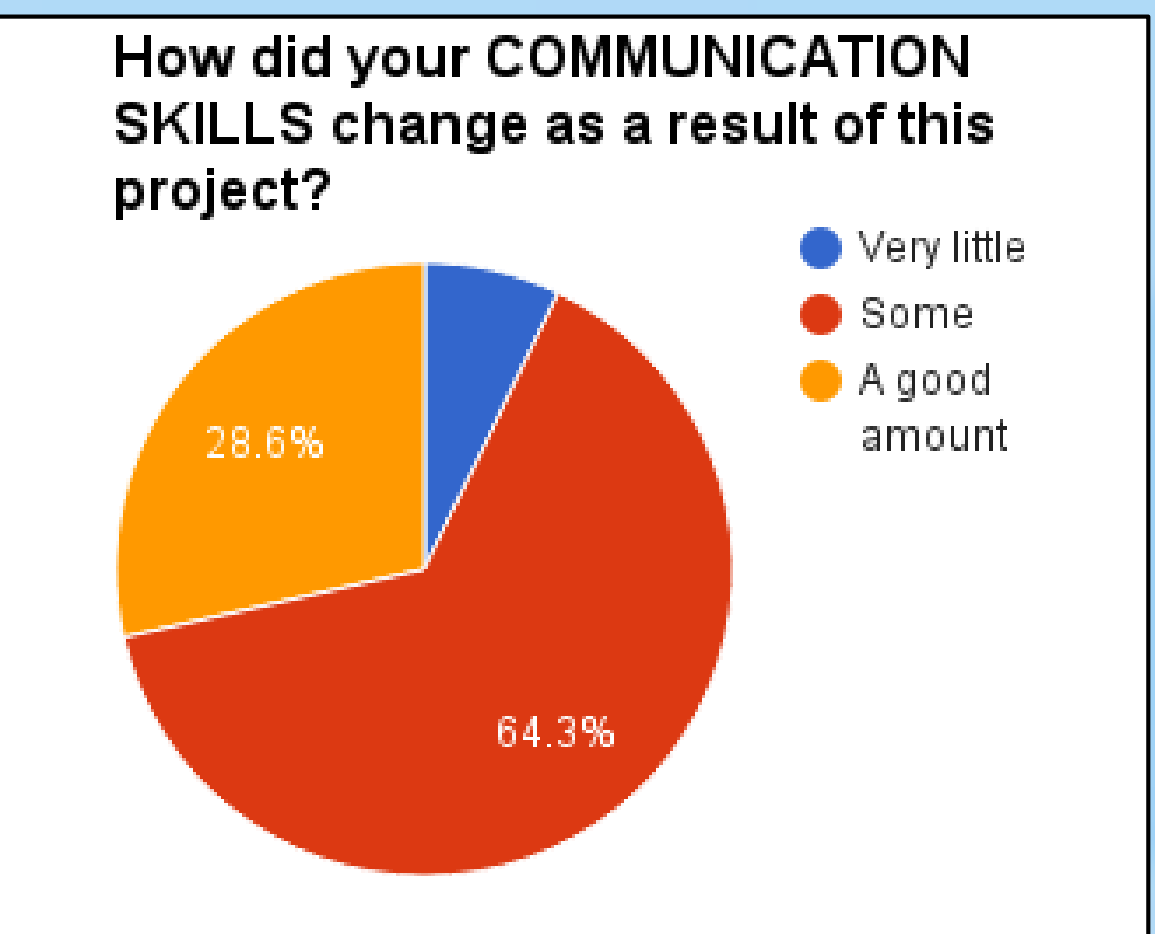
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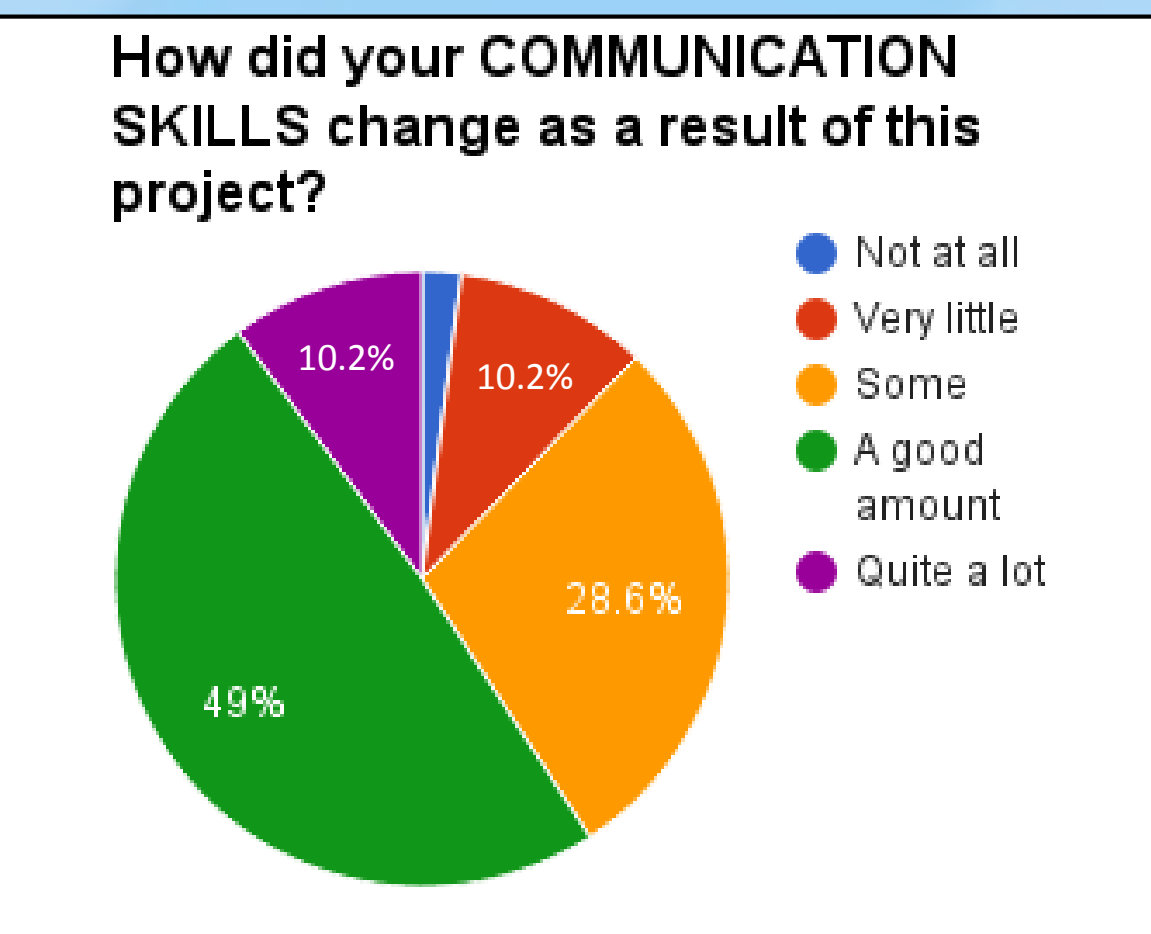
The plots for question 3 show that 14.3% of those who are given tasks report a marked improvement in their leadership skills, compared to a whopping 67.4% of those who take tasks. This suggests that **task-taking structures re-enforce personal responsibility and leadership behaviors more than task-giving structures.**

QUESTION 4

GIVEN:



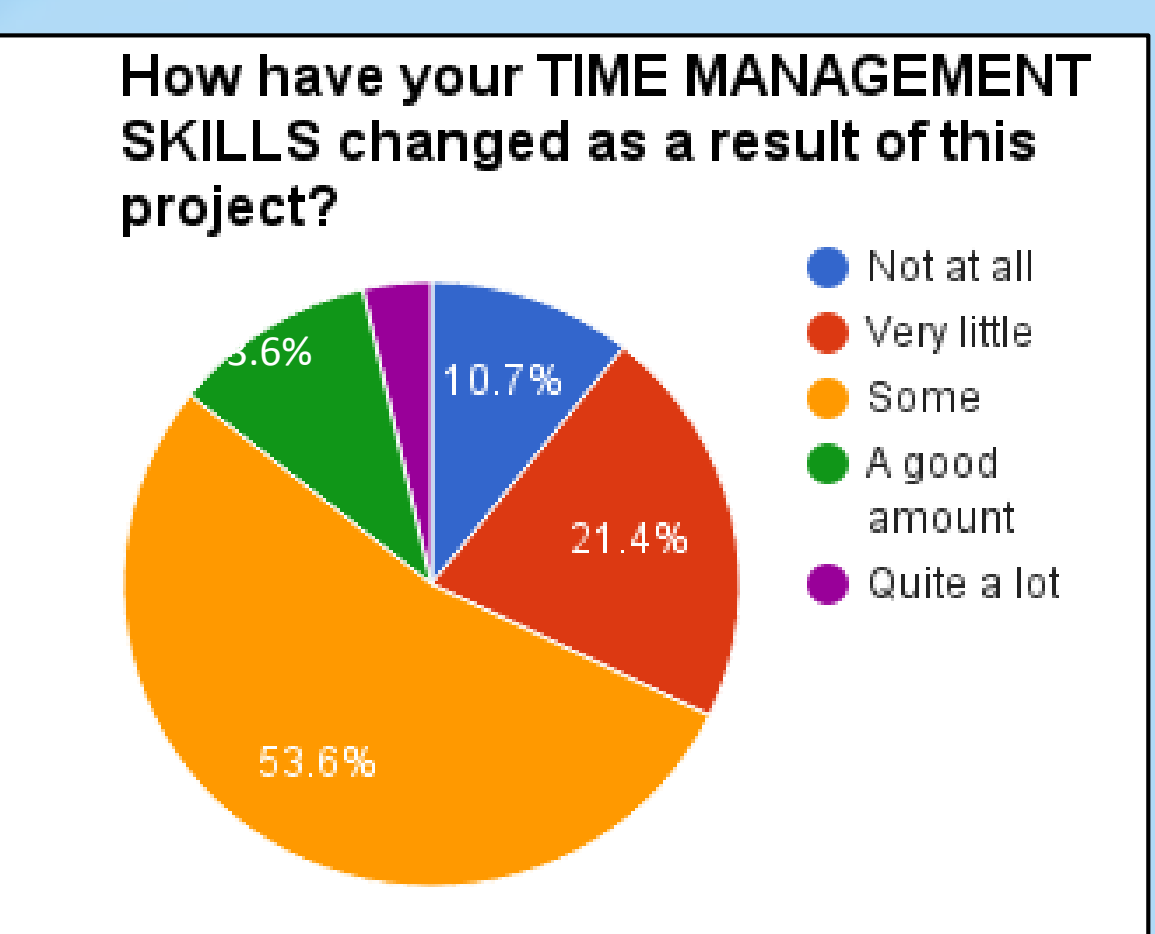
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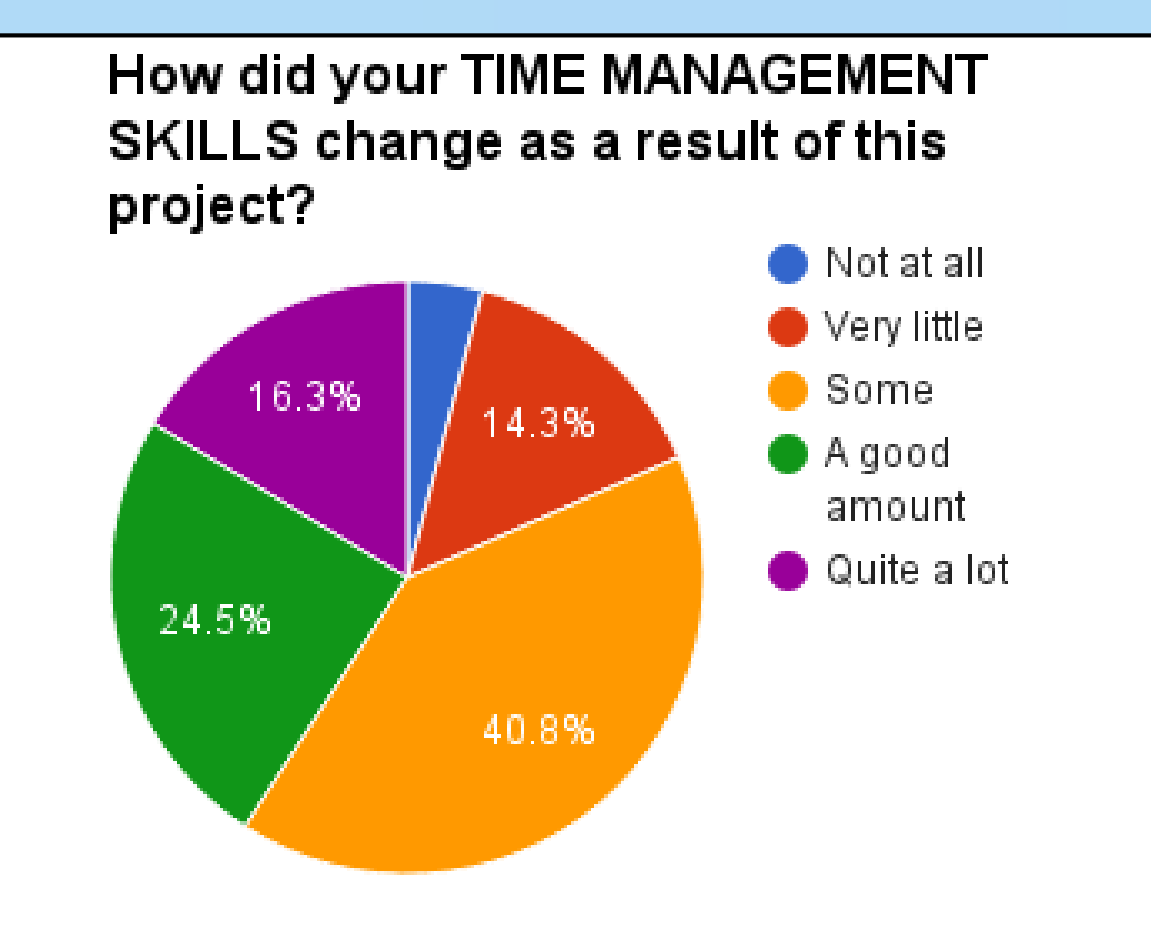
The plots above show that none of those given tasks claimed to have improved quite a lot in their communication, and that 28.6% of those given and 59.2% of those who take reported to have improved at least a good amount. These results imply that **project structures that emphasize individual responsibility likely lead to greater and better communication between members.**

QUESTION 5

GIVEN:



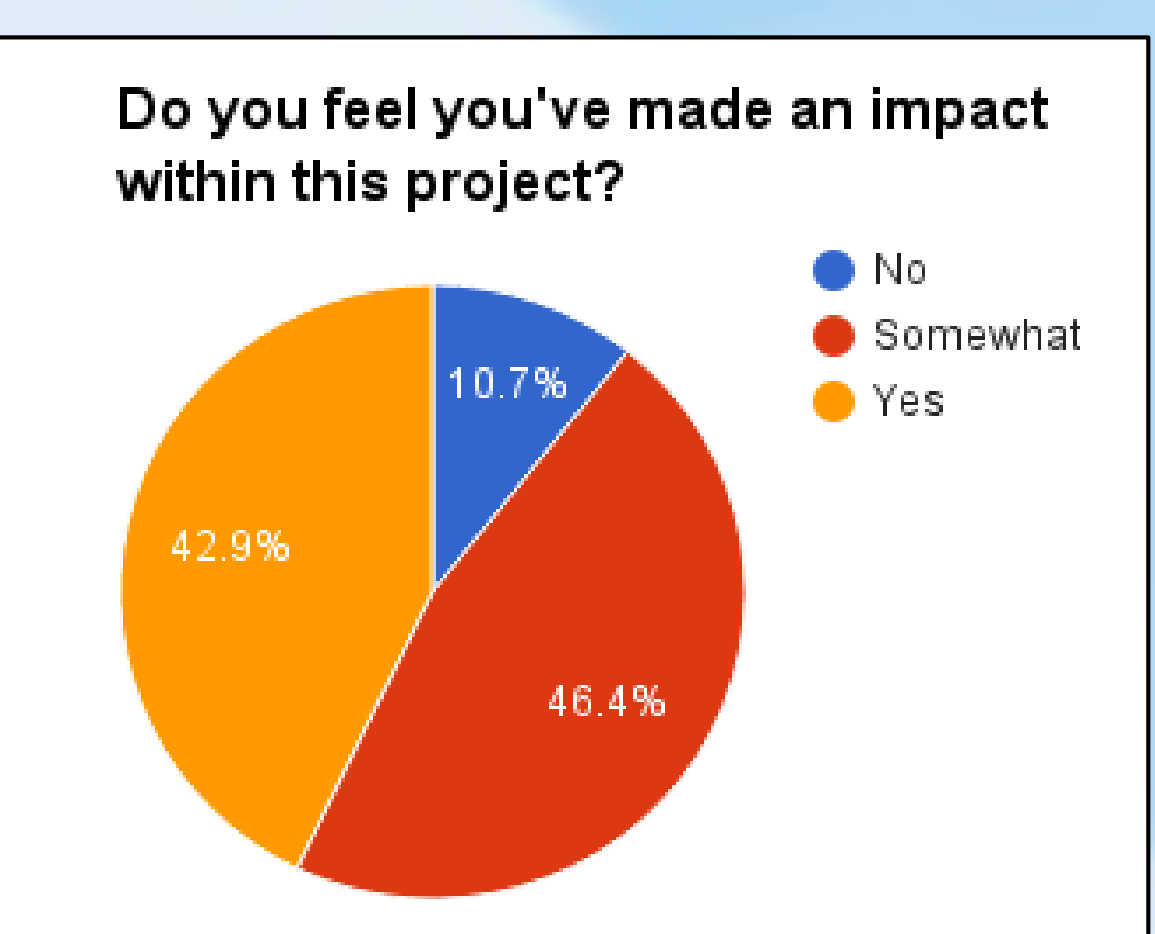
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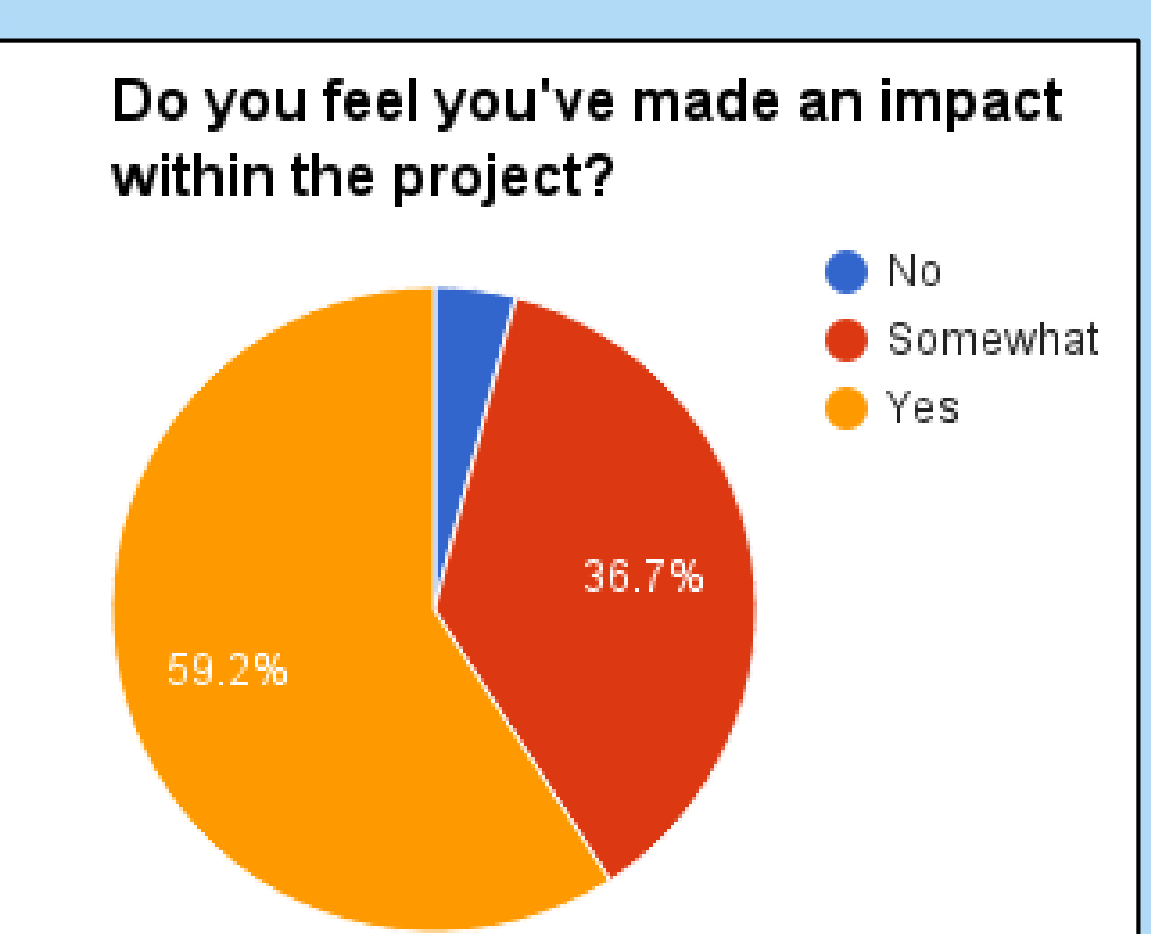
Here you can see that while more people who were given tasks reported some improvement, overall those who took tasks gave 26.5% more positive responses. This suggests that **because of the increased responsibility associated with task-taking structure, members get somewhat better at managing their time.**

QUESTION 6

GIVEN:



TAKEN:



The plots above show that 16.3% more of those who take tasks reported having a sure impact on their project. As was stated in the results from the other questions, **task-taking structures are likely to increase members' investment and success in the project, and as is shown by question 6, also their sense of importance and impact.**

REFLECTION

While our results were reliant on self-reported (and therefore inherently flawed) data, we believe that if these students claim that they have grown personally or professionally then it is most likely true, even if that growth is only a small amount. And regardless of the magnitude of growth, there is a definite correlation in direction relating to task-taking structures. To summarize, **those who take complete responsibility for their success within a project are often those who are most successful.**