A SURVEY OF GROUP WORK WITHIN COMPUTER SCIENCE PROGRAMS

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Abstract — In the business world, computer science majors are increasingly being required to participate as active members of work teams. This work-in-progress involves researching the definition and uses of group work in computer science curriculums in an effort to improve student group work skills.

Index Terms — Group work, computer science curriculum, computer science education

OVERVIEW

Computerized products are so ubiquitous that the role of computer scientists in their development has changed. Computer scientists are full-fledged members of the product team from concept through maintenance of the final delivered artifact. It is imperative that computer scientists recognize the need to work in increasingly more complex, diverse, and interdisciplinary groups.

Many constituents of computer science programs require entry-level graduates to be functional team players. It falls on curricula developers to determine how to best prepare their students. We have begun a survey of various computer science programs as a means of comparing the role of group work within academic programs.

PARTICIPATING INSTITUTIONS

As a pilot study, we have selected Roger Williams University at Providence, Rhode Island and the United States Military Academy University at West Point, New York. There are approximately 40 computer science majors at Roger Williams University and 70 computer science majors at the United States Military Academy.

While the comparison itself is interesting, the critical conclusions that are developing revolve around defining exactly what group work is, how such data can be consistently gathered, and then developing a system of equating one institution to another.

INITIAL OBSERVATIONS

Roger Williams University provides no group work experience to incoming computer science majors. Near the end of their second semester, first year computer science students receive a lesson on group expectations followed by a small group project. Students are exposed to an increasing amount of group work throughout the remaining three years of their education, culminating in a two-semester senior design course. The intent is to have each major work with every other major at least one time.

In contrast to Roger Williams University, students at the United States Military Academy are constantly in a group work environment because of the student military organization and structure that permeates the Academy. In addition to being computer science majors, all students have responsibilities within the cadet military organization during the last three years of their academic experience.

Computer science majors at the United States Military Academy are introduced to student group work as freshmen. Like computer science majors at Roger Williams University, senior computer science majors at the Military Academy complete a two-semester senior design course.

It is important to note that there is no single answer as to how much group work should be incorporated in a program.

BENEFITS

There are many potential benefits from a common understanding of group work within computer science programs. For example, academic institutions should be able to share course experience, lessons learned, and team projects.

CHALLENGES

There are several challenges involved with this research.

- There is currently no common definition of academic group work.
- There is no common academic environment. Computer science program resources vary widely from institution to institution.
- There are no common academic tracks and courses. While ABET and other standards-based organizations can help narrow the distance between computer science programs, that gap will never completely close.

FUTURE RESEARCH

Research on this topic is still in its infancy. We plan to finalize a widely accepted definition of group work, further define the advantages and disadvantages of various approaches to group work, and determine how best to share group work ideas and successes.

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\(^1\) The views expressed in this article are those of the author and do not reflect the official policy or position of Roger Williams University, the United States Military Academy, the Department of the Army, the Department of Defense, or the United States Government.

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