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Strategies to Fund Community Service Capstone Projects

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Abstract: Many capstone programs have been successful in featuring service-learning projects and current trends show more programs venturing in this concept as part of their community outreach efforts and providing their students opportunities for societal and global impact. A major challenge in these efforts is funding the development, deployment and long-term preservation of the service-learning projects. This work-in-progress examines the funding initiatives that have been successful and explores further ideas for funding. The authors share the preliminary findings with the capstone community, anticipating feedback to help develop a resource of funding ideas to either initiate or further develop service-learning capstone projects.

Keywords: *Service-Learning, Community Outreach, Non-profit, Funding*

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Introduction

The concept of service learning within engineering capstone programs has been in practice for many years. Many programs have had long term success in providing service projects to their communities and multiple non-profit organizations (NPO)[1,2]. Service-learning projects are becoming increasingly common among senior capstone design programs[3]. One of the biggest challenges reported is funding these projects. Because of the level of complexity of the projects and how capstone design courses are created and supported at institutions, these programs typically need support and funding for prototype equipment and materials, student travel, faculty involvement, and program staff, events, and daily operations.

Capstone programs have used a variety of methods to secure funds for service-learning projects. Many programs are provided internal funds from their institution or have been awarded non-recurring funds from institutional programs[1,4,5,6]. When internal funds are not available to support all the efforts, programs must independently search for the funds from external sources. Even when internal funds are initially available, programs may still have to search for external funding to support the long-term continuity of the program[7,8].

Obtaining this funding requires extensive effort on the part of the program to secure continuity of the community service initiative. For example, the program at the School of Computing and Information Systems Grand Valley State University delivers software projects with minimal development and deployment costs[2], which they seem to fund through donations. However, their faculty are expected to provide ongoing tech support after project delivery in order to help secure future projects for the program. Other methods described in research include obtaining external funding through grants[4,9] or having students contribute their own money to help support project completion[5,8].

Preliminary Findings

This study aims to describe the best strategies to secure funding for service-learning initiatives in capstone design programs. The following section lists the funding initiatives identified from the literature described above and suggests additional ideas for funding. Only one idea from the literature above was not included, which is expecting students to help fund the projects. The authors do not support this approach to funding any type of capstone projects.

1. Large programs such as EPICS at Purdue have institutional support for the administration of the program, for the faculty involved in project development, and for prototype development[1]. While this may seem to be the most ordinary path for program funding, it is not easy for departments and colleges to secure this funding, especially at public and small institutions. Nevertheless, EPICS also relies on either corporate sponsorship or their community partners to raise funds for project deployments. They have also obtained grants for research or community outreach purposes.

2. Some programs have obtained external grants to financially support the capstone programs undergoing research efforts. Examples of grant providers are the U.S. Department of Education, National Science Foundation, Corporation for National Community Service, and industries sponsoring community service.
3. Many institutions have opportunities for internal non-recurring funding, either as seed-funding or awards. Some programs have successfully leveraged those opportunities, however as non-recurring, these can only help with initiating these efforts or supporting specific instances of projects.
4. Following the technological trend, some programs have been successful by only undertaking software projects. While these might still require funding for software, cloud computing or hardware, the costs are usually minimal compared with other engineering areas. The biggest challenge is providing a solution that does not require an unfunded long-term commitment from the capstone program.
5. When initial development funding is available, a possible long-term funding source might be through the NPO's established funding channels. As one program described, the non-profit in one project partnership was able to secure funding from their funders by leveraging the students' initial work[10]. For larger NPOs, this approach might allow to secure commitments for long-term projects with the expectation of their funding.
6. A short-term solution is to seek immediate project specific funding from current sponsoring industries, where they pay forward a service project as if it were their own project. This approach might work when the sponsor has an immediate interest, which could be company promotion or student recruitment. Industries might also be attracted if they have direct relationship to the project, such as usage of their products or services, being in the same vicinity of the sponsor site, or being a regular donor of that NPO.
7. Fund raising could also be achieved by reaching out to the community, industry, and alumni for donations to be used for specific project completion[8].
8. Fund raising efforts could also aim to establish an investment fund (endowment) as a way of investing long term towards providing a recurring source for funding community service projects.

Future Work

The authors continue to search for proven strategies and evaluate new strategies to secure funding for service-learning projects. The analysis of these results should help develop a list of strategies for approaching industry and NPOs to secure funding for service-learning projects. The authors expect this study will help capstone programs obtain funding to either initiate or further develop a service-learning component to their programs.

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