

Managing Scope in Service Learning Projects

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ABSTRACT

Service learning projects enable students to work on real-world problems brought by stakeholders that produce real-world benefits. While the value and advantages of involving external stakeholders in student projects have been recognized, very little work has been done about formally assessing the scope of such projects. If the project is not scoped correctly from the outset or if there are factors that can significantly increase the potential of scope creep, a successful project outcome can be in jeopardy. We present work in progress to build a formal model to assess the scope of service learning projects that would help instructors and stakeholders better understand and refine the project requirements.

CCS CONCEPTS

• **Social and professional topics** → **Computer science education**.

KEYWORDS

Software engineering, service learning, student projects

ACM Reference Format:

Stan Kurkovsky. 2022. Managing Scope in Service Learning Projects. In *Proceedings of the 27th ACM Conference on Innovation and Technology in Computer Science Education Vol 2 (ITiCSE 2022)*, July 8–13, 2022, Dublin, Ireland. ACM, New York, NY, USA, 1 page. <https://doi.org/10.1145/3502717.3532138>

ASSESSING PROJECT SCOPE: WHY AND HOW

Computer Science Curricula 2013 (CS2013) suggest that graduates of our programs must be able to "apply the knowledge they have gained" by being "involved in at least one substantial project" that gives an opportunity to "work on a larger scale than typical course projects." Service learning [1] offers an effective framework to address these CS2013 guidelines by providing students an opportunity to participate in real-world projects where they can apply their knowledge to provide computing solutions to problems that matter to their community. Service learning projects present computing and software development from a socially relevant perspective where students get to work on real-world problems brought by stakeholders that produce real-world benefits [2]. These stakeholders often represent local non-profit and community organizations, as well as broader social communities or charities.

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ITiCSE 2022, July 8–13, 2022, Dublin, Ireland

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ACM ISBN 978-1-4503-9200-6/22/07.

<https://doi.org/10.1145/3502717.3532138>

While the value and benefits of involving external stakeholders and their role in service learning projects have been recognized, very little work has been done about formally assessing the scope of such projects. For example, Steghöfer et al [3] write, "it is the responsibility of the teacher to adjust this expectation in advance, so as to avoid frustrations on the part of the student over an unrealistic project scope and on part of the stakeholder over not reaching the aims." Similarly, Bloomfield et al [1] suggest that "a reasonable estimate for a properly complex and scoped project" can emerge as a result of several meetings with the stakeholders.

We are currently working on a formal model that would help assess the scope of service learning projects. The objectives of this work would enable the instructor to better understand the feasibility of a possible project along with various associated risks to a successful project outcome. This model is also aimed to help the instructor and stakeholders to modify the project scope to improve its fit with the targeted academic setting.

Some of the dimensions that this assessment model would address include the following:

- **Technical feasibility:** are the necessary resources, data, tools, and technologies available to students and/or the stakeholder?
- **Skills matching:** do students have the skills needed to address the project requirements, will they have adequate time and background to acquire them?
- **Amount of effort:** how many students should be on the team, how many sprints may be required for the desired amount of features?
- **Stakeholder involvement:** is the stakeholder committed to be actively engaged throughout the project, are they willing to prioritize the requirements to provide student teams with enough agility in planning their work?
- **Stakeholder reliability:** how well does the stakeholder understand what they need, can they clearly articulate the business problem that needs to be solved or the workflow that needs to be automated?
- **Outcome measurement:** how do we determine the extent to which each project feature has been completed, what types of outcomes can be considered as adequate/good/excellent?

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