

BIDIRECTIONALLY BENEFICIAL WICKED SMART SOLUTIONS TO WICKED PROBLEMS

Introduction What is S-L and how does it relate to Wicked Problems?

There are a great many issues in the modern age that do not have simple answers; problems that, no matter what prospective solution you examine, there seems to be no way of satisfying everyone. How do we best deal with climate change? What should be done with the Israeli-Palestine conflict? And, most pressingly for Huskies in 2019, is Chicken Lou's a delectable treat, or merely a cardiac arrest inducing grease-fest? These types of problems are often referred to as 'Wicked Problems', essentially meaning that they do not have a definitively 'correct' solution. [1] Another important aspect of Wicked Problems is that any solution is a "one-shot [operation] with no opportunity to learn by trial and error since every attempt to solve a problem counts significantly." [2]

No matter what stance you take on any of the above issues, and many more Wicked Problems like them, it is certain that you risk offending a great number of people, and potentially even alienating yourself in the process. However, there are certain situations for which particularly elegant solutions exist, and, if found, can benefit both sides of a chasm-like dispute.

In my career at Northeastern, one educational tool has stuck out to me as providing a beautiful illustration of the power of these pan-beneficial solutions: Service-Learning. It is possible that many of you may have taken an S-L course, and I would be unsurprised to hear opinions ranging from admiration to abhorration. Based on my experiences and readings, I believe that most negative experiences with S-L stem from bad organization, or a misunderstanding of the core tenets that underpin this fascinating pedogeological theory. To this end, I wish to briefly define and examine what these ideals are, and why they apply to Wicked Problems.

It is difficult to pin down the exact first use of Service-Learning ideals, but Robert L. Sigmon, a pioneer of S-L in the USA, wrote a well referenced article in 1979 stating the three fundamental principles of an effective S-L program:

Principle one Those being served control the service(s) provided.

Principle two Those being served become better able to serve and be served by their own actions.

Principle three Those who serve also are learners and have significant control over what is expected to be learned.[3]

These principles, if followed, ensure that every relationship in the S-L environment is bidirectionally beneficial.

As in principle one, the community being served should be able to define what it wants, and be able to effectively continue improving itself, rather than becoming reliant on service. As the old proverb says; “If you give a man a fish, he eats for a day; If you teach a man to fish, he eats for a lifetime”.

Students should learn and teach in equal amounts, allowing for continuous growth for all parties, as in principles two and three. This not only helps everyone involved, but also paves the way for the communities to work even more effectively together in the future, effectively making a positive feedback loop. The fact that the students are also learning from the community is also a valuable learning experience, especially for students from more privileged backgrounds.

As such, S-L is an elegant solution to the issue of community service, as it allows for a service experience that creates more than the sum of its parts and minimizes the possible superiority complex that service often unfortunately facilitates.

A Cornerstone Experience *How Is This Useful in *The Real World*™?*

I first encountered Service-Learning working with a Cornerstone of Engineering course, a requirement for all freshman engineers, helping to both design and facilitate the S-L section of the class. This was a fascinating experience for me, as I had only ever seen alternative teaching styles from the point of view of the student, and I thoroughly enjoyed being on the other side of the proverbial chalk. There was one particular moment that stands out in my memory, and looking back I can see clearly the ways in which I applied the lessons of Service-Learning to elegantly solve two seemingly unrelated problems.

There was a student in the class – let’s call them *A*, for Anonymity. *A* was an extremely intelligent and well-read student, especially in the field of social inequality. However, they

were not engaging with the class in the ways that the professor wanted and needed them to, and their grades were suffering as a result. Part of the reason they were not engaging was due to a fear of the professor as an authority figure, and a lack of self-confidence regarding their abilities.

Concurrently, the professor was struggling to articulate her issues with a particularly troubling set of responses to a prompt: the assignment asked the students to compare themselves to a group of elementary school students who would be the target audience for their final project. The group was mostly made up of first- or second-generation immigrants into the US, and the school, whilst being above average nationally, was not as highly ranked as many of the schools our freshman students had recently graduated from. The students had had a chance to meet each other the previous week, and the hope was that our students would note certain differences, but conclude that they were fundamentally similar, enjoying certain foods, media, and activities, and emerge with a better understanding of how to design for them. Unfortunately, this was not the case. There were generalized negative comments regarding the neighborhood's average intelligence level & work ethic, which was particularly offensive to the professor, since she lived in the same neighborhood. However, she did not feel that she had the experience or training to know how to best deal with this situation. We were discussing what would be the best course of action to take to ensure the students understood the gravity of their mistakes, whilst ensuring that she did not take the remarks personally. As a straight, white, cis male from a privileged background, I felt that it might *not* be my place to advise her. As such, thinking of how S-L championed the bi-directional learning approach, I recommended that we privately seek the counsel of A, who had written an excellent response to the assignment. This would allow our student to gain some degree of confidence in the course, even if it was adjacent to the main learning objectives of CAD and design, and also allow them to see the professor as a less intimidating figure.

Without the ideas of S-L allowing me to view the situation as an opportunity, rather than a problem, this could have easily been viewed as a Wicked Problem, which often form when groups entrench their opinions and have an 'us vs them' rhetoric. By listening to A's feedback and incorporating them into our process, we followed the idea of bidirectionality that underlies S-L. This approach was successful in the short term, with A providing indispensable insight during our meeting, and the professor having a meaningful conversation with the student, thereby breaking the initial barrier of communication.

Conclusion

Service-Learning and other educational philosophies are not miracles. They require careful design, implementation, and maintenance to be effective, as can be seen by their failings in my haphazard, impromptu application of their principles. However, my experience with S-L has certainly impacted my education in many unique and subtle ways from both sides of the educational equation. It was a rich and valuable experience, and my learning went far beyond what I realized at the time. I now know that, in a well-designed S-L experience, everyone is learning from each other, again showing the architecture's usefulness for attacking Wicked Problems.

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