Special Session: Building Intentional Community Partnerships

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Abstract

Recent growth in community engagement programs in engineering education reveals the importance of partnerships and community; however, there has been minimal research and reflection on how to design community engagement programs to represent the needs and rights of the community. This interactive special session addresses this gap by challenging participants to learn and critically think about the communities they are serving. This paper outlines the theoretical foundations for this workshop, with an overview of two publications: one that categorizes the way engineers work with the people they serve either as clients, stakeholders, users, or citizens; and the other that categorizes specific interactions, activities, and the language of community engagement partnerships as transactional, cooperative or communal. In addition to the theoretical grounding, the paper also provides a summary of the activities that we will be facilitating during the special session, including analyzing cases and design tools, reflecting on current program structures, and creating an action plan to implement changes in the participants' current, anticipated, or imagined engagement programs. By the end of the special session, participants will be able to evaluate their past, current or future partnerships, observe how program structures can influence partnerships, and assess the differences that these partnerships can make in the success or failures of community engagement programs. Participants will leave the session with a practical action plan to implement the types of partnerships they wish to build with their community.

1. Introduction

In the last decade, there has been a significant increase of the number of community engagement programs and a growth in research on these programs. As a result of this upsurge, new publication venues have also been established, including the *International Journal of Service Learning in Engineering* (IJSLE) founded in 2004[1], and the new ASEE Community Engagement division founded in 2013.[2] Related research has primarily focused on students, with particular emphasis on knowledge and skills; attitudes and identities; recruitment, retention, and diversity; and professional performance.[3] The other constituents in the partnerships, such as faculty and partners, are now also starting to receive attention in the research. For example, research on faculty members' experiences and motivation in community engagement activities was carried out through the NSF-funded Engineering Faculty Engagement in Learning Through Service (EFELTS) project.[4,5]

Other research has been concerned with classifying partnerships, recognizing that not all partnerships with the community are the same may not result in the same outcomes for the community or the students.[6,7,8] This paper summarizes two related publications that categorize relationships, as well as activities that engineers undertake with the people and groups they serve. This theoretical background is used to guide a special session, which is aimed to provide understanding and guidance on how to best organize community engagement partnerships so that they may best support communities.

Although it is not in the scope of this paper nor this workshop, the authors believe that the type of relationships that are formed with the community impacts the ontology of, or the way of

being, an engineer. It is our hope that by experiencing relationships that are built on reciprocity with communities, we train students to be engaged citizens.

2. Theoretical Background

This section of the paper is a review of two theoretical frameworks that have characterized the interactions and relationships engineers have with the people they serve. The first framework is from Lucena's book chapter titled "Engineers and Community: How Sustainable Engineering Depends on Engineers' Views of People," which provides a historical analysis of the relationships that engineers have had with the people they serve, paying specific attention to the aspect of listening and impacts on sustainable development.[7] The second framework is based on Thompson's dissertation research on engineering community engagement partnerships.[8] Thompson categorizes the nature of interactions, activities and language as *Transactional, Cooperative,* and *Communal (TCC)* to understand the ways in which the structure of programs influences the nature of partnerships.

2.1 Engineers and the People they Serve[7]

Lucena provides a historical overview of the different relationships engineers have had with the people they serve, examines the listening styles within these relationship, and identifies how these relationships impact sustainable development.[7] In each of the relationships, the engineers have a different concept of people, and the concept influences the interactions. This sub-section reviews each of the four conceptions, namely people as: clients, stakeholders, users, and citizens.

2.1.1 Engineers and Clients[7]

Description: Lucena describes the client perspective as having a dyadic relationship between an expert, the engineer, and the non-expert, or client. The client provides a problem and constraints to the engineer who has the knowledge and skills needed to develop a solution.

Listening Style: While looking at people as clients, engineers often rely on organizational structures during the listening process. For example, engineers may take constraints from marketing and turn them into design specifications for manufacturing. Throughout this process, the engineers are involved in *basic* listening. Basic listening characteristics are described as:

- One-way interaction of speaker to receiver, usually top-down.
- Hearing and speaking are considered main outcomes, and there is minimal attention to accountability and transparency.
- Situated contextual issues are often considered *unimportant*. And
- Minimal emphasis on observing, self-reflection, contemplation, and inviting participation.[9]

Impact on Sustainable Development: There are numerous issues associated with viewing people as clients while addressing sustainable development.[10] First, the approach ignores or simplifies complexities, and often assumes homogeneity of the clients. Second, it assumes that cultural differences are trivial. Third, it ignores the expertise of the "client." Unless there is a high

commitment to sustainability, interactions with the engineer and client will not likely result in a sustainable solution.

2.1.2 Engineering and Stakeholders[7]

Description: The concept of stakeholder recognizes the variety of perspectives and interests among those with a stake in a technical solution (project, system, process, etc.). Browning and Honour describe a stakeholder as "any individual or group with a vested interest in a system."[11]

Listening Style: There are a variety of stages in the typical stakeholder relationship. The first is stakeholder identification, where engineers determine who is considered a stakeholder for a project or process. Second, engineers need to listen, which is often a form of basic listening, as described prior. Yet unlike the client relationship, there are multiple conversations with different stakeholders that the engineer needs to consider. Third, the engineer needs to make a decision on which, and to what extent, various preferences and values are considered within the parameters of the solution.

Impact on Sustainable Development: For sustainable development, at least one stakeholder needs to value sustainability; this value needs to be recognized and then included as a heavily-weighted solution parameter. This approach is often not employed, and other parameters such as cost and profit are prioritized as compared to sustainable factors such as the impact to the environment.

2.1.3 Engineering and Users[7]

Description: There are multiple possible concepts of users: *passive users* are viewed as the forces driving consumption; [12,13] *reflexive users* are seen to use technology in the same way as engineers;[14] and *imagined* or *projected users* have specific values and preferences anticipated by the engineer.[15] The concept of *reflexive* or *projected* user is common in engineering design class work, where students imagine themselves as, or make assumptions about, users.[7]

The user can also be seen as a *complex agent with creative capacity*. For instance, Oudshoorn and Pinch highlight "how the co-construction of users and technologies may involve tensions, conflicts, and disparities in power and resources among the different actors involved."[16] In this concept, the user is recognized as having multiple identities and is an active agent throughout the technological process.

Listening Style: Listening to users challenges engineers to recognize, understand, and incorporate a diversity of user identities and acknowledge their agency as co-creators of technologies. This approach should be done through *contextual* listening. Contextual listening enhances human potential, builds relationships, and requires an understanding of the socio-political context. Contextual listening characteristics include: [9]

- Multidirectional empathic interactions and dialogue and the building of trust,
- Focus on users' empowerment and project ownership as desired outcomes,
- Allowing for challenges to engineers' expertise by non-engineering users,
- Inviting accountability and transparency,
- Emphasizing openness to others,

- Recognizing that specific contexts significantly shape individuals' roles and abilities to engage in dialogue,
- Aiming to unveil biases in the interactions among engineers and users, and
- Promote multiple perspectives coming from a diversity of users and non-users.

Impact on Sustainable Development: When the engineer integrates the concept of users as *complex agents with creative capacity,* the process utilizes *complex listening*, and has the user as a co-creator and co-maintainer of the proposed solution, the solution is likely to result in sustainable development. Bridger and Lulloff add that the following five dimensions are needed for a SD project or initiative: local economic diversity, self-determination, biological diversity and stewardship of resources, reduction of energy use and materials, and social justice.[17]

2.1.4 Engineering and Citizens[7]

Description: Viewing people as citizens recognizes all people as being complex individuals, with social and human rights. This includes the following characteristics:[18]

- There are complex and conflicting relationships,
- Relationships are shaped by differences in power and privilege,
- It is important to recognize alliances with a particular common purpose(s), and
- Citizens have rights, including the power to decide, vote, call projects off, capacity to define problems and propose solutions, intellectual capital, etc.

Listening Style: Listening to people as citizens requires contextual listening, while focusing on rights. Holland suggests focusing on three points. First, determine the rights identified by the people, the rights granted to them by the state (with emphasis on the any contrast of the two), and human rights. Second, identify the obstacles citizens have in accessing the rights. And third, support institutions in the realization of human rights.[19]

Impact on Sustainable Development: Acknowledging, understanding, and addressing human rights often overlaps with addressing environmental issues. For example, the right to breathable air and clean water requires the preservation of water sources and the maintenance of fresh air. In order to work with people as citizens, and give them rights to make critical decisions related to a project, the process itself results in people having a higher degree of autonomy with their environment. Lucena's chapter offers additional examples.[7]

2.2 Transactional, Cooperative and Communal (TCC) Framework[8]

The TCC framework is grounded in previous research examining partnerships in service learning[6,20,21] and informal science education centers (e.g., science museums and aquariums).[22] The framework categorizes the nature of interactions, activities and language within the partnerships, and is not meant to be hierarchical – there are benefits associated with each type of interaction and most partnerships will likely have elements of at least two. Most individuals or programs tend to idealize cooperative or communal partnerships; however, these often take much more personal time and energy to be done well, and still issues can and do arise. Thompson builds on Morton's[23] research, which takes the anthropologist Charles Geertz[24] concept of "thick"

and "thin" to highlight that different paradigms of service can have a thick or thin versions. As Morton explains:

> The thin versions may take the forms of paternalistic or self-serving charity that imposes services on unreceptive "others;" projects that magnify or institutionalize inequalities of power, produce outcomes that are worse than the original problem, or lead to unrealistic and unsustainable dependencies; social change work that is only rhetorical, narrowly selfish, and against a wide range of offenses without offering alternatives. And any of the paradigms can raise false expectations, inflame social divisions and leave people tired and cynical.
>
> The thick versions of each paradigm are grounded in deeply held, internally coherent values; match means and ends; describe a primary way of interpreting and relating to the world; offer a way of defining problems and solutions; and suggest a vision of what a transformed world might look like. At their thickest, the paradigms seem to intersect, or at least to complement one another.[25]

The following subsection will discuss the transactional, cooperative and communal relationships, including the description of the thick and thin versions of each of the three relationships.

2.2.1 Transactional[8]

Description: In the transactional relationship, the identity of the community is separate from that of the program. There is a sense of "otherness," or an "us" and "them" relationship. In the context of the project, there is a mental model of the program providing a solution or product for the community, and the interactions, activities and language reflect a dyadic relationship.

Thick: When a transactional relationship is done well, the transactional approach recognizes and respects the stakeholder groups involved in the partnership, while also maintaining clear roles and responsibilities within the groups. The transactional relationship provides the program greater consistency, scalability, durability, efficiency, and potentially a lower time commitment for many constituents. The constancy across partnerships can also allow the program to have certain characteristics that can be found in all partnerships. This quality can result in a sense of uniqueness or identify for the program as a whole.

There are specific roles that individuals can take on, so stakeholders can be trained in such roles, and enter into the partnership knowing the amount of time and personal energy needed to meet the expectations within the partnerships. This relationship can be more accessible to faculty and community partners lacking a personal passion for community engagement, and/or those with less time and energy to invest in a partnership. Faculty advisors or partner liaisons can learn the program, fit into the role, and complete the task. When done well, this type of relationship can serve a specific need for a community while offering a learning experience for the students.

Feinstein and Meshuolum highlight the benefits of more transactional strategies to "offer more efficient ways to address particular well-known and deeply entrenched problems" and "protect and enhance the things that make a particular [Informal Science Education (ISE)] organization interesting and unusual."[26] ISE organizations, similar to many service learning programs, tend to

be underfunded. Having financially efficient ways to address an issue, when there is already a clear need, may be more important than working closely with the community to define a need and determine, together, how to develop a solution. Also, ISE organizations have another community they are working within, namely their professional communities. ISEs learn from other organizations and will have varying amounts of alignment within their own community.

Thin: When the transactional relationship is done poorly, the community is not included in the decisions, and there are assumptions made within the projects that do not meet the needs of the community. In these cases, the relationship becomes unilateral, and one partner will either not take into consideration or will make incorrect assumptions about the needs and goals of the other, or may even exploit the other partner for their own benefit. For example, the students may assume that the partner may need a highly technical solution to fix a problem, yet there are more simple solutions that would better fit the need of the partner. Or, a partner uses students for data gathering tasks without considering the educational goals of the program.

2.2.2. Cooperative[8]

Description: The cooperative relationship has the program (i.e., students, advisors, and administrators) working with the partner (i.e., community partner, sponsor and intended end users) as a single team. There can be separate roles, yet there is an intentionality to blur the lines and work as a cohesive whole. There is more a sense of a "we" mentality, seeing both the community and the program working together. In the context of a project, the activities, interactions, and language show recognition for the expertise of the differing individuals. Regular and consistent interactions are needed to insure the voices of all the constituents are included throughout the project.

Thick: When the cooperative relationship is done well, there is clear intentionality and integration of the partner throughout the process, increasing the likelihood that the projects are being created with the voice of partner and the intended users. Feinstein and Meshuolum state that cooperative partnerships may "maintain more fluid and dynamic connections with their changing communities, recognize and meet the needs of smaller and less visible minority groups, and open up a broader array of partnerships with local agencies and organizations."[27] Using the cooperative relationship during design also teaches the engineering community engagement students the importance of listening to and integrating the stakeholders during the design process. This approach also challenges the overarching paradigm that engineers are the ones that solve problems, since there is greater awareness and recognition that they are only one part of the solution. The cooperative model within the overall structure allows the program to be clearly molded for each unique partnership that develops, since the partners will work together to determine what needs can and should be met for the benefit of all the constituents of the partnership.

Thin: The cooperative partnership involves shared decision-making, progress may take longer, and there is a higher chance of conflict to arise. If there are personal conflicts or cultural differences, the project might focus on the process. There may be a decision to only engage with community members who agree with the mission of the program, while others in the community who do not align with the mission are not included within the decision-making process.

2.2.3 Communal[8]

Description: In communal relationships, the "we" mentality is expanded from the partnership outward to and include the wider community or even society more generally.

Thick: In the "thick" version of a communal partnership, individuals explicitly recognize and reflect on the value they are bringing to the community, have a sense of openness to new opportunities that may arise. Typically, a core group of the involved individuals have a deep commitment to parternships, as it represents their passion and dedication to improving the community through the program. The funding, planning, and operations are done as a cohesive group, and the project is grounded in a socially just cause. The benefits of communal relationships include recognition of serving the wider community, and even society as a whole. The students may also be more oriented toward civic responsibility and there is recognition of not just the intended end user, but deeper reflection on the complexity of the project.

Thin: The "thin" approach to the communal partnership is characterized by a number of possible issues. For instance, Johnson[28] suggests that privileged individuals may feel a sense of guilt, and due to this guilt, they decide to go "help" a poor community. The intention might seem communal, as they may be driven by spiritual or other reasons and see the context of a larger "we," yet are truly doing the project for themselves and not the community they are intending to serve (e.g., Carlson, 1995). Without deep reflection and growth of oneself and the program, there may be only superficial aid, without recognizing or addressing the root causes of an issue.

2.3 Summary of Theoretical Frameworks

The above frameworks proposed by Lucena[7] and Thompson[8] will provide the theoretical basis for the special session. These two frameworks provide different by complementary perspectives on engineering community engagement partnerships. There is, in general, some overlap in the frameworks. Lucena's concepts of people as clients and stakeholders resonates with the transactional approach described by Thompson. When the user is considered a co-developer, and the multiple identities are recognized, this would correspond to a more cooperative approach. There are also similarities in viewing people as citizens and the communal approach, as both recognize the rights of people and work towards socially just causes. Yet the categories are more abstract and approach the relationship in two different ways, one through community and the other through human rights. These two categories should not be directly interchanged.

3. Special Session Outline

The special session will be a 90-minute workshop where participants will be introduced to the key frameworks that categorize different ways to include participants into their programs. Below we have provided an outline and a summary of each activity of the workshop.

Learning objectives: Our intention is that the participants in this session will:

1. Gain a deeper understanding of the relationships that are formed through community engagement programs and the people they serve.

2. Be able to identify how interactions, language, and program structure impact the nature of partnerships.
3. Have an action plan to set up or alter a program that reflects the type of relationships they wish to have with their community partners.

Introduction: The introduction of the special session will be focused on exploring community. There will be times for individual reflection and group dialog. Some of the guiding questions include: What is community? How should the community be involved in projects? How should community be involved in programmatic decisions? What types of communities should programs serve?

Theoretical Grounding: There will be an overview of the frameworks described in the theoretical background section. These frameworks will be explained through handouts, case studies, and videos, as well as examples identified by the participants.

Group Activities: Participants will be split up into groups, and provided with case studies and design tools. They will be asked to read over the material and analyze it according to one of the two frameworks. This activity will reinforce the understanding of the frameworks and provide a richer understanding of how the program structure and activities impact the relationships that programs have with the people they serve. We will report out and discuss in the larger group the impact of various design activities in which students participate.

Reflection on Programs: We will be pulling from the questions below for individuals to think about and reflect on by themselves and/or in small groups. There are more questions posed than will be discussed in the session so that the participants can continue to reflect on the programs after the workshop. The reflection process is not meant to be a one-time event and should be done continuously. The participants will also be asked to write down three ways they can improve their own program (real or imagined) and will be asked report their thoughts to the group. The prompts include:

1. What is the purpose or the intention of your program? What type of relationships does the program support with the communities they serve? How do your students view the partner communities?
2. How do the activities of the programs support the relationships you would like? How to the activities contradict these relationships?
3. How can you change existing activities and/or add new activities that support the type of relationships you would like to cultivate?
4. Who are the partnering organizations? Do they want to have the type of relationships you wish to have? Do they have a preference for a certain nature of relationship?
5. Who are the individuals involved, e.g., the students, the faculty, administrators, community partners, and community members? Are they interested in supporting the type of relationships that you wish to cultivate?
6. How do interactions with the community take place? When are they involved, and when are they not involved? How do these interactions reflect – or fail to reflect – the desired nature of the partnerships?
7. What projects will you do? How will the project itself facilitate the types of relationships you would like to have with the community?

8. How do the students build relationships with the community? How do the interactions between students and community partners support the nature of relationship that you would wish to have?
9. How do you communicate the type of relationship within documents, publications, and marketing material? How will you communicate the relationships to accrediting agencies or organizations? To potential students? To the community? Do marketing and publications reflect the type of relationships that you have or wish to have with the communities? (More information related to this question can be found in recent paper by Arrazattee, Lima & Lundy.[29])
10. What changes do you want to make after learning from this session?

Large Group Discussion: This special session will conclude with a discussion organized around two main topics. The first is the element of community and the complexities of collaborating with community. And secondly, we will ask individuals to discuss specific ways they will put into action the concepts they learned in this session.

4. Conclusion

This paper provides frameworks and outlines a workshop to be a guiding post in the development of engineering community engagement programs and partnerships. The Lucena framework provides an understanding of how the client and stakeholder relationship, which is very common in engineering, can provide a dyadic relationship, similar to the transactional relationship described by Thompson. Transactional relationships have a lower learning curve and require a lower level of engagement, since there is not as much need to know the community well. This can be appropriate when a problem is well defined or there are other constraints, such as a semester timeline. However, by not including the people as co-developers, there is much greater risk of making incorrect assumptions, oversimplifying cultural considations, and/or providing a useless or possibly even harmful solution for the community.

Alternatively, program leaders and students can have the community more integrated into the program and project development. This will take more time and energy by all the participants, and will require a deeper type of contextual listening, and will likely not fit well within more traditional academic structures. The process of deciding the relationship the program wants to have with their community needs to be an ongoing dialog, grounded in historical context and reflection. Hopefully, at the end of the workshop, the participants will be on a path of reflection, thinking about their current relationship with their community and how their program structure can be framed to meet the needs and rights of the people and communities they wish to serve.

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