Variety of Community Partnerships in Related Programs

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Abstract

The National Society of Black Engineers' Technical OutReach Community Help (TORCH) program aims to promote the value of Science, Technology, Engineering and Math (STEM) education at all levels by increasing exposure, enthusiasm, skills, and participation within the Black community. This initiative is accomplished through unique formal and informal experiences led by Black college student-leaders within the student-run national organization at local, regional and national scales. The program components include formal classroom-style training, informal activities, grassroots outreach, direct technical service and, for organizational reasons, traditional community service activities as well. The program was developed and is managed centrally, but the majority of program implementation is facilitated by host organization's chapters, operating independently. The success of the program is driven by the student chapters and the community partnerships they create in the implementation of its activities. Through their creativity and leadership the partnerships created have ranged from technology to education. Furthermore, frequent leadership changes annually at all levels pose an additional threat to sustaining these essential relationships. We present preliminary analysis of the formation and maintenance of community partnerships for each of the program components and their impact on the efforts. We take as examples several programs that have been active over varying lengths of time and examine the interactions between the types of partnerships, attendance at various program components and student volunteer participation.

Introduction and Program Model

The Technical Outreach and Community Help (TORCH) program was created as an umbrella program for community service within a student-run engineering professional society. The TORCH program includes activities and programs of five different categories:

- Informal Science and Engineering - Casual outreach activities, targeted at youth, that aim to show how science and engineering can be fun
- STEM Community Training - Formal, classroom style education in STEM fields, aimed at youth and adults
- Technical Expertise Services - Using technical skills to provide a direct service to help a community
- A Walk For Education - An original activity used to spread the awareness of STEM education by distributing preparation material for college and careers in STEM fields
- Traditional Community Service - Any other type of community services such as roadside clean up, volunteering at a shelter, etc.

A central objective of TORCH is to promote the value of STEM education in the Black community. An emphasis is placed on the first three components as they encourage members to apply their technical skill while giving back. The latter two components are included as a grassroots outreach component and for record keeping purposes respectively. Chapters are

encouraged to connect efforts in multiple areas through the establishment of a TORCH Center, a single location offering multiple services to the community. Additional program objectives include providing STEM exposure to, generating enthusiasm about STEM in and providing introductory STEM training within the Black community**.**

Due to the chapter based structure of the host organization and the variety of needs in individual communities, implementation is led by chapter-level student leaders. Following toolkits and guidelines established on a national level, chapters are able to tailor programming to fit the needs of their communities.

Nationally, TORCH implementation has increased in recent years. In 2009-2010 fewer than 300 hundred service hours were completed and reported, in 2010-2011 that number increased to 1,300 and in 2011-2012 over 2,300 hours of technical community service were reported with an additional 1,400 hours each of A Walk For Education and traditional community service activities. Of the recorded TORCH activities, 48 percent were hosted by chapters located in east coast urban environments. This distribution is reflective of the distribution of members overall but is biased by stronger communication between regional leadership and chapters in areas where all chapters are located geographically closer to each other.

In addition to the programmatic objectives, a set of research interests were also established. Research areas of interest center on motivations for STEM careers and the impact on the college students volunteering in this capacity. Some data has been collected from the members participating in the program. Additionally, a variety of challenges have been reported in initiating programs in new locations. The common factor in these two challenges was identified as the relationships with community partners. Catering the programmatic offerings to the needs of each community and the academic constraints of students at each university are priorities, but the current objective is to examine the partnerships that do exist. Previous research laid the pedagogical foundation for the program and outlined a longer-term research plan[1]. A second previous work conducted a preliminary analysis of the impact of the program on the volunteers[2].

Background and Objectives
The national service learning clearinghouse presents the following categories as types of partnerships involved in service learning: networking, coordination, cooperation and collaboration[3]. This guide establishes all of these as open relationships and identifies networking as the simplest; just information sharing. The next level is also low risk: coordination involves sharing information and altering activities for mutual benefit. Cooperation increases the risk level for both parties as resources are shared in addition to information and altering activities. The final category, collaboration involves altering activities not only for mutual benefit but to enhance the capacity of other partners. Collaboration involves high commitment and working hand in hand.

Previous academic investigation into service learning partnerships has identified that the term 'partnership' is used frequently, but often these are not dyadic relationships [4]. Bringle posits that partnerships should be measured in terms of closeness, equity and integrity and presents a relationships continuum on which relationships can be assessed. In preliminary analysis of this student-run service model, we have found that community partnerships must be dyadic in order for the program to succeed.

Upon the initial establishment of the program, research objectives below were also established:
- What experiences best motivate under-represented students to pursue STEM in the K-12 classroom and as a post-secondary education option?
- Do informal engineering experiences motivate K-12 students in their current STEM classroom experiences?
- Do informal engineering experiences motivate K-12 students to pursue STEM as a post-secondary option?
- How does technical community service impact college and graduate level mentors who serve K-12 students?
- Do SOL based informal experiences increase K-12 classroom performance?
- What is the impact of mentors of similar ethnic, socio-economic or other backgrounds have on K-12 students interested in STEM?

To address these questions, a truly collaborative relationship between community agencies and schools granting access to youth is necessary for information gathering. Here we address an interest in how partnerships are formed and maintained based on several successful programs and what strategies have not results in successful programs. A deeper understanding of the partnerships will enable strengthening relationships in ways that allow for more detailed impact-related data collection as well as better support for new programs.

The motivating objective is to look for correlations between the programmatic components implemented and type of partner in order to establish best practices and expand the program further. In the current work we establish a baseline understanding of partnerships that were formed independently by chapters and begin categorization within established frameworks for evaluating partnerships.

Data Collection and Summary of Results

To study the correlation between program components and partnerships utilized, surveys were used to evaluate various chapter programs. Chapters were selected to participate in this survey process based on TORCH Hours Reports that are collected at the end of each semester. These reports detail the number of activities and category of each, as well as the number of volunteers at each activity. Participating chapters were selected to complete the survey based on the frequency of hours submitted. Chapters were separated into groups based on a record of consistent program partnerships, recorded programming and beginning partnerships, and chapters that are having difficulties conducting TORCH programs based on submitted reports.

One survey was sent to a group of chapters identified as "successful" (3 of 4 returned), one group identified as "recent success" (2 of 6 returned), and one group identified as "attempted, but mixed success" (2 of 5 returned). Each group was given a survey catered to specific interests in understanding partnerships based on the status of their program. The chapters did not know different surveys were distributed. Follow-up interviews were conducted of some chapters via e-mail and in person when located in the same city as the authors.

Each survey aimed to understand the relationships gained during programs. A series of Questions sent to the "successful" chapters focused on analyzing the success of establishing consistent partnership and programing. Questions sent to "recent success" chapters analyzed what has worked for successful programs so far, and what they could improve on. Lastly, questions sent to "attempted, but mixed success" chapters were meant to understand what avenues they plan to take. Sample survey topics include: how successful partnerships were created, how chapters are attempting to create partnerships, and what issues have chapters faced when working programs with partners. All survey questions open-ended and distributed as an online form. Due to small sample size they were treated as pilot data and analyzed and compared qualitatively only. Surveys are attached as appendices.

The responses from surveys showed successful chapters have maintained their programs with effective joint program planning and constant communication with community partners. The responses from surveys showed that recent success chapters had no problem identifying potential community partners, but initially struggled to maintain effective communications. Issues were cited to as due to poor planning, including scheduling conflicts between the students and partner organizations. It was also discovered that "attempted, but mixed success" chapters have been to identify potential partners to work with, but are struggling to start those communications.

Case Studies

One successful program is at Northeastern University, in Boston, MA. The campus is bordered on two sides by housing developments which serve as ideal partners for this type of outreach. The chapter has maintained a relationship with a resident-managed development corporation since August 2008. The original partnership was established with the assistance of a recent university alumna employed at the location through the AmeriCorps program who knew of the chapter's previously failed attempt to start community computer training courses using an on campus venue. By incorporating instructional offerings into the center's activities, the center was able to free up financial resources that had been blocked due to lack of formal programming. This partnership has been maintained through 5 different chapter contacts and 4 different partner contacts.   The student contact and partner contact meet on several occasions at the beginning and end of each semester before and after the weekly programming begins/ends to plan and recap the semester's activity and adjust plans. Incoming chapter leaders meet with the staff and the outgoing leader each spring before the leadership transition each year. Meetings with

outgoing staff, student leaders and the managers have also occurred at the time of each staffing change.

The primary programmatic offering served at this center is STEM Community training. University students from the chapter teach two courses weekly: one for adults, and one for youth 10-18. By leveraging the successful partnership with the computer center, the chapter has also worked with the development corporation staff to organize a grassroots component of the program, A Walk for Education (AWFE), where students walk door to door distributing information about college admissions, local scholarships, and the course offerings. This promotion method once resulted in a waitlist for the adult computer literacy course.

The students offer instruction, while the partner takes the lead on promotion. Students prepare materials to assists in promotional efforts, but the community partner takes the lead on distributing materials and making weekly reminder phone calls to reach older members of the community.

The partner neighborhood lies within an area of the city identified as a priority by Northeastern administration and as such the university's center of community service has also provided support for the project: one time through a grant for materials purchase, and annually to include AWE as a part of the university-wide fall day of service. This provides additional volunteers for the effort and gives the volunteers the benefits from the broader effort: breakfast and t-shirts.

The Syracuse University chapter struggled to establish a program in the 2011-2012 academic year. The chapter successfully hosted AWFE in the target community, but was unable to build upon that initial step. The key challenge identified by chapter leadership was in promoting programming in the community, in order to get members of the community to attend the programs. A key difference between the efforts of Northeastern and Syracuse likely related to the challenges is that the AWFE was not conducted in partnership with an organization that could then be expanded to provide the more continuous service. The chapter identified the potential partner by choosing a community with the demographic that they wanted to serve and looking for organizations there, and had subsequent challenges in establishing open lines of communication. Chapter leaders reached out to community organization through both phone and email, but were unable to capture attention to generate frequent responses that would have enabled the project to get started. The students had no previous relationships with organizations to which they were offering the services of the TORCH program.

The NYU-Polytechnic Institute chapter is an example of a recently successful chapter, able to get started after following advice offered by leaders who were involved in the establishment of the Northeastern University chapter. The chapter had hosted AWFE previously, but not conducted follow-up programming or any of the more technically engaging components. In October 2011, the chapter began working with a community center located two blocks from the campus. A

chapter leader who grew up near the campus leveraged a childhood connection to initiate the conversation with the community organization. The center and chapter worked together to establish tutoring sessions and classroom skills training courses using the provided facilities and equipment already available in the center. Curriculum and tutors are provided by the students in chapter while the center provides advertising and children to attend. Currently, the curriculum focuses on computer literacy, with class offerings including typing skills, computer operating system basics, and computer hardware. Extra class time is also used for math tutoring. The only challenges noted by the chapter thus far were scheduling issues.

Conclusion and Future Work

Within the framework of partnerships presented by the National Service Learning Clearinghouse we can categorize the partnerships reported. First, from the three case studies, we note that the two successful chapters both started with some level of networking and have grown to coordination and cooperation. Both of these chapters used non-service related networking to identify a partner but started programming as offering content to the partner's target demographic while the partner organization provided space. The chapter highlighted as a chapter that was unable to establish a successful partnership tried to initiate a relationship at the level of coordination, without establishing a networking connection first and had challenges. From the remaining survey results we also note that successful partnerships all began with a networking connection particularly, a student in the chapter volunteering with the organization in another, non-technical, capacity, and through partnerships of some form at the university level.

Future plans include continuing to understand more partnerships that have already been formed and get more information on unsuccessful attempts as well. These finding will be built into programming guides and distributed to expand the program and into assessment tools to better understand and develop strategies for improving community partnerships. For chapters that have built a program, it is reasonable to assess the strength of the program within the transactional-transformational scale and an assessment based on the tools presented by Clayton are applicable.

[1]   L. D. (Virginia T. Thomas and M. (National S. of B. E. Smith, "Technical Outreach Community Help : An Engineering Outreach-Mentoring Program For Minorities," in *American Society for Engineering Education*, 2010, vol. 7.

[2]   S. M. Brown and L. D. Thomas, "Technical Outreach Community Help : Initial Results," in *American Society for Engineering Education*, 2011, no. June.

[3]   "Building Effective Partnerships in Service-Learning | National Service-Learning Clearinghouse." [Online]. Available: http://www.servicelearning.org/instant_info/fact_sheets/tribal_facts/partnerships. [Accessed: 07-Jan-2013].

[4]   R. G. Bringle, P. H. Clayton, and M. F. Price, "Partnerships in Service Learning and Civic Engagement," pp. 1–20, 2009.

Appendix 1: Survey Questions

Survey 1: Success Chapters
1   What steps did your chapter take to establish its TORCH connections in the community?
2   What type of community partnerships has your chapter established?
3   With constant officer transitioning, how does your chapter maintain its community connections?
4   Do you believe that your community connections help your TORCH programming outcomes?
5   What would you say is the simplest TORCH initiative your chapter takes part in? Elaborate.
6   Did your chapter reference any toolkits/how-to's in order to create successful TORCH programs? If so, please list your references.
7   What are some of the Informal Science & Engineering programs your chapter takes part in?
8   What is the pillar of TORCH that your chapter operates under most successfully and often?

Survey 2: Recent Success Chapters
1   What steps did your chapter take to establish its TORCH connections in the community?
2   What type of community partnerships has your chapter established?
3   How does your chapter plan on maintaining your most recent community connections?
4   Have your recent connections with the community helped your TORCH Programming?

5 Did your chapter reference any toolkits/how-to's in order to create successful TORCH programs? If so, please list your references.
6 What pillar of TORCH programming does your chapter operate most under?
7 What are some of the Informal Science & Engineering and Community Training programs your chapter takes part in?
8 What would you say is the simplest TORCH Initiative your chapter takes part in? Elaborate.
9 What is your chapter doing differently now, with TORCH, that it hasn't done in the past, and has led to success in your programming?

Survey 3: Mixed Success Chapters
1 Has your chapter attempted, of had any success in establishing connections with your community for TORCH programs?
2 Do you believe establishing a community partnership will assist in your TORCH programming efforts?
3 Did your chapter reference any toolkits/how-to's in order to create successful TORCH programs? Did the documentation help with planning any TORCH programs? Explain and list which forms.
4 Has your chapter attempted to implement any Informal Science & Engineering programs, Traditional Community Service, etc. For TORCH? Were they successful? Why or why not?
5 What would you say is the most challenging aspect of planning TORCH programs? What makes them successful/unsuccessful for your chapter?
6 How can the National TORCH Committee help your chapter's TORCH initiatives?