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**UNIVERSITY-COMMUNITY COLLABORATIONS PORTAL (COMMUNITY PORTAL)**

# Community Partnerships Help Undergraduate Students to Meet the 'Grand Challenges' of Today

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The United States Department of Agriculture (USDA) has defined several priority need areas or "Grand Challenges" that face our world-wide community. These challenges are complex and will require collaborative approaches to yield creative solutions. The Fishback Honors College at South Dakota State University is committed to preparing undergraduate honors students with the experiences and training to tackle these "Grand Challenges." Six undergraduate student interns were recruited and trained to deliver non-formal educational programs that addressed the USDA priority need areas. The community outreach internships were conducted in partnership with Boys and Girls Clubs local to Eastern South Dakota as well as SDSU Extension. These outreach efforts engaged more than 1,000 youth ranging from preschool to high school aged students. The role of the interns was to create, execute, and assess a series of experiential learning activities for youth that translated "Grand Challenge" lessons learned through the college students' coursework and research to this broader audience of youth, and to further the Honors College goal of deepening its engagement in the community.

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**Keywords:** Community; Grand Challenges; Undergraduate; Honors education

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## Introduction

Complexities of common national community issues require resolution through collaborative efforts. The partnership of community institutions and universities in experiential learning has shown to be an effective approach to address society's concerns today (Hogan, Tynan, Covill, Kilmer, & Cook, 2017). Some of the largest concerns the United States (U.S.) is currently confronted with center around the ultimate goal for this country is to produce enough food, fiber, and fuel to meet the needs of more than 9.5 billion people by 2050 while using less land, water, and energy. This quest for sustainability and health poses many challenges, thus, the U.S. Department of Agriculture (USDA) formulated six national need areas: (a) food security, (b) sustainable energy, (c) childhood obesity, (d) climate variability and change, (e) bioenergy, (f) water and food safety (USDA, 2014). Each challenge area has a significant impact on the interconnected individual communities of the global society. By addressing and overcoming these six 'grand challenges' through university and community organizational partnerships, Americans can live in a safer environment and lead healthier lives.

Universities play an integral role in achieving sustainable, health conscious community environments (Pizarro, 2015). Over the years, higher education institutions have collaborated with community organizations for the greater good of society. Through these partnerships, schools' educational capacity, students' learning, and the well-being of communities has flourished (Valli, Stefanski, & Jacobsen, 2014). Previous studies indicate that success of educational and community partnerships are more likely if tangible results are produced for the benefit of the community (Carney, Maltby, Mackin, & Maksym, 2011). A study incorporating community service with student learning proved this to be true by addressing the 'grand challenge' of food security with the goal of improving the sustainability and health of the community

(Gordon, Caine-Bish, & Matthews, 2017). Through this collaboration, students implemented a garden at a Boys and Girls Club that helped to reduce food insecurity within the community.

A garden is a great example of expanding the educational classroom beyond the walls of the classroom and creating an experiential learning environment. Scholars and educators such as John Dewey (1938), Paulo Freire (1970), and Kolb and Fry (1975), argued for the importance of experiential learning as foundational to education in a democracy. Kolb and Fry's model (1975) focused on learning by doing and reflection, while Dewey (1938) argued that learning must include experience, experiment, and intention. Freire (1970) who worked in literacy education with sugar cane workers in Brazil was among the first to emphasize education as a means to empowerment. Experiential learning can be implemented through Project-Based Learning, a teaching method that connects students' experiences in an academic setting to real world problems in order to provoke critical thinking and problem solving (Efstratia, 2014). Through Project-Based Learning, both educators and students gain a better understanding of community issues. Collegiate research students in the East Bay Academy for Young Scientists facilitated a variety of hands-on science activities about air and water quality, energy, and habitat restoration. Through this collaboration, educators and youth retained knowledge on current conservation actions and enriched their capacity for future ecological actions (Ballard, Dixon, & Harris, 2017).

Incorporating experiential learning into community-university partnerships can be an approach to tackling a multitude of global issues. It is clear that leadership is an essential component of successful programs (Valli et al., 2014). In a university setting, leadership can be found in individuals, such as honors students, who are ambitious and capable of complex subject matter across a variety of disciplines. According to the National Collegiate Honors Council (2013), honors courses should prepare students to become effective in written and oral communications, to evaluate and synthesize a broad range of material, to think critically about problems, and to become independent thinkers. Together, these skill sets prepare honors students to become effective thinkers, citizens, leaders, and change agents. Utilizing honors students has proven to be an effective approach to the enhancement of education in the realm of societal issues (Polk, 2014).

In 2014, South Dakota State University (SDSU) was awarded a grant to address the six priority 'grand challenge' areas articulated by the USDA through the development of academic coursework, institutional research, and student outreach experiences. The multi-pronged approach to addressing the 'grand challenge' areas was inclusive of creating novel cross-disciplinary courses to equip honors students with a global view of USDA's priority areas, annual summer research opportunities, and an opportunity for students to engage as leaders within their community. Collectively, the aim was to increase the number of graduates in the food and agricultural sciences who are well prepared for the workforce and/or advanced study, with specific knowledge and skills needed to meet the USDA 'grand challenge' priority areas. With the prior literature in mind, SDSU developed an innovative approach, which integrated all three dimensions (coursework, research, and outreach) of its land grant mission.

This paper will focus on the third level of approach (outreach). The goal was to develop a cadre of undergraduate student interns who would work with community partners to deliver non-formal educational programs around the USDA 'grand challenges,' identified above, utilizing previously established relationships with SDSU Extension and Boys and Girls Clubs. This approach entailed the recruitment of Honors College students, described as innovative learners and problem solvers, who would be trained and employed as community-based youth educators on topics related to the USDA 'grand challenges.'

## **Methods (Building Community Outreach)**

The benefit of employing this project at a land-grant university is the unique potential to build upon the institution's existing community relationships that are already in place through the Cooperative Extension Service Mission of the university. Extension staff are housed in communities across South Dakota, and their work revolves around leveraging and building positive relationships with other arms of the university (research and education). SDSU Extension had relationships with the Marty and Wagner Boys and Girls Clubs, while the Honors College had relationships with Yankton, Flandreau, and Brookings. Collectively, this network of Boys and Girls Clubs serves more than 1,500 students per day. By leveraging these existing organizational networks and relationships, the project effectively tapped into community needs, and positioned itself for collaborative success. Representatives from the Honors College, from SDSU Extension, and the Executive Director for the local Boys and Girls Clubs initiated a series of conversations that would ultimately result in a mutually agreeable partnership to enhance the experience of Club members, while

also honoring the Club's mission and advancing the goals of the project. The Executive Director of the local Boys and Girls Clubs was highly engaged in the grant planning process as well. They and members of their board and staff were actively engaged in conceptualizing the effort, developing its ideas, aims, and strategies, and ultimately in the day-to-day execution of the project. Every detail from the content and delivery of 'grand challenge' information to the decision that interns could work up to 520 hours during the summer was mutually agreed upon. Club staff then helped the interns to conduct needs assessments with their youth to determine what 'grand challenges' would be most appropriate for each location and age group. SDSU modified its systems (time-reporting, etc.) to meet the needs of Clubs. It was agreed upon that interns would have two levels of supervision (SDSU and Clubs). This approach helped to ensure community ownership and support in addition to enhanced project facilitation and management.

A call for applications for student community outreach interns was distributed through the SDSU Honors College in the spring of 2016 and 2017. Representatives of the Honors College, SDSU Extension, and the Boys and Girls Clubs interviewed applicants. To incorporate a range of knowledge, the interns selected had differing majors including Nutrition and Dietetics, Early Childhood Development, Human Development and Family Studies, and Chemistry. Once selected, interns were assigned to one of four local Clubs. Faculty from the College of Agriculture and Biological Sciences, College of Education and Human Sciences, as well as partners from SDSU Extension provided a four-hour training to equip the six undergraduate interns (n = 2 in 2016, n = 4 in 2017) with the capacity to prepare, deliver, and assess age-appropriate lesson plans related to the 'grand challenges' to members of the local Clubs. During this training, interns were provided a menu of evidence-based lesson plan options and a mentor to connect with should they have questions on how to further employ these lessons. Partners at local Boys and Girls Clubs hosted and supervised student interns and played a supporting role in the delivery of youth experiential learning activities aimed at USDA's priority need areas.

Student interns spent the majority of the summer session working within the Boys and Girls Clubs and implementing and evaluating the lesson plans (**Table 1**). The interns were given creative freedom to design their own learning modules to fit within the 'grand challenges' framework, or to borrow from existing Extension curriculum. Youth participation in Club programs is voluntary, so all youth had the option to choose whether or not they wanted to participate in 'grand challenge' programming. Youth attendance within each program was recorded daily, along with performance on pre- and post-test scores when such assessments were employed.

A survey was developed to assess the undergraduate student interns' perspective on teaching the 'grand challenges' in a community setting. The survey consisted of 10 Likert-type questions and five open-ended questions. Students were asked to complete the survey at the completion of their internship.

## Results (Impacts of Community Outreach)

Youth outreach programming was offered in the areas of food safety, food security, childhood obesity, climate change, and sustainable energy at four Club locations. At least 1,000 local youth were exposed to these programs; roughly 86% of these youth were aged five to nine years at the time of participation.

**Table 1:** Student Outreach Impact.

Age Group	Priority Area
5–9 Years	Climate Change, Food Security, Childhood Obesity, Bioenergy
6–8 Years	Water, Childhood Obesity, Food Safety, Food Security
9–10 Years	Bioenergy, Childhood Obesity, Food Safety, Food Security
Teens	Food Security, Childhood Obesity, Food Safety, Bioenergy, Water, Climate Change

Along with this, most of the youth in the Clubs belonged to a lower socioeconomic status and identified as Native American.

Survey results from responding undergraduate interns are summarized in Table 2 (see Appendix). All interns agreed, or strongly agreed, that because of their internship experience they: a) developed a greater understanding and knowledge about the USDA 'grand challenges,' b) were able to make a positive impact on their community, and c) felt they were effective teachers in conveying knowledge to youth about the 'grand challenges.' Beyond individual gains, most interns felt they also extended their 'grand challenge,' teaching concepts to others such as their Club colleagues, family members, and peers. Interestingly, the interns provided a neutral response when asked if they taught the community about the 'grand challenges.' Whereas 100% of interns felt they had taught the youth, their neutral response on community education indicates that they did not appear to understand or categorize youth as part of the community.

While we noted above that the interns did not feel that they personally made an impact on the community regarding the 'grand challenges,' their responses to the open-ended questions that were posed at the end of their internship dispute that. Their open-ended responses were grouped into the following four key areas that clearly demonstrate that they felt they made an impact on the overall community.

### ***Empowering Youth***

The community interns took pride in seeing the youth apply their new knowledge. One student stated:

I think the most impactful thing the youth got out of the experience was from the food safety lessons and the food security field trip. These kids were able to take the knowledge home and share it with friends and family.

Another said that the "[youth] were really good at taking in new information and using it during later sessions or at home." The fact that youth were not only participating in 'grand challenges' programs at the Clubs but were then employing their new knowledge is indicative of successful community collaboration. If youth are using their new skills at home, there is further potential for the knowledge to be disseminated to members of their families and future families as they start their own families in the future.

### ***Food Security is a Real Concern in Communities***

In their surveys and reflections, interns consistently described the fact that food insecurity is sometimes invisible in communities. Learning that local youth did not always know when or where their next meal was coming from impacted the interns deeply:

Another impactful thing I got out of this experience was the desire to help more with food security here in Brookings. There were kids at the Club who would only get a good meal if they were at the Club and it made me feel upset (Intern).

One intern noted that going into this experience, she held a personal bias by thinking that American communities would be the most advanced in terms of food security. Interacting with local youth who did not have a basic understanding of nutrition or regular meals created a greater awareness of the importance of the grand challenge areas not only locally but also on a global scale.

### ***Enhanced Service to the Community***

The act of engaging the local Boys and Girls Clubs in the dissemination of 'grand challenges' programs exponentially increased the dissemination of the information within the community. One intern recalled, "I helped create an awareness for the importance of the Grand Challenges [within our community]." Other interns reflected on how the collaboration yielded partnerships and knowledge, which would transcend the initial transfer of knowledge. One of the interns led a community service field trip for their youth to serve in a local food pantry. An outcome of this outing was the invitation for Club members to continue to volunteer at the food pantry. After working with the food pantry, the intern

noted, "The community gained a new list of volunteers to use as a resource for meeting some of these 'grand challenge' areas."

Leaving communities with sustainable resources helps universities to be seen as trusted resources and increases opportunities for future collaborations. The interns created products as a result of implementing the 'grand challenge' areas that will remain at the Club for others to use and learn from. For example, one intern noted, "We made a portable compost bin that has been kept at the Club for others to use and observe." Other interns helped to establish gardens, which have continued to produce food for the clubs. These are just two examples of how engaging collaborations within the community, can help universities and their students to established profound and lasting impacts.

### ***Shaping the World View of Future Leaders***

Our community interns reported the benefits and learning experience from these collaborations were not one-sided, and as much as they provided experiences for the Clubs, the interns were also reaping the rewards from the lessons they learned. They wrote of an enhanced awareness of the importance of 'grand challenges:'

[This experience] taught me about how important it is not to waste food and what to do if you have left-over food waste. It showed me that not all people are like me...with access to clean and healthy food and water (Intern).

Student interns also discussed the significance of community partnerships. One intern stressed that "The most important thing I gained out of this experience was a deeper understanding of the word *connection*...I learned that the Boys and Girls Club is closely connected within their communities for everything they do." Even the students' prospective career choices were impacted through this experience.

This experience has opened my eyes to a large gap in the education system of America...the majority of youth had no idea what to do in a kitchen. This experience taught me that the area of community nutrition is a needed and expanding area for me to pursue in my future career (Intern).

All undergraduate interns credited their community internship with their ability to better articulate the importance of the 'grand challenges,' revealing an important increase in their confidence in their own skill set. Further, they all agreed or strongly agreed that through their efforts they helped others to change behaviors related to the 'grand challenges.' Most students agreed that they would recommend the community internship experience to their peers in the Honors College.

### **Conclusion**

There were several important outcomes from this community partnership. Youth participants in Boys and Girls Clubs in South Dakota (and their families) gained new knowledge and experience around the USDA's priority need areas. Secondly, a cohort of undergraduate student interns was able to acquire both knowledge and experience in delivering 'grand challenge' knowledge and to effectively elicit positive change within diverse communities in the state. Finally, but perhaps most importantly, has been the development of a long-standing relationship between the university, SDSU Extension, and local Boys and Girls Clubs. While the original funding for this project has ended, the relationship has continued to grow and evolve through new mechanisms. The Executive Director of one the local Boys and Girls Clubs enthusiastically agreed to serve as a partner in future grant opportunities. Additionally, one of the summer interns who is currently serving as the Service Chair for the Honors College Student Organization has enticed their peers to focus organizational service efforts on the local clubs. As SDSU continues to facilitate student outreach projects, the idea of what a community is and who is included in a community from an undergraduate perspective will be further explored. In the future, ensuring students have adequate knowledge on the characteristics of a community before beginning an outreach project will be prioritized. The potential for this collaboration to positively impact the university and its students, as well as the communities it serves in the future is tremendous.

## Appendix

**Table 2:** Community Intern Feedback (% responses).

Question	1	2	3	4	5
Through my experience interning with the B&G Club, I learned about the USDA Grand Challenges.	0	0	0	25	75
Through my experience interning with the B&G Club, I feel that I was able to make a positive impact on the community.	0	0	0	50	50
Through my experience interning with the B&G Club, I taught youth about the USDA Grand Challenges.	0	0	0	0	100
Through my experience interning with the B&G Club, I taught staff/colleagues about the USDA Grand Challenges.	0	0	25	50	25
Through my experience interning with the B&G Club, I taught community members about the USDA Grand Challenges.	0	25	50	25	0
Through my experience interning with the B&G Club, I taught my peers about the USDA Grand Challenges.	0	25	0	75	0
Through my experience interning with the B&G Club, I taught my family about the USDA Grand Challenges.	0	0	25	50	25
Because of my experience interning with the B&G Club, I am better able to articulate the importance of the Grand Challenges.	0	0	0	50	50
Through my experience interning with the B&G Club, I believe I was able to help others to change their behavior related to the USDA Grand Challenges.	0	0	0	25	75
After my experience, I would definitely recommend this internship experience to other SDSU Honors Students.	0	0	25	50	25

(1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

## Competing Interests

The authors have no competing interests to declare.

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