Proposal: 3112

Lessons Learned from Cultivating Youth Scientists with Youth Participatory Action Research (YPAR)

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Abstract (150 words)
Public policy discourse includes science-related issues requiring a civically engaged, scientifically literate populace who can make informed decisions about their communities. Civic science may engage youth in science such that they may learn about, and apply their science learning in purposeful ways, particularly in addressing meaningful issues identified by and in their communities. YPAR is a form of civic science that engages youth in the research and action process starting with forming the research foci and collecting, analyzing, and interpreting data in order to bring about collective action for positive community change (Cammarota & Fine, 2008). This poster will share our two-year project to develop, pilot, and evaluate YPAR projects at five sites in Northern California serving middle and high school youth. Learn from our efforts to engage marginalized youth in meaningful civic- and science-related community change.

Check if proposals is from an NAE4-HYDP Committee

Description
Culturally relevant approaches to science education are appropriate to reach marginalized youth. Civic science* may be an approach to engage youth in science such that they may learn about, and apply their science learning in purposeful ways, particularly in addressing meaningful issues identified by and in their communities (*we use the term civic science, adapted from the better-known label, Citizen Science, to be more culturally sensitive). Approaching science from a personal and community perspective may engage marginalized youth in culturally-relevant science education; offering balance between becoming part of the dominate culture and retaining cultural pride; giving voice to and expanding access for marginalized youth to science-related civic engagement (e.g., activism, public engagement, informed decision-making); and contributing to improved scientific literacy, positive youth development, and broader community development.

The poster will share experiences and outcomes from our two-year "Developing a Culturally-Relevant Civic Science Approach to Improving Scientific Literacy for Marginalized Youth" project. The primary goal was to expand access for marginalized youth to civic science as it related to science-related community issues that were meaningful to them. Youth were supported in utilizing scientific data to advocate for practices and/or policies important to their communities.

For example, at one site, 22, predominately Latino high school students asked: "What supports do English Learners need to better support English learning during after school?" They developed and administered a survey of 170 peers. The youth used the data to form and test an afterschool English Learning group, which they evaluated for effectiveness and presented as a model to school administration. At another site, 4 middle school students asked: "Why does the school serve us fake food? How can we improve quality of the food?" These students interviewed key adults (cafeteria cooks and administration), and surveyed 152 peers. They began to advocacy for improved food diversity.
**Poster Outcomes**

Participants will: (a) Become familiar with the YPAR model and its potential for improving scientific literacy and civic engagement; (b) Learn about how YPAR aligns with civic science; and (c) Learn lessons about successes and challenges implementing YPAR projects with marginalized youth.

**Implications for 4-H Youth Development: Describe the implications for youth development practice that the poster presents**

The advancement of youth scientific literacy, which is crucial to the functioning of our democratic society, ecological health, economic prosperity, and national security (NAS, 2007). Unfortunately, youth scientific literacy in the United States is low. The Nation’s Report Card (NAEP): 2015 Science, revealed achievement gaps between White and Latino students (NCES, 2016). This snapshot has caused concern; one conclusion is that school-based science is not serving Latino youth well.

Emerging research has demonstrated the viability of out-of-school time science experiences to deepen scientific literacy as well as build on young people’s interests, enhance engagement, and improve attitudes towards science (NRC, 2009). Cooperative Extension and 4-H have a long and rich history engaging young people with hands-on science experiences, however, there are two gaps: (a) while existing PYD frameworks often include civic engagement, they tend to minimize the role of activism and helping youth understand privilege and oppression and thus, confront injustice; and (b) 4-H science programs have not always been accessible to marginalized communities. There is a need to test new models of science programming that connect with science-based issues of social and environmental justice and develop science literacy among marginalized youth.

YPAR, in both the literature, and the results from our two-year project, shows promise in engaging marginalized youth in meaningful, authentic, and relevant science education where they are actively involved in conducting real investigations and taking positive community action to improve their lives and their community. The YPAR model is viable for use in Cooperative Extension and 4-H to deepen and extend both civic engagement and science education.
Speakers/Presenters

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Reviewer
Yes