Using Learner-Centered Teaching to Address Food Insecurity in Local Communities

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Introduction

While working in a school-based agricultural education classroom (SBAE) in a midwestern state, the author employed learner-centered teaching (LCT) to connect students with fresh produce via hydroponic systems. Students controlled the hydroponic units and distributed the produce they generated. Not only was the agricultural learning centered around student strengths and interests, but the product benefited the school and community. This experience gave rise to this abstract wherein LCT is offered up as a potential solution to address food insecurity in local communities.

Food insecurity is comprised of two components – low food security, which is defined by the quality or variety of the diet, and very low food security, which is defined by the presence of hunger wherein individuals restrict consumption due to lack of food (Drewnowski, 2022). As of 2022, 17.3, (over 1 in 6) of households with children experienced food insecurity, as well as rural areas are disproportionately impacted by hunger when compared to metropolitan areas (Food Research & Action Center, 2023). Food insecurity has been directly linked to low socioeconomic status (SES) along with other intersections (Olson, 1999; Patterson, 2020). Through the lens of agricultural education, the SES of students enrolled in SBAE has a proportionally lower SES than students not enrolled in SBAE (McKim et al., 2018; Velez et al., 2018). Understanding food insecurity and SES are connected raises concerns about how SBAE students and their communities are impacted by hunger.

Implementation Strategy

To address local food insecurities, LCT is paired with Problem-Based Learning (PBL) to emphasize active engagement and critical thinking of students. PBL promotes learning through encouraging students to engage with complex questions and real-world problems (Hawari & Noor, 2020; Karimi, 2011). PBL connects well to addressing food insecurity issues as it has been empirically studied in horticultural and agricultural science (Abbey et al., 2016). LCT and PBL coincide through a shared focus on five components: 1) student autonomy and engagement; 2) emphasis on critical thinking and problem solving; 3) collaborative learning and teamwork; 4) real-world relevance and application; and 5) educator facilitation (Ali, 2019). The following table was created to align the proposed program with these components.

Phase	*Implementation*	*Aspect of LCT/PBL*
Examine & Define Problem	Students outline the issue of food insecurity independently before meeting with small groups to further understanding and concept development. A final large group discussion should be conducted with teacher facilitation.	1, 3, 4, 5
Explore Underlying Issues	Students will take the products of their individual brainstorm and group discussions to create a product (mind map, written explanation, etc.) to explain their thoughts and personal connections to food insecurity. Students should be given guidance to focus on the food insecurity issues within their community or communities.	1, 2, 4

Establish Goals for Learning & Solving Community Problems	The educator will facilitate the creation of learning goals based on student ideas, discussion, and community needs. These goals should be constructed as a learning community for student accountability. Community and program resources available should be considered.	1-5
Evaluate Solution Options	During this phase, students will begin planning the various options that address their own learning goals and the problems within the local community. Student teams should create and present their own unique solutions. A final solution option will be decided upon by the class. This could be one specific idea presented or one synthesized from multiple groups.	1-5
Solve the Problem	Students decide on their roles within the project (visit the recommendation section for more ideas regarding roles). This is the longest and most fluid stage as it depends on student goals, community needs, and resources available.	1-5
Report Findings	The reporting of findings should correlate with student goals. Reporting could be done through group final presentations, self-evaluations, a community event, or individual creative projects.	1, 3, 5

Note. The phases of PBL outlined align with Cornell University (2024).

Recommendations

It is recommended to alter the proposed strategies and timeline as needed for a program or classroom. As student interests vary, finding a way for different students to uniquely engage in this process is paramount (Michaelsen et al., 2014) as not all students will find intrinsic motivation in the horticultural/agricultural processes of producing food for their communities. Students could find engagement in this process through construction and design of growing spaces, assessing community needs, marketing, or documentation of productivity. These roles should be discussed and decided upon by the learning community. The length of the project will vary given the scale of the project. Educators should also consider local food pantries, social services, or community gardens to work with to further engage their students with the local community. Each community varies in their resources, so these should be explored by students under the guidance of their supervising teacher. Promoting community engagement of students has been documented as an effective strategy to address low food insecurity for children and teens (Akosah et al., 2024).

Resources Needed

The resources necessary for this project will vary based on what the agricultural program has access to. Greenhouses, (purchased or student-created) hydroponic units, or outdoor gardening spaces could all be invaluable resources for students to accomplish the goals they set. Community resources should be utilized as well. Social services, extension services, food pantries, or horticultural spaces can provide spaces for students to pursue their project goals whilst building relationships with their community. The educator should set aside time to develop some ideas for community resources, but students should also take part in this process to establish their own stake in the project.

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