

Teaching Core Subjects and Traditional Food Knowledge through Farm-to-School (F2S) Curriculum: The Usability and Cultural-Relevance of Garden Lessons serving Diné youth at an Off-Grid Charter School in Leupp, Arizona.

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Land Acknowledgement : We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

Introduction/Need for Research

The urgency for culturally relevant, decolonizing, and Indigenizing farm-to-school (F2S) educational offerings is prevalent in a Western-dominated educational system in the U.S. The *Service to All Relations* (STAR) School is a completely off-grid community-oriented, culturally inclusive charter school located in Leupp, Arizona. STAR School primarily serves Diné youth in preschool through 8th grades. The following participant-oriented, curriculum evaluation case study explored the usability and integration of *STAR School Garden Lessons* (SSGL) (Figure 1) into current core subject and Diné culture, language, and traditions curriculum offerings. Tribal food sovereignty movements focus on the reclamation of stolen lands and traditional Native foodways before the arrival of White settlers (Hoover, 2014). The historic and present-day food-related cultural erasure and assimilation of Indigenous peoples occurs at the hands of Western colonialist systems, policies, and peoples (Diné Policy Institute, 2014). As a result, generations of Diné youth and adults alike are unfamiliar with traditional food knowledge due to decreased intergenerational knowledge transfer among Diné Elders and future generations (Diné Policy Institute, 2014).



Theoretical Framework

The following theoretical frameworks were used simultaneously in this study: 1) Transformative Learning Theory in Education (Freire, 1970) and 2) Tribal Critical Race Theory (Brayboy, 2005). These frameworks aided in the exploration of insights gathered from STAR school teachers and provided guidance on culturally relevant F2S curriculum needed to create agents of social change (i.e., tribal food sovereignty movements) among Diné students.

Methodology

The target population of this study were all currently employed STAR School classroom teachers. The sampling method utilized was a non-probability purposive method. A mixed method approach was utilized via online survey instruments and optional semi-structured follow-up interviews of survey respondents. Teacher insights collected included how SSGL was utilized and integrated while facilitating core subjects (e.g., Math, Science) and Diné culture, language, and traditions lessons in the classroom.



Findings

The demographics of respondents (n=6) were primarily White/Non-Hispanic, early-30's and female; demographics are important to note while facilitating culturally relevant SSGL with Diné youth. This is a limitation when discussing the integration of Diné culture, language, and food traditions into SSGL. The underutilization of SSGL by respondents was significant (83.3%); the COVID-19 pandemic was identified as an external environmental constraint. Additionally, respondents provided valuable insights on teaching SSGL while connecting core subjects and Diné language, culture, and traditions into the curriculum. There was equal distribution for SSGL use into English; Math; and Core Subjects as either a theme or arithmetic in planting. Furthermore, core subject and Diné culture/traditions integration included Social Studies, Language Arts, and Diné Language, identification of traditional Diné foods/plants, Diné storytelling, and full-circle planting to consumption of traditional Diné foods. Lastly, one (1) follow-up interview insights displayed the need for cultural competency training rooted in critical consciousness and decolonizing among non-Diné teachers. These findings display teachers' genuine desire for learning about Diné history, language, and traditions, although implicated significant avoidance mentalities when asked about perceived encounters among Diné students' inquiring about Diné history, culture, traditions, and language.



Conclusions

As the COVID-19 becomes endemic around the world, there is optimism surrounding more stable, in-person educational opportunities for land-based, experiential F2S education (Datta, 2016) in the classroom. It is also important to note that colonization continues to be endemic in Indigenous communities, therefore Diné -centered knowledge, traditions, storytelling, language, and culture surrounding traditional foodways should be prioritized when facilitating culturally relevant SSGL with Diné students (Brayboy, 2005; Shirley, 2017). These findings help provide a foundational baseline for STAR School administrators in recognizing the past, present, and future possibilities of SSGL incorporation and utilization. These insights will assist to provide increased teacher support, resources, and training for the integration of culturally relevant garden lessons while facilitating core subjects and Diné language, culture, and traditions learning with students.

STAR School Garden Lessons



Introduction

Welcome to STAR School Garden Lessons! Here you will find culturally relevant, age-specific lessons designed to encourage food literacy for STAR School Students. Lessons are organized by the "essential questions" they address. Essential questions are as follows: Where does food come from? How do people grow healthy food? How does food tie to culture and community? How do you make healthy food choices? How do people prepare healthy food?

These questions cover the food process from the fields to our plates—or cafeteria trays. Studies have shown that teaching children about eating fruits and vegetables increases consumption of fruits and vegetables (Kann et al., 2007; Contento, 2016; Evans, 2012), as do nutrition education lessons in the garden (McAfee and Rubin, 2007; Ratsiffe et al., 2009; Wright and Rowell, 2010; Langellotto and Gupta, 2012). Furthermore, nutrition education is more effective when it is "behaviorally focused" (Contento, 2016; Roseman et al., 2011). This means that what students learn and practice should directly address the behaviors we want them to develop. If we want students to eat more fruits and vegetables, teaching the benefits of eating them, along with actually growing, cooking, and eating fruits and vegetables, has the potential to be more effective than teaching more generally about food groups and a healthy diet.

The lessons in this guide are hands-on. With your guidance, students will be growing, cooking, and eating healthy foods. Use these lessons as they are, or adapt them to meet standards or to fit within a larger unit. Connecting your students to their food and where it comes from is the most important thing you can do to encourage lifelong healthy food habits.

Ahéhee'!



Recommendations

Future recommendations for SSGL curriculum exploration include in-depth teacher training, workshops, and discussions for educators. Additionally, continuous cultural competency training rooted in critical consciousness and decolonization for non-Diné educators are necessary. These spaces will provide un(re)learning opportunities for non-Diné educators to unlearn certain implicit biases and adopt critical consciousness as change agents (Freire, 1974). The inclusion of U.S. government violence, policies, and actions in SSGL curriculum is critical to acknowledge the historical significance of U.S. scorched earth tactics on Diné peoples. Educators should also work on facilitating careful, truth-telling, culturally relevant and empowering F2S lessons through educator training and SSGL curriculum revisions. These steps are important to promote resilience, activism, and self-determination among Diné youth as future protectors and knowledge holders of traditional Diné food(ways) for generations to come (Shirley, 2017; Diné Policy Institute, 2014). Lastly, additional participant-oriented, qualitative curriculum case studies should be conducted to gather more diverse teacher insights.

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