

Food Insecurity in a Local Food System: A Food Desert Index Activity

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Introduction & Need for Strategy

Connecting with a local food system is more than just knowing where the food comes from. Youth can access news and information via social media and new data sources. Large datasets of community information can help people make decisions about food access and food security in their local community. A learner-centered data-driven activity engages students by having them create a Food Desert Index (FDI) for their community using publicly available online data sources. This approach is educational and highly relevant as it taps into the growing awareness and concern among young people about the problems within their own contexts. By analyzing data on food accessibility, students gain valuable insights into the socioeconomic factors contributing to food deserts and the broader implications for public health and community well-being. This hands-on activity fosters critical thinking, data literacy, and civic engagement, empowering students to become informed advocates for change within their communities. Through this type of activity, we can inspire students to take an active role in addressing food insecurity and other local challenges, making their learning experience both meaningful and impactful.

Connection to Literature

The strategy of engaging students in real-world issues like food insecurity through data analysis and community-based projects is deeply rooted in educational literature that emphasizes experiential and problem-based learning (Virtue & Hinnant-Crawford, 2019). Scholars such as John Dewey have long advocated for education that connects learning to students' lived experiences and societal issues, arguing that such an approach promotes deeper understanding and retention of knowledge (Quay, 2019). The literature on learner-centered teaching highlights the importance of relevance in education, suggesting that students are more motivated and engaged when they see the direct impact of their learning on their communities (Tang, 2023). Moreover, research in social justice education underscores the value of empowering students to explore and address inequities in their local contexts, fostering a sense of agency and responsibility (Liggett, 2011). By having students create an FDI, this strategy aligns with the principles of critical pedagogy (Wever, 2015), encouraging them to question and analyze systemic issues related to food access and equity. This approach not only builds essential skills in data literacy and critical thinking but also aligns with contemporary educational frameworks that prioritize student engagement, real-world applicability, and social relevance.

How It Works & Implementation of Strategy

A FDI has four factors: (1) access to transportation; (2) financial resources; (3) proximity to produce; and, (4) travelability. A worksheet was developed with instructions and tips to calculate a FDI (Jaramillo et al., 2024). In this activity, it is recommended to divide the class into four groups, each tasked with analyzing one of the key categories that contribute to food deserts. Each team will begin by selecting at least two factors (e.g., distance & prices for proximity to produce) within their assigned category to include in an equation they create to measure the FDI for their community. Each factor will be scored on a scale from 1 to 10, with higher scores indicating

better conditions. The groups will then determine the weighting of each factor to reflect its relative importance, ensuring the weights add up to 100%. After calculating their individual indices, the groups will come together to compile the data and calculate a comprehensive FDI for the community. This collaborative approach not only allows students to delve deeply into specific aspects of food deserts but also teaches them how to synthesize hard data into a meaningful composite index. The activity culminates in a class discussion where students reflect on the accuracy of their indices and consider additional factors that could improve their analysis. This strategy enhances critical thinking, data literacy, and collaboration skills, while making the issue of food insecurity tangible and relevant to students' own lives.

Results to Date / Implications / Impact

The implementation of the FDI activity has yielded promising yet mixed results. Students engaged deeply with the project, appreciating its relevance and practical application to their own communities. Many found the activity useful and said that it provided valuable insights into the local food system, making them more aware of the challenges faced by their community. This feedback suggests that the activity is replicable and has the potential to be adapted to various contexts, enhancing its impact. However, some students found the activity challenging, particularly in terms of understanding and applying the concepts of data analysis and weighting factors. These difficulties highlight the need for additional scaffolding and support, such as more detailed instructions, guided practice sessions, and examples to illustrate key concepts. Despite these challenges, the activity successfully fostered critical thinking, collaboration, and civic engagement among students. The overall impact has been positive, encouraging students to take an active role in addressing food insecurity and promoting community well-being. The insights gained from this activity not only enhance students' understanding of food deserts but also equip them with essential skills in data literacy and problem-solving.

Future Plans / Advice to Others

Looking ahead, the next phase of the FDI activity will focus on refining the implementation to ensure it is accessible and engaging for all students. Future plans include developing a more structured framework with more detailed step-by-step guides, interactive tutorials, and additional resources to support students in understanding complex concepts. Additionally, expanding the activity to include a service-learning component, where students can propose solutions or initiatives based on their findings, will enhance the practical impact of the activity and deepen their connection to the community. For educators looking to implement similar activities, it is crucial to consider the varying levels of student familiarity with data analysis and ensure that adequate support is provided. Start with simpler exercises to build foundational skills before progressing to more complex tasks. Encouraging collaboration and peer support can also help students navigate challenges together. Flexibility is key; be prepared to adapt the activity based on student feedback and learning needs. Incorporating local context and real-world relevance significantly enhances student engagement and motivation. Finally, fostering an environment where students feel comfortable expressing difficulties, educators can create impactful, learner-centered projects that not only educate but also empower students to address real-world issues within their communities.

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