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Commentary

Adapting an Elementary School-Based Environmental Health Assessment Tool for High School

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1. Introduction

School-based nutrition and physical activity programs are used across the United States to improve students' health (1). The use of these health programs makes sense given that educational environments can shape children's minds and behaviors regarding healthy lifestyles (2). According to research, interventions that enhance the school nutrition context (e.g., modifying policies and procedures, encouraging students to eat healthily in social and situational interactions, and improving the physical environment surrounding students' exposure to food and beverages) can strengthen students' healthy eating habits (2). However, creating such evidence-based health programs involves navigating complex challenges that can significantly impact the program's success and sustainability (3). According to previous studies, many published health programs are complex and are administered by professionals under ideal program conditions (4, 5). Such programs; therefore, tend to be incompatible to implement exactly within established educational settings with mandatory protocols, staff capacities, and school resources, resulting in limited external validity (6). To accommodate for contextual differences (e.g., student demographics, school culture, delivery modes of learning, physical learning environment), adapting program components and implementation support measures can be one way to mitigate health program implementation in diverse educational contexts (7).

This commentary aimed to show how a nutrition and physical activity program designed to serve the elementary school environment was adapted to serve the high school environment. With this aim, the authors described how the original School Physical Activity and Nutrition Environment Tool (SPAN-ET), an elementary evidence-based school environmental assessment tool, was adapted to create the High School Physical Activity and Nutrition-Environment Tool (HS*PA*N-ET). While the original SPAN-ET tool was designed to evaluate school features, practices, and policies to identify areas for modification to increase weight-healthy behaviors (8), HS*PA*N-ET was adapted as a nutrition-specific tool that serves as an experiential assessment that fosters youth-driven data collection to identify issues and make informed decisions to improve healthy dietary choices in the school nutrition environment. Below, we describe the program adaptations (i.e., stakeholder buy-in, food security element, tool design, and evaluation process). We present adaptations of each program component to show how the processes changed based on the different contexts (Table 1). We end with discussing the value and importance of adapting existing programs.

2. Stakeholder Buy-in

Environmental assessment tools developed for adults may be too complex and inappropriately tailored for youth to act as change agents, advocates, and partners in making dietary choices (9). Oregon State University (OSU) researchers developed the original SPAN-ET tool for elementary school settings (n=9) with adults as evaluators (n=12) (8). The original SPAN-ET tool was designed for trained OSU extension agents (adults external from the school) to evaluate the programs in partnership with local schools. The external evaluator

Table 1: Summary of program adaptations for high school settings

Program Component	Elementary Process SPAN-ET	High School Process HSPAN-ET
Stakeholder Buy-in	• OSU initiation; part of a US Department of Agriculture-funded research and Extension program • Formal recruitment of Oregon rural elementary schools (n=9) • Participating leaders part of tool development and beta testing • Identified 12 extension agents as evaluators	• OSU and Oregon, Clackamas County (CC) Public Health initiated program in CC Schools (suburban n=1 and rural n=3) • Adapted as a component of HEAL Communities Kaiser Permanente grant • Collaboration between community partners and OSU SPAN-ET developers (n=5), staff (n=9), and students (n=38) • Adapted and applied only the nutrition component of HS*PA*N-ET for use by youth evaluators as learners.
Food Security Element	• No food security elements	• Food security language added as new content within two AIs: (1) School Meals and (2) Before/After School Extracurricular Programs and Food Access
Tool Design	• 27 items (AIs) w/2 classifications o Physical activity (16 AIs, 106 criteria) o Nutrition (11 AIs, 81 nutrition criteria) • AIs categorized into 3 environmental groupings: physical, situational, or policy	• OSU researchers, school staff, and students adapted the nutrition component of the tool • 12 Nutrition AIs o New AI: Closed Campus Policy • 84 criteria o New criteria: (a) after-school sports' concession, (b) locations that serve food, and (c) closed campus food policy
Evaluation Process	• Extension agents use tool as evaluators • Adult stakeholders identify and propose areas of improvement	• Students use tool as evaluators and learners • Hands-on, in-person instructional approach • Students propose areas of improvement

OSU: Oregon State University; AI: Areas of Interest; HEAL: Healthy Eating Active Living

component warranted buy-in from elementary school leaders and their staff. The use of extension agents is an important factor because stakeholder buy-in (i.e., active support from parents, teachers, students, and community leaders) is crucial for the sustainability of educational initiatives (3, 10).

As a component of a Healthy Eating Active Living (HEAL) Communities grant funded by Kaiser Permanente to the Clackamas County health department in Oregon, SPAN-ET was adapted for the high school setting (HS*PA*N-ET) for use by adolescents as advocates for school nutritional wellness in a comprehensive assessment and improvement project. For the adaptation to succeed, OSU researchers, community partners, and OSU Extension agents (n=5) who were already familiar with the original SPAN-ET tool needed buy-in from the high school students (n=38) and staff (n=9) for effective collaboration. The HS*PA*N-ET tool was adapted in one high school and piloted in three additional high schools. By involving students directly in the adaptation process, they provided relevant input and feedback for the experiential assessments and campus improvement projects to increase healthier dietary choices at school. This adaptation process facilitated a deeper understanding of their school's specific needs and challenges. In this approach, OSU researchers guided other adult members of the adaptation team (i.e., community partners, Clackamas County Public Health, OSU extension agents), in participatory action research in which the youth contributed to the study group's vision and responsibilities by developing and implementing intervention activities. Consequently, the interventions developed were both relevant and tailored to the unique contexts of each school, thereby maximizing the potential for sustainable health improvements (9).

3. Food Security Element

Following the grant criteria, HS*PA*N-ET was modified to include a food security element within selected AIs to understand the subpopulation of students who reported experiencing hunger and food insecurity at school in relation to healthy food access (9). By including this element, the adaptation team aimed to raise awareness about the risks adolescents face due to food insecurity and limited access to healthy dietary choices, including increased obesity-related chronic conditions like type 2 diabetes. This adaptation involved careful consideration of the developmental and social differences of high school students. The food security element included three measurements (a) school meals, (b) snacks in before and after school extracurricular programs, and (c) summer food access.

4. Tool Design

The HS*PA*N-ET adaptation maintained the core nutritional structure of environmental groupings and areas of interest (AIs) from the original SPAN-ET, assuring the tool's structure and applicability. Each AI was defined by specific measurement criteria that must be met for best practice. The original SPAN-ET tool included 27 AIs: 16 physical activity AIs with 106 measurement criteria and 11 nutrition AIs with 81 measurement criteria. These AIs were further categorized into measurable environments as either physical, situational, or policy (9).

Physical activity AIs were excluded from the HS*PA*N-ET adaptation to address the lack of tools that are informed by and designed to promote high school students' participatory discoveries of the school nutrition context and support those students' use of data to prioritize changes. With the focus on nutrition, the high school adaptation team settled on 12 nutrition AIs and 84 measurement criteria. The additional nutrition AI, Closed Campus Policy, was added to identify and describe school policies that restrict students' access to off-site food and beverages during scheduled mealtimes and included a new measurement criterion for the Closed Campus Policy AI. The other two new nutrition measurement criteria, both under the Before/After School Extracurricular Programs and Food Access AI were (a) after-school sports concessions and (b) location identification that serves food and/or drink (e.g., food pantries, school stores, vending machines).

To ensure a degree of program integrity in the new nutritional iteration of the tool, the researchers who developed SPAN-ET guided the adaptation to HS*PA*N-ET. These researchers played a pivotal role in the adaptation process, providing invaluable insights and expertise that helped tailor the tool to the new contexts and the target populations. Their involvement guaranteed that the adapted tool maintained the foundational principles and methodological rigor of the original tool, while also incorporating necessary modifications to meet the specific needs or challenges of each high school. This approach enhanced the tool's applicability and relevance and preserved the validity and reliability of the tool (9).

5. Evaluation Process

The HS*PA*N-ET tool was adapted for context relevancy and for appropriateness and accessibility for student-based evaluations, enabling youth to actively engage in data collection and analysis (9, 11). Studies indicated that students' health may be effectively supported by adult-led programs that provide students with the experiential tools they need to identify, lead, and take action to improve their school's environment (11, 12). In the adaptation process, the researchers aimed to empower students to actively participate in assessing and improving their school's nutrition environment. After feedback from the student adaptation team, the HS*PA*N-ET tool was adapted to add detailed instructions and criteria for AI assessment, incorporating a hands-on, in-person instructional curriculum for student skill development. Additionally, the HS*PA*N-ET tool includes instructions for multiple evaluator teams, incorporating instructions for each AI as worksheets with an embedded checklist, addressing difficulties in following instructions for single teams. This strategic shift facilitated a more tailored approach to meet the high school challenges and opportunities while enhancing student engagement and ownership of health initiatives.

The adaptation and piloting process of the HS*PA*N-ET tool was limited due to the participation of just four schools in Oregon. Only a small number of students from one school participated in the adaptation process, and out of the three pilot schools, only two involved students in the implementation process. Consequently, evaluations of the tool's validity and reliability in various high school contexts, specifically when used by adults exclusively or by students as youth evaluators, are ongoing (9).

While both nutrition and physical activity play vital roles in health behaviors, the HS*PA*N-ET tool was successfully adapted and piloted as part of a HEAL grant-funded initiative to improve healthy food access in schools and promote healthy eating behaviors in youth. One motivating factor for the tool's adaptation, piloting, and evaluation was the availability of sponsored resources. Therefore, aligning with the mission of the grant, the adaptation focused solely on nutrition.

6. Conclusions

Adapting existing program tools can be beneficial in academic settings with limited

resources. This approach allows stakeholders such as students, teachers, school leaders, and parents to participate in the decision-making process, enhancing contextual relevance and flexibility in implementation. Program developers can reduce development time and costs by considering the fit between the existing program's design and the specific needs of new educational settings. Furthermore, existing programs often come with valuable data and feedback that can inform adaptations, ensuring the revised program aligns with the new context. Program adaptation also allows for the use of proven frameworks and methodologies, reducing the risk associated with new initiatives. This approach can lead to more efficient and contextually relevant implementation, thereby enhancing implementation fidelity, educational outcomes, and improving students' health.

Authors' Contribution

Ashlee Gardner: Contributed to the conception of the work and drafted the work. Amy Weems: Contributed to the design of the work and reviewed it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

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