Waimanalo Elementary/Intermediate School (WEIS) Garden-to-Classroom Project

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ABSTRACT

The WEIS Garden-to-Classroom Project was designed to increase fruit/vegetable intake among low-income Native Hawaiian, Filipino, and Pacific Islander middle-school students in a rural community.

The WEIS Garden-to-Classroom project is based in social learning theory. The curriculum uses observational and hands-on learning to build positive outcome expectancies for fruit and vegetable consumption, change social norms, increase skills for growing and cooking fruits/vegetables at home, and increase self-efficacy. This program, funded by the Hawaii Nutrition Education Network SNAP-Ed program, is a 9-week class incorporating nutrition education, cooking skills, and physical activity promotion into a school garden-based curriculum. Students grow and harvest produce, cook and taste fruit/vegetable dishes. They work as teams to tend garden plots and build garden structures. Incentives encourage students to cook for their families and establish family gardens at home. Garden-grown produce increases students’ access to fresh fruits and vegetables at school. Pre- and post-test surveys show significant (p<.05) increases in fruit and vegetable consumption, along with positive changes in social norms, attitudes, familiarity. Qualitative assessments suggest that the garden is improving school/community relations, positively impacting student behavior, and improving nutrition education in other school areas.

BACKGROUND

Waimanalo is a farming community on the windward side of Oahu, producing much of the salad greens and gourmet produce intended for Hawaii’s restaurants and hospitality industry. Despite this agricultural base, residents of Waimanalo have very limited access to fresh fruits and vegetables within their community.

The student population at Waimanalo school is predominantly:

- • Native Hawaiian, Pacific Islander, or Filipino
- • From families living at or below the Federal Poverty Level

In Hawaii, Native Hawaiians, Pacific Islanders, and Filipinos have the highest rates of:

- • food insecurity
- • overweight and obesity
- • diabetes and cardiovascular disease

Low-income individuals in Hawaii:

- • consume fewer servings of fruits and vegetables than the general population
- • are more likely to perceive cost as a barrier for fruit/vegetable consumption

PROGRAM OBJECTIVES

Increase students’:

- knowledge about general nutrition topics
- knowledge of Hawaii-grown fruits and vegetables
- familiarity with and preferences for specific fruits and vegetables
- self-efficacy for growing, selecting, and preparing fresh fruits and vegetables
- perceived social support for fruit/vegetable consumption daily fruit/vegetable consumption

PROGRAM DESIGN

- • Initially modeled on the California Nutrition Network’s Harvest of the Month program, adapted for Hawaii agriculture and the specific school setting
- • 9 week elective class linking nutrition education, cooking skills, gardening skills and physical functional activity in the garden
- • Most activities involved hands-on, experiential learning
- • Social modeling through peer-led activities.
- • Curriculum structure linked to harvest cycles in the garden and local community
- • Curriculum linked with Hawaiian culture and community values
- • Within-school outreach through teachers and students sharing garden activities and resources with other classrooms
- • Community outreach through student-led school and family events featuring the garden

EVALUATION DATA SOURCES & METHODS

Mixed-methods (qualitative and quantitative) evaluation design, including:

- Quarterly pre- and post-test surveys assessing fruit and vegetable-related social norms, self-efficacy, familiarity, liking, and consumption
- Regular site visits and program observations
- Student photographic food diaries
- Informal and in-depth interviews with program participants and program staff.

RESULTS

Surveys show significant increases in fruit and vegetable consumption and in familiarity and liking for specific individual fruits and vegetables (p<.05). Positive changes in social norms and self-efficacy for fruit and vegetable consumption were also seen, but these were not significant at the .05 level.

<table>
<thead>
<tr>
<th>Total fruit and vegetable consumption</th>
<th>Pretest (SD)</th>
<th>Post-Test (SD)</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.84 (2.40)</td>
<td>4.42 (2.34)</td>
<td>p&lt;.05</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Perception of positive social norms about fruit and vegetable consumption</th>
<th>Pretest (SD)</th>
<th>Post-Test (SD)</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.02 (2.76)</td>
<td>12.69 (3.15)</td>
<td>p&lt;0.09</td>
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<thead>
<tr>
<th>Self-efficacy</th>
<th>Pretest (SD)</th>
<th>Post-Test (SD)</th>
<th>Significance Level</th>
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<tbody>
<tr>
<td>24.41 (9.39)</td>
<td>25.62 (7.65)</td>
<td>P&lt;0.00</td>
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CONCLUSIONS

A culturally-tailored garden-to-classroom nutrition curriculum that incorporates hands-on activities, student involvement in food production, and the development of gardening and cooking skills may be able to increase middle-school students’ perceptions of positive social norms, self-efficacy, and preferences for fruits and vegetables. There is insufficient evidence to suggest that it increases students’ knowledge of specific nutrition concepts.

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