

**Cultivating Success: Evaluating Camper Satisfaction, Social Outcomes, and Perceived
Content-Knowledge Acquisition in a 4-H Youth Gardening Program**

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Introduction

Formal 4-H youth overnight summer camping programs have impacted participating youth for over a century (O'Malley & Roberts, 2022). Previous evidence on youth camping programs has demonstrated that 4-H summer camp programs develop improved youth leadership, communication, resiliency, positive character development, responsibility, and independence (Garst et al., 2020; Sibthorp et al., 2020). More broadly, however, youth camping programs have highlighted social and personal developmental outcomes experienced by youth, often measured using the ACA's camper learning scale (CLS) (ACA, 2013). Select research has also documented the ability of youth camps to foster increased content-knowledge acquisition, especially in areas related to leadership and agriculture (Brown et al., 2014). As such, youth overnight summer camping programs have been shown to cultivate a unique learning environment that fosters broad positive changes in youth.

School-based gardens are blossoming across the country as powerful, living classrooms that connect children to the roots of their food, the rhythms of the environment, and the joy of discovery. Existing literature on youth gardens has shown positive improvements in participants' eating habits, nutrition knowledge, STEM-based content-knowledge, and willingness to try new foods (Holloway et al., 2023; Graves et al., 2016). Previous research has focused on the role of gardening and environmental education (EE) programs in therapeutic camp applications and on campers' pro-environmental behaviors (Larson et al., 2011; Overbey et al., 2023). However, there has been a notable scarcity of literature on the impacts of youth gardening programs within the youth overnight camping context regarding perceived ag-based content-knowledge gain or its intersection with social outcomes commonly associated with overnight camping programs. As such, a critical need existed to document further the outcomes associated with youth gardening programs. Therefore, the primary purpose of this ex-post facto, quasi-experimental study was to explore the relationships between camper satisfaction after participation in a residential youth camp gardening curriculum.

Conceptual Framework

In evaluating the outcomes of this residential camp-based youth gardening program, it was determined that Kirkpatrick's evaluation model (KEM) was most appropriate to frame the study further and interpret findings (Kirkpatrick & Kirkpatrick, 2006). KEM describes four levels of learning outcomes associated with educational programs: (a) participants' levels of satisfaction; (b) changes in participants' knowledge, attitudes, skills, and aspirations; (c) changes in participants' professional behavior and practices; and (d) institutional impacts of participants' behavior changes. Due to the age of respondents and the short duration between program implementation and data collection, the study focused on the first two levels of outcomes. Level

one and two outcomes are shown as direct results of the program, focusing on attitudes, content-knowledge gain, and intention to change behavior.

Methodology

To achieve the purpose of this study, an ex-post facto, quasi-experimental research design was conducted utilizing the camper program evaluations collected during the 2023 Louisiana 4-H Summer Camp program (Campbell & Stanley, 1963). We used criterion sampling (Creswell, 2007) to more deeply assess the campers participating in the gardening educational track during camp. We also collected data regarding the social and personal outcomes experienced by campers as measured by the ACA CLS instrument (ACA, 2013). CLS Cronbach's alpha coefficient was determined to be .85, corroborating previous psychometrics, and .79 for the content-knowledge scale (ACA, 2013). After removing all omitted or otherwise unusable datasets, 192 eligible responses remained. We also verified instrument content validity using an external panel of experts. To analyze the data, we used a series of Pearson correlational analyses to examine relationships between the three scales.

Findings

The overall mean index score for the scales used in the study was as follows: (a) CLS was 3.22 on a four-point response scale, (b) perceived content-knowledge gain scale was 3.69 on a four-point response scale, and (c) camper satisfaction scale was 8.3 on a ten-point scale. When examining the relationship between youth campers' social and personal outcomes as measured by the ACA CLS and perceived content-knowledge gain, data indicated a statistically significant and positive, moderate relationship ($r = .421$; $p < .001$). Further, we found a statistically significant and positive relationship between campers' program satisfaction and perceived content-knowledge gain ($r = .411$; $p < .001$). Finally, when examining relationships between campers' social outcomes as measured by the ACA CLS and overall program satisfaction, data also indicated a statistically significant and positive relationship ($r = .389$; $p < .001$).

Conclusions & Implications

The findings from this study not only corroborated previous evidence but also shed further insight into the complex interactions between youth programmatic satisfaction, content-knowledge acquisition, and social and personal development outcomes highlighted in previous literature (Garst et al., 2020; Sibthorp et al., 2020). In evaluating these findings through the lens of KEM, evidence has further demonstrated campers' level of program satisfaction can have direct, positive effects on campers, not only to changes in perceived content-knowledge, but also to social and personal outcomes related to camp. Youth campers engaged in a gardening program during camp with elevated levels of overall program satisfaction were shown to exhibit improved social and personal outcomes as a result of their camp experience, and youth campers subsequently perceived greater improvements in their gardening content-knowledge gain. This highlighted the impact that engaging and diverse educational environments, including youth overnight summer camp programs, can have on facilitating student learning.

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