Evaluation of Grow It Know It Teacher Training Program - 2018-2022

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Introduction

Farm-to-school (FTS) connects students to local, nutritious foods through partnerships with local farmers, taste tests, and edible school gardens. Studies have found that FTS programs can have positive student outcomes such as increased willingness to try fruits and vegetables as well as a potential for increased learning outcomes (Berezowitz et al., 2015Bontrager Yoder et al., 2014; Ratcliffe et al., 2011). Though popular, FTS programs face many barriers to integration such as educators' lack of knowledge around horticulture and nutrition education, time to plan and integrate a school garden, and personnel to support a school garden programs (Burt et al., 2018; Burt, Koch, & Contento, 2017; Dunn, et al., 2019; Thompson and Narciso, 2017). The current literature suggests professional development (PD) to overcome barriers like the ones described above.

In this chapter I present the evaluation of the USDA-funded Grow It Know It (GIKI) Teacher Training Pilot Program. Results of this evaluation will explore the impact of the GIKI program on educators' ability to overcome barriers related to FTS and the programs' effectiveness as a FTS PD program. Based on the results of the evaluation, I discuss the key components of the program that make it an effective and sustainable model for future FTS PD programs.

Literature Review

The most recent United States Department of Agriculture (USDA) (2021) FTS census indicates that in 2019, 34% of schools had an edible garden and that 20.9% use edible gardens for educational purposes. Studies have found that FTS programs can impact students' willingness to try new fruits and vegetables (Bontrager Yoder et al., 2014; Ratcliffe et al., 2011) and academic performance (Berezowitz et al., 2015; Carlsson et al., 2016; Williams and Dixon, 2013). While FTS programs have been shown to yield positive results, they are often met with barriers that prevent their long-term sustainability, such as limits on funding, personnel, time to plan and incorporate lessons (Burt et al., 2018; Thompson & Narciso, 2017), and basic horticulture and nutrition education knowledge (Dunn, et al., 2019). Researchers suggest engaging educators in professional development (PD) may help overcome these barriers (Burt, Koch, & Contento, 2017; Thompson & Narciso, 2017).

Professional development is defined as "any activity that is intended to partly or primarily prepare paid staff members for improved performance in present or future roles in the school districts" (Little, 1987, pg. 491). PD ranges from formal to informal experiences that include structured time spent with a mentor, materials given to educators to use in the classroom, or even self-observation or personal inquiry (Desimone, 2009). Goals of PD include improving or maintaining a teacher's classroom practice, their attitudes, and beliefs, as well as their students' learning (Dunn, et al., 2019; Desimone, 2009; Guskey 2002).

In the context of FTS, research suggests PD is critical for a school garden program to fully integrate into a school's culture (Burt, Koch, Contento, 2017). Engaging in PD sets aside time for educators to develop curricular connection and learn new knowledge and skills related to horticulture and nutrition (Burt & Koch, 2018). Additionally, PD may be able to support

networking among educators and community members—another identified need for educators engaging in FTS (Burt et al., 2018; Burt, Koch, Contento, 2017; Thompson & Narciso, 2017). Though FTS PD can support educators as they engage in FTS, there are few studies that provide detailed assessments of PD interventions, which limits our understanding of educators' function in creating positive student outcomes (Peralta, 2020).

Background

Grow It Know It (GIKI) is a USDA-funded FTS teacher training pilot program. The long-term goal of this program was to develop a model for a sustainable food, agriculture, natural resources, and human (FANH) education program that builds on local resources and is applicable to other counties, with a secondary goal of creating a positive impact on long-term sustainability of food systems by improving student nutrition. To successfully meet the program's goals, GIKI applied five objectives: 1) Develop and pilot a professional development program; 2) Conduct ongoing formative assessments for the pilot programs' overall improvement and success; 3) Engage community members and organizations to create a resilient community of practice that will sustain the program past the grant cycle; 4) Based on the evaluation of the pilot program, create a toolkit for dissemination throughout the Southeast via Cooperative Extension; And, 5) Conduct a summative evaluation of student learning outcomes and GIKI team experiences with both the district-level trainings and school-level intensive consultations. The summative evaluation presented here examined three key questions regarding the GIKI teacher training pilot program: *(1) In what ways did the GIKI teacher training pilot program create and sustain an effective FTS professional development program? (2) What*

student learning outcomes were documented during the grant cycle? (3) How can future FTS professional development programs support educators engaging in FTS?

Between 2018 and 2020, The pilot program hosted two intensive three-day summer trainings and four intensive one-day trainings during the fall and spring semesters. The program modeled a "one size does not fit all" approach. Through experiential learning, GIKI supplied basic knowledge and skills related to garden- and food-based learning and created time for participants to reflect and integrate their new knowledge and skills into their respective programs. This approach gave participants the freedom to create a program that worked for them, their available resources, and their school's culture. The GIKI program provided ongoing professional development each month by supporting existing FTS programs in the pilot county – the FTS Boosters Club and the School Garden Association. In addition, the pilot program offered yearlong, school-level support through "mini grants," which provided financial and personnel support to two schools during each year of the grant cycle. After pausing in-person trainings in 2020 due to COVID-19, intensive summer trainings resumed in 2021. This evaluation focuses on program activities held between 2018-2020.

Methods

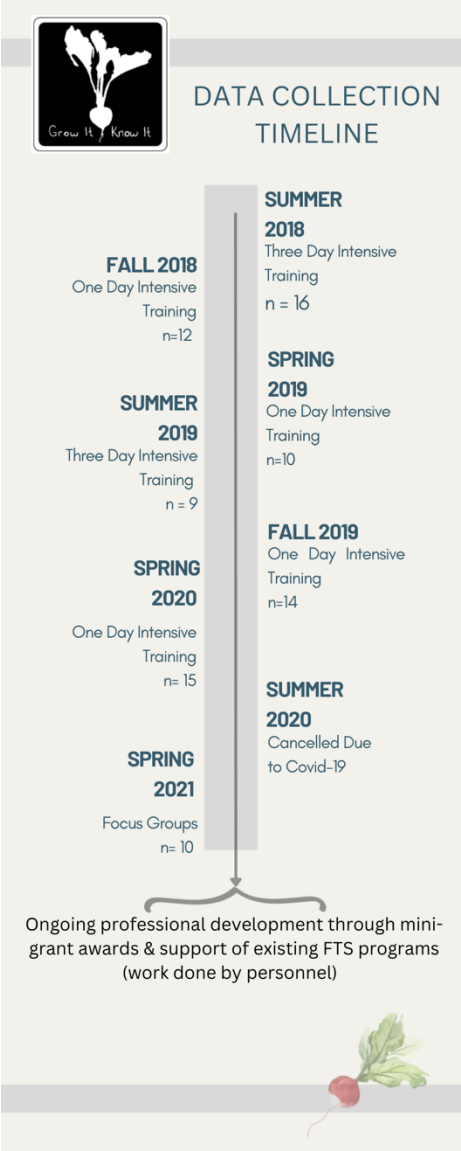


Figure 2.1 Timeline of Data Collection

In the next section I present the data collected throughout the two years of the pilot program (Fig 2.1) and the analysis of said data. The *Methods and Analysis* consists of five sections: Survey Data, Reflection Activities, Focus Groups, Supplemental Data, and Recruitment. Multiple sources of data were collected to triangulate the findings, and validate the

results of the analysis. Figure 2.1 illustrates the timeline of data collection and sample sizes from each training. Additionally, this figure illuminates the ongoing work and data collected from GIKI personnel (i.e., the program coordinator and AmeriCorps VISTA).

Surveys – Training Outcomes & Quality

Pre- and post-training surveys were created to provide a formative evaluation of the pilot program. Each pre-survey included a Training Outcomes section that asked participants to self-report their confidence regarding training topics and to assess their FTS program goals. Post-surveys included the same section plus a Training Quality section, which asked participants to rate each training session and identify which sessions were most helpful to them and their program's goals. Survey questions reflected the topics covered during the training.

A four-point forced Likert scale was used to measure the change in participants' confidence regarding each training topic. A forced Likert scale does not contain a neutral point, which forces the participant to form an opinion. The scale included: 1 (*not confident at all*), 2 (*somewhat confident*), 3 (*confident*), and 4 (*very confident*). Short answer responses were used to capture changes in participants' FTS goals and current support for their FTS programs. Short answer prompts asked, "(Pre) What are your goals for farm-to-school activities (including school gardens) this year? (Post) Have your goals for farm-to-school changed? And if so, how?" Training quality also used a four-point forced Likert scale to determine how helpful each training session was. The scale included: 1 (*not helpful at all*), 2 (*somewhat helpful*), 3 (*helpful)*, and 4 *(very helpful*). In a short answer format, participants were asked to identify their top two to three sessions from the training and explain why those sessions were most helpful to them.

Finally, the survey provided a short answer space for participants to add additional comments about the training.

Pre-surveys were distributed at the three-day intensive summer training (June 2018 and 2019) and one-day fall (October 2019) training. Post-surveys were administered after the three-day summer (June) 2018 and 2019, one-day fall (October) 2018 and 2019, and one-day spring (February) 2019 and 2020 trainings. When planning the training, the GIKI team expected to enroll a cohort of participants for the entire school year to attend a three-day summer training and the subsequent one-day fall and spring trainings. However, there were shifts in participant attendance from summer to fall and spring, with many summer training participants sending colleagues to the fall and spring trainings or returning the following year. As such, the pre-/post-survey data were not always collected with the same participants. GIKI also added a pre-survey in Fall 2019 to capture the baseline of these participants.

Quantitative and qualitative data from surveys were analyzed separately. Qualitative data were transcribed and uploaded into Atlas.ti version 9.1.1 (Scientific Software Development GmbH), a qualitative analysis tool used to organize and index themes in the data. Data were then analyzed using a Framework Analysis approach, which includes five steps: familiarization, identifying a thematic framework, indexing the data, charting the data, and interpreting the data (Ritchie & Spencer, 2003). The thematic framework was structured to reflect the grant narrative and current FTS literature (Appendix E). Themes included: training quality, training outcomes, building partnerships, resources, student outcomes, and program sustainability. Following the discovery of literature around educator PD program, the framework was refined to include participants' change in farm-to-school goals and effective professional development. Data were

then indexed, or grouped, into corresponding themes. Then, themes were charted, summarized, and prepared for interpretation.

Quantitative data were uploaded into IBM SPSS version 28.0 (IBM), a statistical analysis software platform. Due to shifting attendance and topics covered at each training, there were inconsistencies in the pre- and post-surveys, which limited the number of items include in the statistical analysis. Data analysis included descriptive statistics of all surveys. Further, given small and variable sample sizes across trainings, a Wilcoxon Signed Rank Test was used to analyze participants' change in confidence before and after attending the three-day intensive training programs. The same test was used to compare changes in confidence between the summer training pre-survey and the subsequent fall and spring training post-surveys. The Wilcoxon Signed Rank Test is a non-parametric test broadly analogous to a repeated measures t-test (Pallant, 2020). This test is designed for repeated measures, but rather than comparing the means it converts the scores into ranks and compares them at two points in time (pre and post training) (Pallant, 2020).

Reflection Materials – KLEW, Discussion Prompts, Flip Grid

Materials created during the training sessions provide deeper insight into what participants were learning and how they planned to apply that knowledge in their classroom. These materials include reflective discussion prompts, video recordings, and gallery walks. Discussion prompts were used to facilitate team building among school garden members, as we as allow participants to reflect on what they were learning and their program goals. The most

frequently used prompt, referred to as KLEW (Fig 2.2), was used to provoke participants' reflection before and after each session topic:

> What do you think you **K**now? What did you **L**earn? What is the **E**vidence you are learning it? What are you still **W**ondering? (KLEW)

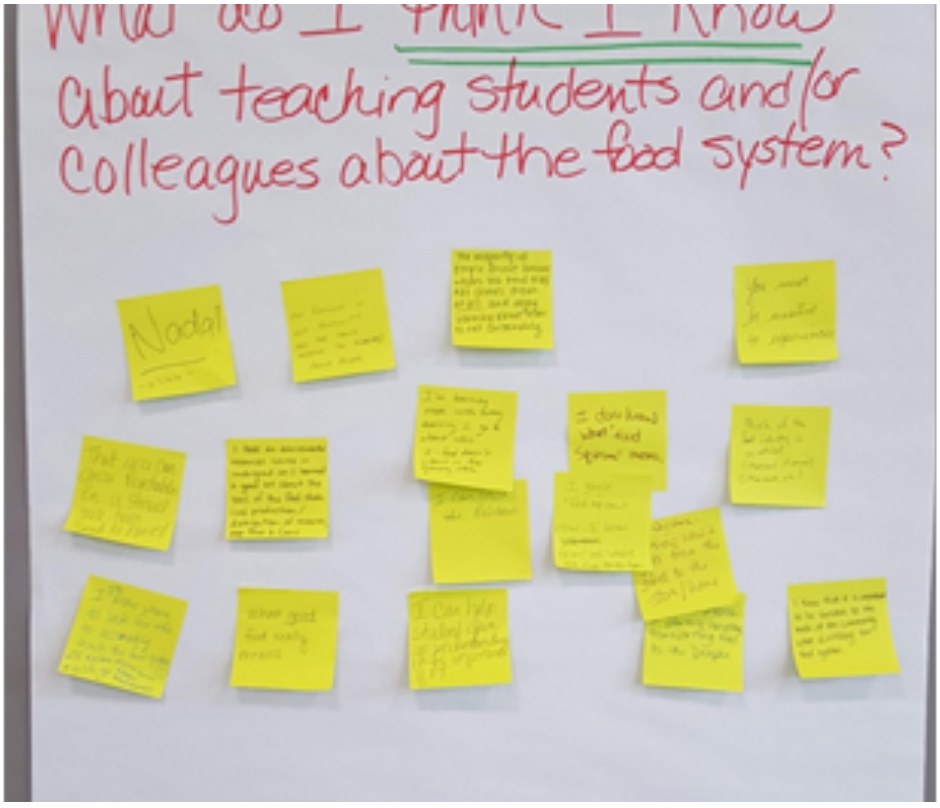


*Figure 2.2 Photo of a KLEW Prompt: What do I think I **K**now About Teaching Students and/ or Colleagues About the Food Systems?*

The KLEW prompts encouraged teachers to reflect on their previous knowledge and experience with FTS at the beginning of each training day; then, at the end of the day, the KLEW prompts asked them to reflect on what they learned at the training, the evidence of that learning, and what they still needed to learn to accomplish their FTS goals. Using KLEW evokes a pre/post style reflection throughout the day and is familiar to many educators who use this teaching prompt (or a variation of it) in their classroom settings.

In addition to KLEW, other prompts were used during the training. These prompts were used to plan program goals, integrate what they were learning, and determine the "bridges" needed to overcome barriers associated with both their goals and FTS teams (Table 2.1).

Training material data were analyzed along with other qualitative data collected during this project (pre/post-surveys, focus groups, and supplemental material). Data were transcribed and uploaded into Atlas.ti for analysis using the same thematic framework as described above.

Table 2.1 Reflection Prompts Used During GIKI Trainings.

Training	Prompt
Summer 2018 **Fall 2018**	"What was your biggest take away from the training? How will this change the way you teach?" "How will it change the way you work with your students and colleagues?" "Garden goals: short term" "Garden goals: Long term" "Marching Orders" (Your next steps or actions to meet these goals)
Spring 2019	"Where are you in the process of putting together a team?" "What are the barriers within your school to making this happen?" "What are the bridges that allow us to jump across the barriers?" "Marching Orders" (Your next steps or actions to meet these goals)

Focus Groups

Focus group discussions were used to capture teacher-reported student outcomes. Semi-structured focus group guides were used to lead discussions; however, participants were encouraged to pursue conversations regarding issues or topics that interested them. Participants that attended more than one training workshop between 2018-2020 were invited to one of three focus group sessions in Spring 2021. Ten participants met with the grant PI and the GRA for 60-90 minutes via Zoom to discuss their experiences. Focus groups were audio recorded and auto transcribed within the Zoom platform. To thank participants for their time, a gift card to a coffee shop of their choice was mailed to them following their participation in the focus group.

Focus group data were analyzed along with other qualitative data collected during this project (pre/post-surveys, training materials, and supplemental material). Data were transcribed and uploaded into Atlas.ti for analysis using the same thematic framework as described in the previous section.

Supplemental Data – AmeriCorps VISTA and Cooperative Extension Reports

Additional data were recorded throughout the grant cycle by various personnel. The program coordinator provided written reflections at various points throughout the grant; however, reporting was inconsistent due to time constraints. AmeriCorps VISTAs assigned to work with several schools as part of this project were required to report their impacts and workplace responsibilities to the AmeriCorps network each month and each quarter. Data captured the number of student interactions, number of new programs created, and number of new activities each month. Their monthly and quarterly written reflections provided detailed

descriptions of the data they reported. Additionally, written reflections described their relationships with program partners (i.e. local organizations supporting FTS), educators, and students. Supplemental data were analyzed in Atlast.ti along with the other qualitative data collected during this project (pre/post-surveys, training materials, and focus groups).

Participant Recruitment

In 2018, the Barrow County Cooperative Extension Agent recruited K12 educators from Barrow County to participate in the 2018-2019 pilot program. The following year, recruitment spread to the greater Clarke County area. As part of the training, participants received financial incentives to support their farm-to-school programs. In 2018, $200 was allotted to each participating school group to put towards garden supplies and materials for their FTS programs. In 2019, each participating teacher was awarded $200 to use at their discretion.

Training participants were also encouraged to apply for a year-long mini-grant. Mini-grant sites received weekly consultations with the GIKI Training program coordinator, the AmeriCorps VISTAs, and other partners at the University of Georgia. Both the program coordinator and AmeriCorps VISTA worked with the FTS teams at each school to develop activities and lessons, provide ongoing PD to teachers and staff, facilitate garden workdays, and create networks within the school community to sustain the FTS program. University partners spent approximately eight hours each week working with teachers and staff to incorporate FANH into their lessons and professional learning plans.

Mini-grant sites were selected based on the following criteria: participation in the training program, an existing or emerging FTS team, and strong administrative support for FTS. In total,

six schools applied for the grant between 2018-2019 and three schools were awarded the grant along with a grant totaling $12,000 to fund their FTS goals.

Results

The results section begins by reviewing recruitment numbers. The following sections explore the results of the pre-/post-surveys, reflection materials produced during the training, a post- training focus group with participants, and materials provided by key players.

Between 2018-2020, the GIKI teacher training pilot program hosted 76 participants, including 51 unduplicated individuals. Participants included 44 elementary, middle, and high school teachers, 3 nutrition staff, 1 bus driver who was also a local farmer, 1 administrative assistant, and 2 informal educators (an educator who does not work in a school setting such as an educator at a local community center). In total, participants committed between 8 and 48 hours towards their professional development by attending the GIKI teacher training pilot program, adding up to a total of 1,008 hours between June 2018 and February 2020.

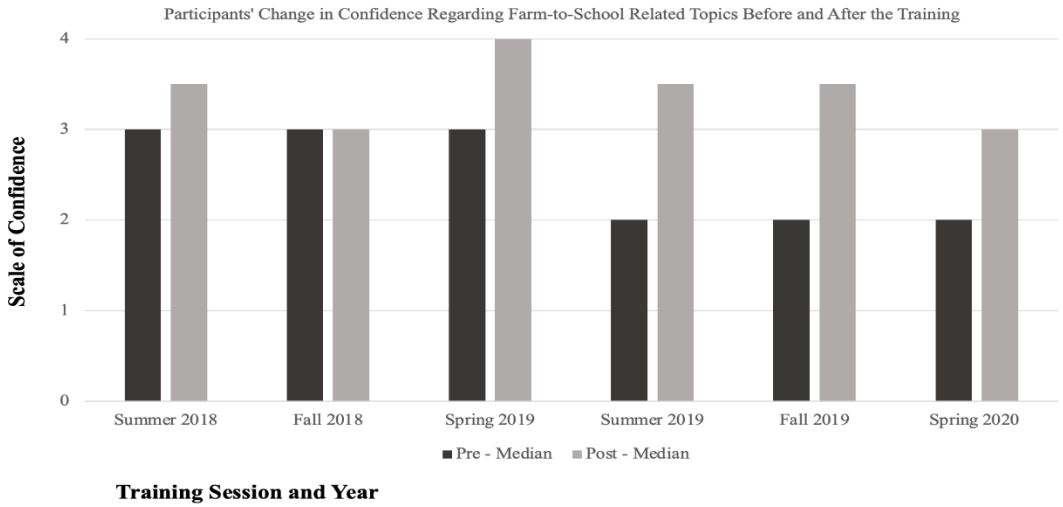
Surveys – Training Outcomes

In the summer 2018 and 2019 pre-surveys, participants reported an overall median score of 2 (*Somewhat Confident*) across topic areas. Post-survey scores increased to median scores of 3 (*Confident*) and 4 (*Very Confident*). Results of the Wilcoxon Signed Rank Test indicated that participants' confidence significantly changed across seven of the eleven topics presented at the intensive three-day summer trainings. Those seven topics included: planning garden spaces, starting seeds and transplants, soil health, building garden structures, food safety in the garden, overall garden management, and teaching the structure of the food system. There was no

significant change in confidence in the following topic areas: using the garden space to teach the required curriculum, incorporating farm-to-school in the cafeteria, teaching others about food insecurity, and teaching about health and nutrition. All quantitative results can be found in Appendix D.

Five additional sessions from the summer 2018 and 2019 pre-surveys were compared to the fall 2018 and 2019 and spring 2019 and 2020 post-survey results. Median scores from these five sessions increased from 1 (*Not Confident at All*) and 2 (*Somewhat Confident*), to 3 (*Confident*) and 4 (*Very Confident*). Based on the Wilcoxon Signed Rank Test, only two sessions had a significant change in confidence: "Troubleshooting plant disease and insect issues" and "Creating a Summer Care Plan for your School Garden" (Appendix D).

When I examined the pre and post scores for each training session on their own (i.e. Summer 2018, , Fall 2018, etc.), there was an overall positive change in participants confidence regarding FTS related topics. This trend can be observed in Figure 2.3. For example, in the



summer of 2018 participants median pre-survey score was a 3 (Confident) and their post-survey median score increased by a half.

In post-survey short answer responses, many participants expressed that attending the training evolved their initial goals for FTS to be more obtainable or concrete, although many failed to share how their goals had evolved. For example, in their pre-survey, one participant shared that their goal was to create a teaching garden. In their post-survey response, they were able to acknowledge that their goals had become, "… defined and achievable."

When participants did share details regarding their change in goals, three major themes emerged: 1) goals centered around school-wide participation, 2) goals centered around a school garden, and 3) goals centered around connecting FTS-related activities to their curriculum or classroom.

Figure 2.3 Overall Change in Median Scores from Pre- to Post-Surveys

Examples of these goals in post-survey responses include:

> *School-wide participation*: "I will be working on lesson plans to help other teachers get involved" (Summer 2018).
>
> *School gardens*: "I have many more goals now than when I started three days ago. Now, it is not just about getting our gardens started and producing vegetables, I want to contribute to a sustainable food system within our school. Let's start composting!" (Summer 2019).

Classroom and curriculum: "Adding lessons for the core academic teachers on how they can use the garden with their classes" (Summer 2018).

School-wide participation tends to overlap with goals around school gardens and classroom curriculum. When participants described their goals with a focus on the school garden, they also described serving produce in the cafeteria or doing taste tests in the cafeteria, which involves more than just their classroom. One participant shared, "I want to increase the amount of produce we harvest for use in the school cafeteria and FCS classes" (Spring 2019). Similarly, when participants shared goals focused on curriculum/classroom connections, they also included actions to get others at their school involved. A participant shared, "my goals have shifted...A school garden can have such a tremendous impact on the school as a whole and is something that I hope to have the entire school involved in; not just a specific class" (Summer 2018).

Overall, the results of the pre- and post-surveys indicate an increase in participants' confidence regarding topics needed to create and sustain an FTS program. Additionally, the training program offered participants time to reflect and refine their program goals.

Surveys – Training Quality

Of the seventeen sessions that were rated in the training quality section of 2018-2020 post-surveys, all but one was given a median score of 4 (*Very Helpful*). The training Session "Food Safety" was given a median score of 3 (*Helpful)*.

Post-survey short answer responses revealed that the most helpful training sessions incorporated a "hands-on" approach and could be directly applied to their program following the training. For example, one participant claimed that the sessions they had chosen were most

helpful because they could be "easily adapted to [a] classroom setting" (Spring, 2020). Another participant noted that they chose their highest-rated sessions because they were "most relevant to teaching kindergarten and had the most realistic and real-life information…" (Summer 2018).

During the training, participants used power tools, built raised beds, and installed an irrigation system. This hands-on experience provided the knowledge and skills necessary to build garden structures and increased participants' confidence to do this on their own and with their students. In reflection materials participants shared the significance of experiential learning on their ability to engage in food-related activities like making pickles quickly (i.e. "quickles"): "I am a hands-on learner and now feel confident making 'quickles'" (Spring 2020).

In addition, GIKI incorporated field trips to schools that were successful school garden models. Several participants specifically commented on the way that visiting and working in another school's garden gave participants a deeper understanding of the processes and techniques that the GIKI team presented on. Their comments included: "We were out doing things, not just sitting and watching power points" (Summer 2018) and "Touring the school helped map out a plan for [my school]" (Summer 2018).

Reflection Materials

Reflection materials provided three key pieces of information: (1) what our participants were learning from the training and the evidence for it, (2) details regarding their program goals and objectives to meet those goals, and (3) persisting gaps in participants' knowledge and barriers they face. Notably, results of reflection materials contextualize the post-survey results and evidence to support the impact of experiential learning and reflection on educator PD.

Through reflection activities such as KLEW, the GIKI team encouraged participants to reflect on their past knowledge and new information they were learning from the training. This gave participants the opportunity to see their growth and have evidence of it. Participants shared that they learned new skills related to horticulture, cooking, and resources available in their community. Examples of KLEW responses can be found in Table 2.2.

Table 2.2 Examples of KLEW Responses

K What do I think I **K**NOW?	**L** What am I **L**EARNING?	**E** What is the **E**VIDENCE I am learning?	**W** What am I still **W**ONDERING?
I think I know how to properly wash and prepare veggies.	I learned how to prepare delicious meals using veggies from the garden	We went through the motions of harvesting and washing produce.	I wonder how to convince the cafeteria staff to serve the food we grow?
You can't plant [your crops] in only compost.	Ratio of compost to top soil in raised bed is 25% compost to 75% top soil.	The compost song that [GIKI] taught us.	How to have the brown materials ready on-hand for proper compost ratio?

Notably, when prompted for evidence ("What is the **E**vidence you are learning?"), most responded with examples of hands-on activities held during the training. Responses include:

- "[I] actually put an irrigation system together" (Summer 2019).
- "We tried activities that students would do to learn about soil" (Summer 2019).
- "We made the tacos and ate them!" (Summer 2019).

In other reflection materials, participants shared the ways in which the GIKI program helped them identify a community of support that extends beyond their school to include other schools and organizations in their county and beyond. A participant shared,

> My biggest takeaway from this...working with the other teachers, I would like to have a kind of community of resources that we have here that we can go to and ask other friends and coworkers at the other schools, not just within [my school] but I can go to other teachers now and ask how they're doing things...I feel like I can go to the Grow It Know It [team] and ask them if I'm having a problem with something... (Summer 2018).

In addition to KLEW, other reflection activities created time for planning and integrating the training materials. These activities prompted participants to share their short-term goals, long term goals, and action steps, which resulted in detailed descriptions of participants' goals and

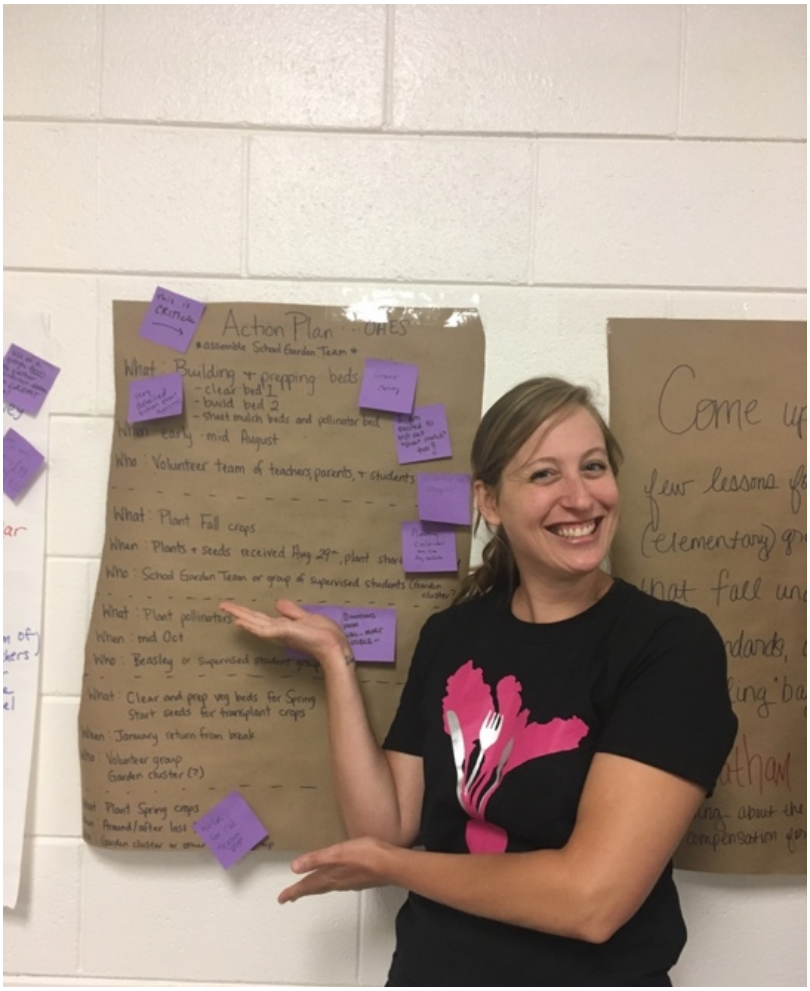


Figure 2.4 Participant's Action Plan for Their School Garden.

objectives (Figure 2.4). In developing one school's action plan, participants identified specific goals and then designated "who, what, and when" regarding each step. For example, their plan included this specific goal: "What: Building + prepping beds - clearing bed 1, build bed 2, sheet mulch beds and pollinator beds. When: early mid- August. Who: Volunteer team of teachers, parents, and students" (Summer 2019). Another group shares,

> Create awesome garden committee! (adapt lessons). Order seeds and irrigation supplies. Set up work/ planting day (ROTC kids need volunteer hours). Oct. 5th order beds supplies (7 new 4x4 + 2 trellis beds). November work day (build beds)… (Summer 2018).

Lastly, reflection materials revealed persistent gaps in participants' knowledge and barriers they faced. When the KLEW protocol asked participants to share out what they were "wondering" after learning about each training topic their responses revealed areas to focus on in future trainings, but also barriers such as support from their school community:

- "How I can use the garden in my physical science classroom" (Summer 2018).
- "How to get admin[istration] on board" (Summer 2018).
- "How to have enough help in the garden - maintaining it" (Summer 2019).
- "I wonder how to convince the cafeteria staff to serve the food we grow" (Summer 2019).

When reflection materials explicitly asked, "What are the barriers within your school to making [an FTS team] happen?" participants' responses emphasized the difficulties of recruiting others to participate in FTS when they are already asked to do so much. One participant shared that their challenge to recruiting team members was due to a lack of motivation, "Intrinsic

motivation among team members to go the 'extra mile'" (Spring 2019). Others explained that most of their colleagues already engaged in extracurricular activities and that there was no financial compensation for participating. One shared, "It is one more thing on the list they want us to do. It is not in our curriculum" (Spring 2019). Another clarified, "Everyone is already over extended. Participation does not come with a stipend" (Spring 2019).

Focus Groups

Focus groups revealed positive, teacher-reported student outcomes. Participants shared stories of students becoming more confident in the classroom and sharing their own agriculture experiences. One participant explained, "If I would ever ask questions or show interest, [these students] would just kind of shut down, 'yes' or 'no' answers…but last year, I felt like the kids who did have backyard chickens or a garden where they're growing tomatoes…they were so much more willing to talk about it and share it and be proud of it" (FG 3.11, P45). Another participant shared, "the kids would tell me a lot about 'Oh, this is what I grow at home' or 'this is what my grandma grows' or 'that you know my dad said growing up, he used to do such and such'" (FG 3.11, P59).

Others shared activities that took place in the garden that created opportunities for student ownership and pride in their work. One participant described how her "Green Team" students grew carrots in the garden and were able to serve them in the cafeteria. She shared, "…one year we got just a bumpin' crop of carrots…and our cafeteria manager and staff were really supportive and cooked up the carrots and they put a little label on the line like, "try these carrots they were grown here at school by the Green Team." The kids were excited…[they] were so

proud of that…" (FG 3.11, P59). This activity demonstrated the pride that comes from growing, caring, and serving produce grown in the school garden, as well as the importance of having the support of the school cafeteria.

An FTS team from one school shared an example of the garden positively impacting one of their student's interest in school. The team explained that this student had very little concern for her schoolwork and would often do-nothing during class time. They also shared, "we had this one little girl that just…was not into school, certainly not into anything academic, but the garden spoke to her. She loved the garden…I went to her house to deliver some stuff because she didn't get her stuff on the last day of school and she had taken a tire that was broken from her parent's car, filled it up with dirt, and started planting tomato plants in it. She said, "I figured out what I needed." I'm telling you this kid did nothing at school, but she took away how to build a garden" (FG 4.22, P32). The team went on to share that although the school garden was not successful in terms of production, it did impact this student and created a space for her to find something at school to enjoy.

Beyond teacher-reported student impact, participants conveyed that they gained the skills necessary for structuring learning opportunities that fostered these student outcomes from their participation in the GIKI teacher training program. One participant shared, "We're able to bring more to the classroom at this point than we did before…what [GIKI] shared with us has been helpful to pass on to the students, so that they have a better understanding of how food is grown, where it comes from, and what it takes to actually make something grow and thrive" (FG 3.11, P5). Another shared, "…I loved going through [the training] and I loved all the activities…to me the biggest thing really was just the overall idea of getting kids out into the garden, getting that

hands-on practice…my primary focus is reading and writing skills, but tailoring those kinds of assignments around hands-on or more project-based approaches" (FG 3.11, P22). Lastly, someone shared, "through the training, we try new things, and so that makes me say [to my students], "look y'all I can do it, you can do it", you know?" (FG 3.26, P49).

Another participant expressed that the resources made available through their mini-grant award led to new classroom opportunities and student confidence, "We hatched eggs in my classroom, and I would never have had the background knowledge to do that if our VISTA hadn't been a chicken expert…it just worked out great. As the chickens started happening a lot of the kids, especially some that were really shy, opened up and wanted to talk about their experiences raising chickens at their house" (FG 3.11, P45).

Supplemental Data – AmeriCorps VISTA and Program Coordinator Reports

Reports from personnel provided a deeper understanding of the day-to-day relationships and networks fostered through the pilot program. The AmeriCorps VISTA and Program Coordinator reports provided information on the number of impacts beyond the scope of the training, including the number of students engaged, number of services offered, number of volunteers recruited, and the value of in-kind resources (monetary or other donations).

The GIKI program coordinator divided their time between supporting mini-grant recipients, planning activities and lessons, forming partnerships within schools and in the community, and providing PD at local FTS organizations such as the School Garden Association and FTS Boosters Club. The program coordinator spent eight to ten hours each week between Summer 2018 and Spring 2020 providing PD to mini-grant awardees through piloting FTS

activities and lessons. This approach provided ongoing PD to teachers and engaged their students in hands-on activities such as weeding garden beds, planting seeds, collecting compost in the cafeteria, and conducting a cooking demonstration in the classroom. One of their reflections captures this effort and students' enthusiasm for it:

> The lessons at [the Center for Innovative Teaching] and Russel are going well. We ran a pollinator lesson at CFIT today and planted 40 black-eyed susans and echinacea plants...that were donated by someone that [the administrator] knows...The students are still very excited when they see us coming in the morning... (AB reflection_2018).

The program coordinator's reports emphasized their time spent working with existing FTS partners in Barrow County. Reports also illustrated persistent challenges. One memo reads, "I am feeling left out from the inside scoop. Today I found out that there is in fact an FTS Boosters email listserv, and that I am not on it...just the challenges of working with the school system, when you are not an employee of that system..." (AB reflection_ 2018)

Two AmeriCorps VISTAs (one each year) worked alongside the program coordinator and recorded details about the mini-grant sites through monthly and quarterly written reports. These reports included descriptions of student engagement, relationships within the community, sustainability of the program, and persistent barriers. In total the VISTAs completed 193 activities and lessons, which were piloted in a classroom or made available to educators through the online database, and engaged 1,239 students via garden workdays, cooking demonstrations, taste tests, and other FTS-related lessons directly taught in the classroom.

During the first year, the VISTA spent most of their term compiling resources, making connections in the community, and getting the school garden program at their school sites started. The following year, the VISTA spent more time working directly with students and educators to create a database for garden and sustainability-based lessons. The goal of the database was to create lesson plans appropriate for every grade level in Barrow County in order to sustain FTS efforts beyond the VISTA term and GIKI grant cycle. The following VISTA report illustrates students' experiences participating in their school's FTS program:

> "[I] was approached by a couple of students stating that [I] encouraged them to pursue careers in agriculture, with one even stating they now wanted to become a teacher. [The students] are willing to try things and continue to be shocked when they find out that vegetables can be delicious. Their world is continuously expanding and many of them are coming out of their shells" (2019 Quarterly Report).

The work done by the AmeriCorps VISTAs between 2018-2020 strengthened the FTS network within Barrow County by facilitating school-level relationships between the schools, parents, and local organizations; creating programs that engage students in FTS; and creating lessons for educators that integrate FTS into their curriculum. Though the VISTAs were successful in creating these school level partnerships and engaging students, they still faced challenges related to maintaining morale within the school, finding time to maintain a garden space, obtaining administrative approval for their work, and navigating strict mandated testing schedules. Additionally, at times the VISTAs were heavily relied upon to facilitate many of the FTS activities. In one report the VISTA explained the cause of the problem, "With limited time for students to assist in managing the garden, much if not all, of the garden maintenance has

fallen to the VISTA" (2019 Quarterly Report). In the same report, however, the VISTA shared that the school they served had formed a committee to alleviate the VISTA – or anyone – from having sole responsibility of the program:

> The Garden Cat Support Committee has been essential in making sure the garden runs smoothly. The committee is comprised of members from every department and has positions held by several club organizations in the high school. The committee is responsible for writing grants for the garden, finding resources for the garden, and sponsoring Garden Cat workdays (2019 Quarterly Reports).

Discussion

Here, the discussion triangulates the results of the evaluation to answer the three key questions regarding the GIKI teacher training pilot program: (1) In what ways did the GIKI teacher training pilot program create and sustain an effective FTS professional development program? (2) What student learning outcomes were documented during the grant cycle? And (3) How can future FTS professional development programs support educators engaging in FTS? These questions relate to the grant's goals and objectives detailed in the background section of this chapter.

1. **In what ways did the GIKI teacher training pilot program create and sustain an effective FTS professional development program?**

Several factors underpin effective professional development programs—including *active learning*, *feedback, duration* of the program, *follow-up*, *collective participation,* and *cohesion* between the program's values and that of the educator and their school (Desimone, 2009; Dunn,

et al., 2019; Guskey, 2002). The post-survey training quality section and the reflection material data collected with participants demonstrate that the program included these critical factors: GIKI created space for **active learning** through experiential education, which increased participants' confidence in their ability to engage in FTS. Examples of active learning include building garden structures, participating in taste tests, planning their goals, reflecting on their programs, observing successful examples, and identifying resources to overcome barriers they face. **Feedback** was provided by both the GIKI team and participants during planning and reflection activities. Providing feedback and sharing their own experiences revealed commonalities among participants and opportunities to support one another.

When participants interact and support one another, they engage in collective participation (Desimone, 2009; Dunn et al., 2019). GIKI further supports **collective participation** by emphasizing the need for an FTS team and encouraging participants to attend the training with said team. The importance of an FTS team is emphasized throughout every workshop and even incentivized by a lower registration fee.

The **duration** of the program is important as intensive programs with twenty or more hours of contact time are more effective (Desimone, 2009; Dunn et al., 2019). The GIKI program offered trainings of various durations, but the core of this training—the three-day intensive summer training—provided participants with twenty-four hours of contact time. Participants were then encouraged to attend both one-day trainings and local FTS organization meetings, which offered an additional twenty-four hours of contact time each school year. Beyond formal meetings and mini-grants, the GIKI team followed-up with participants through informal

communication channels to offer one-on-one consultations, which is crucial for the impact of the program to sustain beyond the training setting (Dunn et al., 2009).

Lastly, **cohesion** relates to the program's ability to reflect the values of the participants and the institutions they represent (Desimone, 2009; Dunn et al., 2019). Additionally, when professional development reflects participants' own values, their motivation may increase (Sancar, Atal, & Deryakulu, 2021). The FTS and the GIKI teacher training pilot program value community-based programming, FANH education, and hands-on garden- and food-based learning. These **values** are shared with the pilot program's partner organizations: Barrow County School System, Barrow County School Nutrition, Barrow County Cooperative Extension, and the Wimberly Center for Community Development. Cohesion creates well supported networks that provide resources for participants and opportunities for sustainability beyond the grant.

2. What student learning outcomes were documented during the grant cycle?

Studies have found a direct link between student learning outcomes and educators' motivations to implement new activities – when student outcomes are positive, educators are more motivated to implement new activities (Girvan et al., 2016; Guskey, 2002; Sancar, Atal, & Deryakulu, 2021). Our participants similarly connect the GIKI teacher training pilot program to shifts in their classroom practices. Through field trips and guest speaker presentations, our participants observed successful models for implementing garden- and food-based learning. Reflection materials collected with participants during the GIKI teacher training pilot program revealed the evidence that participants were learning new knowledge and skills. Prompts such as setting goals and creating action steps support participants in adapting what they were learning to

their school and classroom contexts. Finally, in the focus groups participants shared specific examples of the way the GIKI program enabled them to implement what they had learned in their classroom, which led them to observe positive student outcomes. Trainees connected their participation in the GIKI teacher training pilot program with their ability to implement food and garden based experiential learning activities, such as cooking with students or simply engaging them in the school garden.

While our evaluation cannot determine the *direct* benefits of the GIKI teacher training pilot program on students' learning outcomes, in focus groups our participants reported observing an increase in their students' confidence in the classroom associated with food- and garden-based experiential learning, along with pride in their work and willingness to try new activities such as participating in a taste test with garden produce.

3. **How can future FTS professional development programs support educators engaging in FTS?**

In this section I discuss GIKI's framework and its contribution to the success of the program. As illustrated above, the GIKI teacher training pilot program increased participants' confidence, made time for planning, reflecting, and integrating new knowledge and skills. GIKI's success is rooted in an asset-based community development framework (ABCD), which is community-led, relationship-driven, and emphasizes existing assets in the community (Kretzmunn, n.d.; Mathie & Cunningham, 2005; Misner & Schulenkorf, 2016). By prioritizing what is available, rather than what is not, community members are supported to create sustainable change that reflects the values within their community (Garven, McLean, & Pattoni, 2016).

Focus group data and personnel reports demonstrate that the GIKI teacher training pilot program was successful in supporting existing and creating new networks among stakeholders. Stakeholders included educators, school communities, local governmental agencies (Barrow County School System and Barrow County School Nutrition), and other institutions (Barrow County Cooperative Extension, University of Georgia). Individuals and organizations within these networks acted as a team to support ongoing professional development for educators engaged in FTS. Support was given in the form of monetary resources and personnel like the AmeriCorps VISTA. Collaboration among stakeholders creates efficiency within the program and new networks of support for PD programs (Collinson, 2009; Sancar, Atal, & Deryakulu, 2021).

Additionally, when a PD program shares the same values and beliefs as the attending participants, participants' motivation to implement new materials in the classroom increases (Hunzicker, 2011; Sancar, Atal, & Deryakulu, 2021). The GIKI teacher training pilot program encourages FTS programs to develop in line with their school and local community's values, assets, and resources. As previously described, Barrow County had existing support for FTS and a strong agricultural background. The GIKI teacher training program backed these existing networks and created new ones, which advanced support of FTS programs within the county. Not every school system engaging in FTS will have this level of support; however, the GIKI model works to identify local stakeholders and resources that can support FTS practitioners and reflect the culture of the local community.

The program's framework encouraged educators to recruit a diverse group of colleagues from their schools, attend the training with a team, and participate in existing FTS programs such

as FTS Boosters and the School Garden Association. Through this, GIKI worked with participants to establish communities of practice (CoP). Communities of practice, defined by Wenger (2011), are groups of individuals who share a common interest for something and learn to do it better through regular interaction with one another. The CoPs may happen formally, through organizations like FTS Boosters, or informally such as a couple of educators working on a school garden program together. Members of a CoP are not just a club, but rather an assortment of people with a shared identity that through experience, create and share new knowledge and skills (Wenger, 2011). During the GIKI teacher training pilot program, formal CoPs included attendance at GIKI trainings, FTS boosters, and the School Garden Association, while informal networks were those between participants and colleagues at their schools. The CoPs are used to gain resources to overcome barriers like a gap in knowledge as participants now had a community to turn to for answers and even physical resources such as seeds, starts, and supplies. The literature suggests that CoPs can, and should, be used to sustain and promote continued PD (Bricker, et al., 2015; Warr Pederson, 2017).

Persistent Barriers

Despite GIKI's ability to create an effective program through an asset-based framework and CoPs, barriers persist. Many participants struggle to build a team or overcome challenges related to participation at their schools. Reflection materials revealed that participants' colleagues were often not motivated to join because they were not getting paid for the additional time/effort, or because they had other commitments. Additionally, when reflection materials explicitly asked, "What are the barriers within your school to making [an FTS team] happen?",

participants' responses echoed barriers found in the literature: time, resources, and personnel (Burt et al., 2018; Thompson & Narciso, 2017).

Though less visible, consistent administration support was another barrier identified by this evaluation. For example, administrators were reluctant to support teachers attending FTS PD during the school year, even when they had initially agreed to it. This lack of support was evident from the shifts in participant attendance from summer to fall to spring. Further, on more than one occasion, district administrators reversed decisions to pay for an AmeriCorps VISTA position to support our collaborative efforts on the ground, despite evidence that these positions strongly impact the success of school garden programs.

Recommendations

Based on the results of this evaluation, I offer four recommendations for future FTS PD programs:

(1) When developing an FTS PD program, use an ABCD approach and support educators in **identify existing networks and resources**. Networks may already exist within the local school system(s). The USDA farm-to-school census reported that 84.7% of school food authorities in the state of Georgia were participating in farm-to-school in 2019 (2021). That percentage accounts for 2,139 schools and over 1.5 million students (USDA, 2021). These figures suggest that there is an existing foundation in a great deal of Georgia's school systems to build upon. Additionally, 67% of students in middle to high school grades were enrolled in a Career, Technical and Agriculture Education (CTAE) course during the 2018 fiscal year (GADOE). CTAE courses included both agriculture and nutrition science classes. Building upon

existing CTAE programs within school systems may provide opportunities for expanding food and garden-based learning for students, while creating a network of support within schools for those engaged in FTS.

(2) Based on the results of our study, and the literature around effective professional development, I recommend future FTS PD programs strive to **provide ongoing support** throughout the school year. Ongoing support may look like a series of trainings such as GIKI's intensive summer training followed by one day professional learning day workshops during the school year. Another way future programs could provide ongoing support is through the establishment of CoPs among FTS practitioners in a school or school district. Much like GIKI, future programs can support the creation of CoPs by encouraging educators to attend with a team from their school, allow time for teams to set their program goals and delegate roles, and identify assets, like individuals with knowledge and skills related to FTS, in their community (school or greater). Additionally, creating opportunities for partnerships between FTS practitioners, local farmers, and community development organizations that emphasize food access and education may create opportunities for continued support of FTS PD.

(3) To better support educators engaged in FTS, future FTS PD programs need to collaborate with their local school system and establish *formal support* for FTS programs and FTS PD. Formal support would include **funding personnel to support FTS or school gardens**. As the focus group and reflection data demonstrated, the AmeriCorps VISTAs and grant program coordinator had a lasting impact on schools' FTS programs. Personnel contributed by developing lesson plans that connected to the state mandated curriculum, fulfilling educators need for site-specific professional development, engaging students, and building relationships

within the schools and between community partners to further support the schools' programs. School-level relationships included advocating for administrative support, recruiting other educators to use the school garden space and integrate FTS into their classroom curriculum, recruiting students to participate during and after school, recruiting parent volunteers and donations, as well as creating partnerships between schools and local organizations. The results of this evaluation echo other studies, like Thompson & Narciso, that relationships between schools and local organizations are crucial for FTS since many of them rely on volunteer labor and donations to maintain their programs (2017).

(4) Another indication of formal support may include **written approval and funding for educators to participate in FTS PD**. Written approval and funding may come from administration or the local school board. To ensure that FTS program sustainability is a priority, schools should include FTS PD as an option for continuing education credits to retain their teaching certification (Burt et al., 2018). Since the creation of an FTS team is critical for program sustainability, school administrators should encourage and support participation in FTS PD by a wide range of school staff members, including school nutrition staff and other auxiliary positions.

Limitations

Due to shifting participation in the GIKI teacher training pilot program, our pre- and post-survey data were inconsistent, which limited our statistical analysis; however, our evaluation captures an extensive amount of qualitative data that triangulates the results of our statistical analysis.

Conclusion

Results of this evaluation provide a robust account of the role that PD plays in providing the necessary knowledge and skills to implement and sustain an FTS program (Peralta et al., 2020). The evaluation found that FTS PD can increase educators' confidence across various FTS topics (i.e., soil management, overall garden management, garden- and food-based instruction, food safety, etc.). Results from participants' surveys and focus groups suggest that their change in confidence arise from experiential learning and guided reflection at the training. Though the results capture teacher reported student outcomes, future research is needed to better understand the role of FTS PD on student learning outcomes. This evaluation provides insights into persistent barriers such as establishing an FTS team and gaining administrative support.

The evaluation indicates that GIKI was an effective and sustainable FTS PD model, which emphasizes the importance of existing networks, collaboration among all stakeholders, and the potential role of CoPs. I recommend that future programs gain *formal support* for FTS PD by establishing a school garden or FTS coordinator position for the school system(s) they are serving, as well as written support from administration for teachers to participate in FTS PD.

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APPENDIX D: Evaluation Quantitative Results

Descriptive Statistics
Summer 2018 & 2019 Pre-Surveys

	N Statistic	Minimum Statistic	Maximum Statistic	Median Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Standard error	Kurtosis Statistic	Kurtosis Standard error
Q1 Planning your garden space	27	0	3	2.00	1.492	-1.366	.448	.376	.872
Q2 Seed starting and transplanting	27	0	3	2.00	1.544	-1.015	.448	-.522	.872
Q3 Maintaining soil health	27	0	3	2.00	1.282	-1.345	.448	.505	.872
Q4 Building/putting together the necessary structures for a school garden (such as irrigation and raised beds)	27	0	4	2.00	1.450	-1.216	.448	.132	.872
Q5 Practicing food safety with garden produce	27	0	4	2.00	1.556	-1.257	.448	-.028	.872
Q6 Using a school garden to teach required curriculum	27	0	4	2.00	1.772	-.398	.448	-1.689	.872
Q7	26	0	4	2.00	1.338	2.077	.448	2.902	.872

Incorporating farm to school into the school cafeteria									
Q8 Overall school garden management	27	0	4	2.00	1.430	-1.209	.448	.154	.872
Q9 Teaching others (e.g. parents, colleagues, students, etc.) about issues of food insecurity and access	27	0	4	2.00	1.441	-1.027	.448	-.212	.872
Q10 Teaching others about health and nutrition	27	0	4	3.00	1.469	-1.229	.448	.121	.872
Q11 Teaching others about the structure of the food system	27	0	4	2.00	1.436	-1.117	.448	-.041	.872

Descriptive Statistics Summer 2018 & 2019 Post-Surveys

	N Statistic	Minimum Statistic	Maximum Statistic	Median Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Standard error	Kurtosis Statistic	Kurtosis Standard error
Q1 Planning your garden space	27	0	4	3.000	1.492	-1.366	.448	.376	.872
Q2	27	0	4	3.000	1.544	-1.105	.448	-.522	.872

Seed starting and transplanting									
Q3 Maintaining soil health	27	0	4	3.000	1.282	-1.345	.448	.505	.872
Q4 Building/putting together the necessary structures for a school garden (such as irrigation and raised beds)	27	0	4	3.000	1.450	-1.216	.448	.132	.872
Q5 Practicing food safety with garden produce	27	0	4	4.000	1.556	-1.257	.448	-.028	.872
Q6 Using a school garden to teach required curriculum	27	0	4	3.000	1.772	-.398	.448	-1.689	.872
Q7 Incorporating farm to school into the school cafeteria	27	0	4	4.00	1.338	2.77	.448	2.902	.872
Q8 Overall school garden management	27	0	4	3.000	1.430	-1.209	.448	.154	.872
Q9 Teaching others (e.g. parents, colleagues, students, etc.) about issues of food insecurity and access	27	0	4	3.000	1.441	-1.027	.448	-.212	.872
Q10 Teaching others about health and nutrition	27	0	4	3.000	1.469	-1.299	.448	.121	.872
Q11 Teaching others about the	27	0	4	3.000	1.436	-1.117	.448	-0.41	.872

structure of the food system									

Related Samples Wilcoxon Signed Rank Test

	Null Hypothesis	Sig.[a,b]	Decision	Total N	Test Statistic	Standard Error	Standardized Test Statistic	Asymptomatic Sig. (2-sided test)	Effect Size
1	The median of differences between PreQ1 and PostQ1 equals 0.	.001	Reject	27	202.820	29.820	2.532	.011	.345
2	The median of differences between PreQ2 and PostQ2 equals 0.	.038	Reject	27	174.000	28.264	2.070	.038	.282
3	The median of differences between PreQ3 and PostQ3 equals 0.	.009	Reject	27	205.00	30.102	2.608	.009	.355
4	The median of differences between PreQ4 and PostQ4 equals 0	.002	Reject	27	201.500	28.381	3.030	.002	.412
5	The median of differences between PreQ5 and PostQ5 equals 0.	.011	Reject	27	203.000	30.239	2.530	.011	.412
6	The median of differences between PreQ6 and PostQ6 equals 0.	.152	Retain	27	130.000	24.431	1.433	.152	.3443
7	The median of differences between PreQ7 and PostQ7 equals 0.	.481	Retain	26	13.000	7.089	-.705	.481	.195
8	The median of differences between PreQ8 and PostQ8 equals 0	.046	Reject	27	157.500	26.256	2.000	.046	-.096
9	The median of differences between PreQ9	.118	Retain	27	97.500	18.878	1.563	.118	.272

	and PostQ9 equals 0.								
10	The median of differences between PreQ10 and PostQ10 equals 0.	.112	Retain	27	109.500	20.758	1.590	.112	.213
11	The median of differences between PreQ11 and PostQ11 equals 0.	.052	Retain	27	156.000	26.196	1.947	.052	.2164

Descriptive Statistics
Summer 2018 & 2019 (Pre-Surveys)

	N	Minimum	Maximum	Median	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Standard error
Incorporating composting into your garden, cafeteria, and/or classroom	24	1.00	3.00	2.000	.780	.000	.472
Troubleshooting plant disease and insect issues	24	1.00	3.00	1.000	.589	.694	.472
Creating a summer care plan for your school garden	15	1.00	3.00	2.000	.704	-.092	.580
Encouraging pollinator habitat in your garden	24	1.00	4.00	2.000	.929	.535	.472
Involving the larger community in farm to school	15	1.00	4.00	2.000	.884	.116	.580

Descriptive Statistics
Fall 2018, 2019 & Spring 2019, 2020 (post-Surveys)

	N	Minimum	Maximum	Median	Std. Deviation	Skewness		Kurtosis	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Standard error	Statistic	Standard error
Incorporating composting into your garden, cafeteria,	14	1.00	4.00	3.000	.995	-.425	.597	-.552	1.154

and/or classroom									
Troubleshooting plant disease and insect issues	21	2.00	4.00	3.000	.590	.001	.501	.351	.972
Creating a summer care plan for your school garden	5	3.00	4.00	4.000	.547	-.609	.913	-3.333	2.000
Encouraging pollinator habitat in your garden	13	1.00	4.00	3.000	1.182	-.366	.616	-1.329	1.191
Involving the larger community in farm to school	5	2.00	4.00	4.000	.894	-1.258	.913	.312	2.000

Related Samples Wilcoxon Signed Rank Test

	Null Hypothesis	Sig.[a,b]	Decision	Total N	Test Statistic	Standard Error	Standardized Test Statistic	Asymptomatic Sig. (2-sided test)	Effect Size
1	The median of differences between *(Pre) Incorporating composting into your garden, cafeteria, and/or classroom* and *(Post) Incorporating composting into your garden, cafeteria, and/or classroom* equals 0.	.207	Retain	14	39.500	9.520	1.261	.207	.238
2	The median of differences between *(Pre) Troubleshooting plant disease and insect issues* and *(Post) Troubleshooting plant disease and insect issues* equal 0.	.000	Reject	21	186.500	24.197	3.781	.000	.584
3	The median of differences between *(Pre) Creating a*	.034	Reject	5	15.000	3.536	2.121	.034	.671

	summer care plan for your school garden and (*Post) Creating a summer care plan for your school garden* equals 0.								
4	The median of differences between *(Pre) Encouraging pollinator habitat in your garden* and (*Post) Encouraging pollinator habitat in your garden* equals 0.	.097	Retain	13	50.500	10.553	1.658	.097	.460
5	The median of differences between *(Pre) Involving the larger community in farm to school* and (*Post) Involving the larger community in farm to school* equals 0.	.059	Retain	5	10.000	2.646	1.890	.059	.845

Descriptive Statistics
Training Usefulness (Compiled from 2018-2020 Post-Surveys)

	N Statistic	Minimum Statistic	Maximum Statistic	Median Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Standard error	Kurtosis Statistic	Kurtosis Standard error
S1 Community Garden Tours	40	0	4	4.00	1.083	-2.878	.374	7.428	.733
S2 Raised Bed Building or Irrigation Demonstration	21	4	4	4.00	.000	.	.	.	.
S3 Soil Health	21	3	4	4.00	.301	-2.975	.501	7.562	.972
S4 Food Safety	21	2	4	3.00	.669	-.626	.501	-.498	.972
S5 School Tours and Lessons	43	0	4	4.00	1.310	-2.074	.361	2.888	.709
S6	21	0	4	4.00	1.590	-1.577	.501	.700	.972

Seed Starting and Transplanting									
S7 Time for Incorporating What You Learned into an Action Plan	21	3	4	4.00	.359	-2.202	.501	3.138	.972
S8 Food & Social Sustainability	21	3	4	4.00	.402	-1.700	.501	.975	.972
S9 Fall Garden Crops	21	0	4	4.00	.926	-3.155	.501	11.544	.972
S10 Garden-based Cooking Lessons	21	3	4	4.00	.218	-4.583	.501	21.000	.972
S11 Pollinator Gardening	18	4	4	4.00	.000	.	.	.	.
S12 Compost/ Food Waste Session	20	3	4	4.00	.308	-2.888	.512	7.037	.992
S13 School Garden Best Practices	12	2	4	4.00	.622	-2.555	.637	6.242	1.232
S14 Garden Planning Session	36	2	4	4.00	.485	-2.158	.393	4.257	.768
S15 Integrated Pest Management	24	3	4	4.00	.442	-1.233	.472	-.531	.918
S16 School Garden Team Session	8	3	4	4.00	.518	-.644	.752	-2.240	1.481

APPENDIX E: Evaluation Code Book (exported from Atlas.ti).

Code	**Comment**	**Code Group 1**
"w" - cafeteria		
"W" - Classroom Connection		
"W" - Community		
"W" - SG		
Classroom Connection Goal		Farm to School Goals
CoP		
FTS Goals - Post survey		
FTS Goals - Pre Surey		Farm to School Goals

PD - Barriers Resolved	6/24/21, 8:46 AM, merged with Bridge	Overcoming Barriers
PD - Building Partnership		Overcoming Barriers
PD - FTS Community/ FTS team	6/22/21, 8:44 AM, merged with PD - FTS Community/FTS Team —> resources made available throught the training	Overcoming Barriers
PD - Persisting Barriers		
PD Linking with Participatory Planning		
PD Pro - Applicable Information		Effective Professional Development
PD Pro - Hands On		Effective Professional Development
Personal Goal		Farm to School Goals
School Garden Goal		Farm to School Goals
Schoolwide Participation Goal		Farm to School Goals
VISTA - Barrier		
VISTA - Building Relationships		
VISTA - Student Engagement		