Jones Valley Teaching Farm

2018 Report

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Contents

Executive Summary

This report was commissioned by Jones Valley Teaching Farm in spring 2018 to explore principal and teacher experiences with Jones Valley Teaching Farm (JVTF) at their schools. A descriptive case study design was used to capture these experiences. Primary data were drawn from five principal interviews and four focus groups with classroom teachers.

Overall, principals and teachers expressed a great deal of satisfaction with JVTF. They recognized the value of having farms onsite and noted that many of these learning experiences would not otherwise be available to their students. Participants identified the following key components to the success of JVTF: collaborative partnerships; dynamic instructors; and innovative, standards-based curriculum. Furthermore, they described JVTF instructors as integral to the school community and invaluable to student learning in the classroom and in the farm.

Consistent with research literature on student engagement, participants noted that inquiry-based learning through JVTF instruction sparked and maintained student interest in school. Additionally, it allowed students to draw connections between academic content and their own lives, which can be particularly important for culturally and linguistically diverse learners.

Principals and teachers described instructor-led standards-based lessons as "value added" to their classroom instruction, and observed a number of benefits to students including the ability to try new foods, develop life skills, and find a 'home-base' to assume a leadership role or find a group of friends with whom they shared a common interest. Participants regarded the program as highly successful for its potential to retain students at risk of dropping out and worthy of replication in other urban schools and settings.

Overview

Jones Valley Teaching Farm (JVTF) is a 501(c)(3) nonprofit located in Birmingham, Alabama. Founded in 2002 as a small community garden, the original goal of JVTF was to provide downtown residents with access to locally grown, fresh produce. JVTF increased its footprint in 2007 by moving to a three-acre vacant lot in downtown Birmingham. It expanded its mission in 2013 by offering school-based food education. JVTF programs and services are guided by the organization's mission: to "use the power of growing food to transform and improve a young person's pre-K – 12 educational experience".[1]

Staff members accomplish this mission by building "vibrant, student-centered Teaching Farms on school campuses to provide an environment where young people can learn, create and explore, and grow a healthy future for themselves and their community".[2] JVTF operationalizes its mission by partnering with Birmingham City Schools to provide students with a "dynamic, hands-on curriculum (to) bring to life science, math, social studies, English language arts, health, and art".[3] JVTF currently has Teaching Farms on the grounds of five Pre-K−8 schools and one high school in the Birmingham City Schools System. A seventh partner school uses the original downtown farm site as its Teaching Farm. A summary of partner schools can be seen in Table 1.

Table 1
*Characteristics of Birmingham City Schools that Partner with Jones Valley Teaching Farm**

School	Enrollment	Black/African American (%)	Hispanic/ Latino (%)	White (%)	Other (%)
Avondale Elementary School	560	79.6	5.3	11.7	3.4
Glen Iris Elementary School	835	69.2	26.3	2.7	1.8
Hayes K-8 School	953	81.5	16.7	0.5	1.3
Oliver Elementary School	444	96.5	2.2	0.2	1.1
Phillips K-8 Academy	732	96.5	1.3	0.7	1.5
Putnam Middle School	285	94.9	1.4	2.1	1.6
Woodlawn High School	806	92.1	5.3	1.0	1.6

*Alabama State Department of Education, 2016-2017

JVTF Programs

JVTF currently operates four types of school-based education programs: after-school programs, the Teaching Farm at Woodlawn High School, summer programs, and Good School Food (GSF). GSF is the primary Pre-K – 12 program offered by JVTF and the focus of this current investigation. However, students who receive in-class lessons through GSF also participate in the other types of programs. Brief descriptions of each are provided below.

After-school programs. Students gain hands-on experiences in three JVTF after-school programs: Farm Club, Student Run Farmers' Market, and Culinary Club. Participation in after-school programs is based on teacher recommendations and student access to transportation.

Farm Club allows students to become "stewards of their school's Teaching Farm" by planting, harvesting, and cooking the fresh produce they grow. Additionally, Farm Club provides opportunities for JVTF farmers and students to conduct STEM-based projects based on sustainable farming practices and science, technology, engineering, and mathematics (STEM).[4]

Student Run Farmers' Market is a seasonal activity in which students sell produce to their teachers, parents, and community members. In addition to learning about fresh produce, students gain a real-world understanding of operating a small business. Student Run Farmers' Markets target the 21st century learning skills of communication, marketing, financial literacy, and quality customer service.

Culinary Club is a weekly activity in which students "try new recipes, build culinary skills and share a meal they have prepared with friends." Through a partnership with Shipt®, a Birmingham-based grocery delivery business, Culinary Club members take home the groceries they need to apply these new skills to meals cooked with their families.[5]

Teaching Farm at Woodlawn High School. Completed in 2015, this two-acre production farm provides a select group of Woodlawn High School students an opportunity to participate in a paid internship for course credit. A Program Director and Farm Manager staff the farm; however, student interns are responsible for all aspects of food production and sales. The Teaching Farm at Woodlawn High School includes a greenhouse, bio-retention pond, office space, and produce processing and storage facilities (For additional information about the JVTF after-school programs and Teaching Farm at Woodlawn High School, see Fifolt, Morgan, & Burgess, 2018).[6]

Summer programs. JVTF works with partner schools to provide farm-related activities for elementary school students during the summer. Programming complements existing summer camp experiences and lasts for four to six weeks. In 2018, the Teaching Farm at Woodlawn High School will pilot its first two-week, intensive summer camp for middle schools students. Program topics include leadership and social justice; hands-on activities involve farming and culinary skills as well as a project-based learning activity to design a permanent farm stand at the school.

Good School Food. "Good School Food is a hands-on food education model that connects students to food, farming, and the culinary arts through standards-based, cross-curricular lessons during the school day".[7] JVTF recruits, trains, and places one GSF Instructor and one Farm Fellow in each school. Throughout this report, the researcher refers to these individuals as "JVTF instructors" or simply "instructors" to differentiate their roles from classroom teachers and school principals, who are employees of the Birmingham City Schools System.

JVTF instructors are "embedded" in their assigned school for the entire academic year[†], and they work closely with classroom teachers to plan and deliver academic standards-based lessons both in the classroom and in the school farm. Instructors use active learning strategies to engage students and enrich student learning. The Director of Education reviews all JVTF classroom lessons prior to course delivery and instructors utilize developmentally and age-appropriate teaching strategies. During the academic year 2017-2018, JVTF provided more than 1,000 classroom lessons in the six Pre-K – 8 grade schools.

Setting

Alabama is a culturally rich and economically diverse state with approximately 4.8 million residents spread across 67 counties. Located in Jefferson County, Birmingham is the most populous city in the state with approximately 212,000 residents. The majority of residents in Birmingham self-identifies as Black/African American (72.0%) or White (24.3%) with 3.4% identifying as Hispanic or Latino of any race.[8] The reported median household income for Birmingham residents is $32,404, approximately $20,000 lower than the national median household income, and nearly 29.4% of Birmingham residents live in poverty.[9]

Birmingham City Schools System

The Birmingham City Schools System serves 23,320 students in grades K-12 as well as 750 preschool students. Jones Valley Teaching Farm programs reach approximately 4,600 students in Pre-K−12. Collectively, the student population of Jones Valley Teaching Farm partner schools is approximately 87% African American and 8.4% Hispanic/Latino/a. Five of these partner schools (Avondale Elementary, Oliver Elementary, Hayes K-8, Putnam Middle School, and Woodlawn High School) are part of the Woodlawn Innovation Network (WIN).

[†] At the time of this report, Good School Food Instructors worked at their schools for multiple years while Farm Fellows served for one year through the Americorps VISTA.

WIN is an initiative which seeks to transform education in the five schools in the Woodlawn High School feeder pattern. Working with elementary and middle school students who matriculate to Woodlawn High School provides Jones Valley Teaching Farm staff members a unique opportunity to develop long-term relationships with students for greater impact (Pre-K−12).

The free/reduced lunch rate among Jones Valley Teaching Farm partner schools is 100% based on the Community Eligibility Provision, a "non-pricing meal service option for schools and school districts in low-income areas".[10] The poverty rate of Birmingham City School students is 49%,[11] which stands in stark contrast to the much lower poverty rates of students in neighboring school districts. Every school in the Birmingham City Schools System qualifies for Title I, a federal program designed to provide funding to improve the academic achievement of students who are at risk due to poverty. The system qualifies for a Title I Concentration Grant which is available to local educational agencies (LEAs) where the number of at-risk students exceeds 6,500 or 15% percent of the total school-age population.[12]

Literature Review and Theoretical Framework

The public education system in the United States faces significant challenges in preparing students to be college and career ready.[13-14] Like many urban school districts in the United States, the Birmingham City Schools System struggles to provide opportunities for under-resourced students from low-income families. Without these stimuli, however, students are likely to lose motivation and interest, abandon a growth mindset, and disengage from school altogether.[15-17]

There is no panacea for student disengagement in under-resourced schools. However, experts have suggested that appropriate interventions for early and middle grade students can

"combat student disengagement and increase graduation rates in our nation's cities".[18] The National Academy of Science's Research Council released a statement in 2004 that remains relevant for today's students: "Learning and succeeding in school requires active engagement. …Engaging adolescents, including those who have become disengaged and alienated from school, is not an easy task. Academic motivation decreases steadily from the early grades of elementary school into high school."[19]

Student Engagement

The Glossary of Education Reform (2016) defines student engagement as "the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education".[20] While student disengagement remains a persistent challenge among public schools across the United States, its consequences are especially acute among under-resourced students in urban centers.[21] Students from disadvantaged backgrounds in high-poverty, urban schools who disengage are less likely than their peers to graduate from high school. Consequently, they face severely limited opportunities. "Failure to earn even the most basic educational credential or acquire the basic skills needed to function in adult society increases dramatically their risk of unemployment, poverty, poor health, and involvement in the criminal justice system".[22]

Results from a recent Gallup Student Poll (2013) showed that students begin to disengage from school as early as the 5th grade, and this downward trend continues throughout middle and high school.[23] Current estimates suggest that 25% to 60% of U.S. students are disengaged from school.[24-25] Importantly, Lee noted that 'academic failure' and 'dropping out' are not "isolated events but rather the result of a long-term process of disengagement from school".[26] One potential strategy to engage or re-engage students in school is through experiential, hands-on

learning. Researchers have noted that experience-based activities can spark student curiosity, improve engagement with academic content, and assist in the development of analysis and critical thinking skills.[27-29]

Experiential Learning

Educational reformer and noted American psychologist, Dewey, espoused the value of experience-based learning, suggesting that education outside of the traditional walls of the classroom could produce higher level knowledge and intellectual growth.[30] The author posited that experiential education coupled with meaningful social interactions comprised the necessary components of transformative learning. More recently, Kolb (1984) introduced a four-stage learning cycle in which "knowledge is created through the transformation of experience".[31]

In this model, a student progresses through four stages in which he or she (1) encounters a new situation or experience, (2) observes and reflects on the experience, (3) formulates abstract concepts (analysis) and generalizations (conclusions), and (4) uses this information to test hypotheses in future situations. According to Kolb and Fry, a student can enter the cycle of learning at any stage of the process, but effective learning only occurs when the learner executes all four stages of the model.[32] The constructivist learning philosophies of Dewey, Kolb, and others are foundational to the principles of inquiry-based learning in which learners actively participate in and make meaning of authentic experiences.[33]

Inquiry-based Learning

Inquiry-based learning is a pedagogical approach to teaching and learning that capitalizes on student curiosity. As compared to conventional models of direct instruction, inquiry-based curriculum encourages students to pose difficult questions; conduct independent research; present findings; and reflect on the process of learning. Reflection is a critical

component of inquiry-based learning: “It’s about reflecting on the process itself. That’s where you can work in metacognition. Thinking about thinking. Thinking about how they learned not just what they learned”.[34] As noted by the Center for Inspired Teaching, “an inquiry-based approach allows students to draw connections between academic content and their own lives, which can be particularly important for culturally and linguistically diverse learners.”[35]

School Gardens and School Farms

One approach for introducing inquiry-based strategies into the curriculum is through school gardens. Researchers have identified school gardens as powerful tools to engage students in meaningful discussions about nutrition, food security, and ecological sustainability.[36] Others have noted the benefits of school gardens in terms of students’ social and emotional growth and academic achievement.[37-38] Notwithstanding these many benefits, Yu detected a number of challenges associated with sustaining school gardens including continuous funding, lack of teacher training in garden-based instruction, overburden of garden maintenance on teachers and staff, and maintenance of gardens over vacations.[39]

Similar to Denver Public Schools, JVTF draws a distinction between “school gardens” and “school farms” based on plot size, seasonal crops, staff and volunteers who maintain the farm, and an integrated curriculum that features food and farm-related educational activities.[40] Despite the potential of school farms to activate student learning and curiosity through academic standards-based lessons using food, there is paucity in the research literature on the topic. This descriptive case study seeks to add to the extant literature on integrating school farms and curricular engagement in economically under-resourced urban areas.

Methodology

For this investigation, the researcher used multiple qualitative methods to collect and analyze data, including semi-structured interviews with principals of partner schools and focus group sessions with classroom teachers. The central research question addressed in this report was: What are your experiences with Jones Valley Teaching Farm at your school? The focus of this question was significant in understanding the types of interactions principals and teachers had with JVTF instructors, formal and informal educational opportunities afforded by site-based farms and instructors, and challenges associated with managing a fully functioning farm on school grounds while also developing and delivering academic standards-based classroom lessons.

The researcher conducted one-on-one interviews with five of the seven principals of partner schools. One principal was not available to participate in the research due to active military duty; the other was the principal of the high school. As previously noted, JVTF activities at the high school fell primarily outside the parameters of this investigation.

The goal of interviews is to "elicit extensive and descriptive narratives from participants related to particular experiences".[41] Furthermore, interviews provide a space for participants to describe their experiences in their own terms. For this project, interviews lasted between 30 and 45 minutes and were audio recorded. A third-party vendor transcribed all audio recordings verbatim.

Additionally, the researcher conducted focus group sessions with teachers in four partner schools. Focus group methodology is a qualitative technique that provides an opportunity for data to be captured in a group interaction. According to Hennick, focus groups "encourage a range of responses which provides a greater understanding of the attitudes, behavior, opinions or

perceptions of participants on the research issues".[42] The researcher conducted focus group sessions at each specific school, and only classroom teachers from that school were eligible to participate. Focus groups lasted approximately 60 minutes, and data were recorded by hand and audio device then transcribed and analyzed for patterns. A combined total of 15, K-8 classroom teachers participated in focus groups. The researcher sought additional responses through an online survey; only one survey response was received but it was from a teacher not represented in the focus groups.

The small number of participants was not representative of all grade levels and/or academic subjects. Furthermore, teachers did not represent all partner schools. Despite reaching saturation among program participants, additional perspectives may have strengthened overall reporting.[43] Nevertheless, the findings, while not generalizable beyond this specific group of participants, do provide valuable insights regarding participant experiences with JVTF.[44]

For this investigation, the researcher used a text-to-table application in Microsoft Word to organize emergent codes and themes. The researcher analyzed data using constant comparative and thematic analysis techniques as articulated by Savin-Baden and Major.[45] Line-by-line coding allowed the researcher to extrapolate recurring words, actions, phenomena, and thoughts from focus group notes.[46] Trustworthiness of data was established through peer review, triangulation of methods; and the use of an audit trail.[47-48]

Findings

Five overall themes emerged from principal interviews and teacher focus groups regarding their experiences with Jones Valley Teaching Farm, including: *collaborative partnership*; *dynamic instructors; innovative, standards-based curriculum; student benefits,* and

challenges and opportunities. For each theme, the researcher provides sub-themes and representative quotes to highlight findings.

Collaborative Partnership

Across interviews and focus groups, participants agreed that the collaborative partnership between schools and JVTF was highly valued and unlike any other type of public-private relationship they had previously seen or experienced. By co-locating the farms on school grounds and staffing them with onsite instructors, several participants suggested that JVTF had essentially blurred the lines between indoor and outdoor classroom spaces.

Principal A said, "From the beginning, I really just wanted them (JVTF) to not be something that's set apart, (but rather) something that is very ingrained in what we do. …When instructors are planning lessons… it's not something outside or separate". Similarly, Principal B described the collaborative nature of the partnership as "extraordinary." He said, "What has been created out there and the learning that takes place through what we've created together, it amazes me every day."

Principal D described the farm as a highlight of the school, something that she regularly uses to recruit new teachers to her school, "It's right here in your backyard…we don't have to go anywhere, we don't need a bus, it's right here." While the schools and JVTF built the farms to provide students with hands-on learning opportunities, participants suggested that their farms had become much more: they were a source of school pride. Teachers said students "see it (the farm) as something they can take care of" and are "very protective" of it.

Shared culture. Principals and teachers described JVTF as integral to the school community, noting that the day-to-day presence of instructors was a positive influence that helped shape the culture of the school. Principal B described his school as "one big family" and

noted “Jones Valley just stepped very easily into our community or our family and became a part of it. It was just seamless.” Principal A stated:

> They (instructors) are a part of our school community and they made themselves a part of it by being present every day, by working with kids consistently, by being in classrooms consistently, by helping out when needed. I mean, that's just kind of what makes them a part (of the school).

According to participants, everyone in the school, students, teachers, and administrators, affords instructors the same level of respect as they would any other teacher. In fact, teachers suggested that many of their students would not know the difference between the “indoor teacher” and the “outdoor teacher”.

Dynamic Instructors

Participants identified instructors as the single most important component of the JVTF partnership; they viewed them as the ones who made the school farms successful. Among their many positive attributes, principals and teachers described instructors as knowledgeable, patient, and kind.

Knowledgeable. Teachers described instructors as extremely knowledgeable of both content knowledge and classroom management skills. Teachers identified various lessons in which instructors demonstrated math and science principles using produce from the farm as well as creative ways in which instructors used food to teach lessons in history, social studies, and language arts. For example, an elementary school teacher described a lesson in which students first made sweet potato fries and then created persuasive product labels to “catch people’s attention” that would “make them want to buy it.”

One of the most resounding endorsements of instructors came from an elementary school teacher who commented on their ability to teach:

> Some people can have a whole lot of content base and a whole lot of knowledge about what they are doing and have no way of getting that over to somebody. That is not the experience we've had. They (instructors) know how to talk to our children. They know how to break down a subject to our kids. They know how to make it real life to them. It's not like they're talking over their head about things that ... They really break it down for the kids and make it really a fun experience for them.

Patient and kind. Participants consistently described JVTF instructors as patient in their interactions with students. Principal C noted, "Instructors have such a great relationships with the kids. The kids ask them questions and no question is too small for them to answer." She continued, "It's their tone. It's so calm and reassuring and it's hard to describe unless you're sitting there…and you're like 'Wow, how did they get him to do that?' They're just able to have that effect on the kids." One middle school teacher suggested that instructors viewed students the same way they viewed all living things. She said, "You don't see the instructors getting upset because a plant hasn't fully blossomed yet. It's the same with our students. They see students' potential and are just waiting to see what they become."

Across schools, participants described instructors as kind and caring individuals who genuinely loved the students and loved the work they were doing; the feeling was mutual. Principal A said, "From our teachers to students to parents, everyone knows and loves them." An elementary school teacher recalled instructors' efforts to get to know each student: "It's such a big school, but they try to learn everyone's names and they say hello to them."

Teachers also observed that instructors were intentional in involving all students in activities, "each child has a job and a responsibility." They noted that students gravitated to the farm during recess: "Even if the kids aren't technically supposed to be in the farm lab, they love to go over there and help. It's calming to do some of that work," and it is a responsible choice "to not get in trouble." The instructors make students feel "valued" and "empowered."

Innovative, Standards-based Curriculum

Principals and teachers alike commented on the innovative, content-rich curriculum that instructors developed and delivered to students. Principal A stated, "Our teachers know they can count on JVTF instructors to work alongside them to plan lessons." According to Principal C, instructors meet regularly with teachers during grade level meetings to discuss upcoming topics and identify ways in which farm-related lessons and activities can address particular academic standards. She provided the following example:

> I know seventh grade science, they did plants, so they had some beautiful flowers for the students to actually dissect and take apart. They were talking about the stamen and how pollination, how that works. They are just able to take that lesson and expand it and make it so much more hands-on and relevant for the students.

Principal E confirmed that teacher-instructor conversations often guided lesson planning; however, she suggested that instructors frequently played a significant role in developing plans: "It's more that the instructors bring ideas to the teachers based on what they've heard teachers are doing in the classroom to supplement the curriculum."

While instructors frequently created lessons in response to specific topics, teachers also provided examples in which instructors taught more informal, spontaneous life lessons from the farm. For example, a kindergarten teacher noted that she and her students were walking through

the farm, and one of the instructors held up a carrot and said to the students, “Do you want to taste the carrot greens?” The teacher said, “We just tasted carrot greens on the fly.” Another teacher added, “We were actually able to go outside and try all the roots and the stems and the leaves and the flowers.” Both teachers connected these experiences back to classroom lessons on *Tops and Bottoms*, a story about how different animals live off various parts of plants. One of the participants said, “Being in the farm, the kids got to see how that really could happen.”

Inquiry-based curriculum. Participants discussed the many ways in which instructors used inquiry-based methods to engage students in active, hands-on learning. Principal D articulated this concept saying:

> Lessons need to have student learning at the center of it. The student should be the one engaged and generating questions, coming up with ideas. …That’s what I’m looking for in the classroom, and it’s also what happens in the farm lab.

According to Principal D, JVTF instructors use the farm and classroom lessons to spark discovery and maintain interest among students. For lower grade students, instructors address questions like, “What is this?” and “Where does this come from?” For middle grade students, instructors help bridge the present and the future by addressing the question: “Why are we doing this?”

Principal E described the goal of inquiry-based learning: “Giving students a prompt question that challenges them to think beyond the curriculum and beyond a general standard.” Nevertheless, she acknowledged the challenges of working with this population of students: “Quite honestly, as a school we haven’t been able to do a whole lot of it (inquiry-based learning) because we are struggling with our reading proficiency and math proficiency.” She said, “We would not be able to provide those types of experiences for the students without Jones Valley.”

Principal E concluded, “While we want to be where JVTF is in terms of instruction…it’s just not where we are as an organization. So, at least someone is bringing that to the table for us right now.”

Value added. Principal E described the farm as a “huge instructional support” for the school noting that instructors provided lessons in the classroom and carried these lessons into the farm through hands-on activities. She said that teachers like JVTF because it does not require a great deal of planning and instruction from them, “it supplements their curriculum without extra work on their part….So, it’s an easy program to implement as a school”. She continued, “This is one of those gifts that teachers are given because all of the legwork is done by the instructors.”

In addition to creating lessons that are developmentally and age appropriate, participants suggested that instructors worked hard to serve the needs of all students. For example, Principal C noted that students in their gifted program were able to successfully write a community-based grant the previous year to secure funds to build a greenhouse. She stated:

> Students that are high performing, those lessons are differentiated for their level and those students that need more lower level, but are still on grade level, to reach those standards as well. They're able to adapt those lessons to reach all spectrums of learning.

Teachers agreed that instructors and instructor-led lessons were “value added” to their classroom experience, “It’s not an inconvenience to have them in the classroom. It’s an added benefit.” One elementary teacher said, “I don’t look and go ‘Oh, the instructors are coming in and they’re taking away my time.’ I look and go, ‘Oh, great. The instructors are coming in. It’s a great addition to my time.” With regard to math and science instruction, one teacher said, “Students almost forget they are learning.”

Student Benefits

Participants identified a number of benefits students received based on their involvement with JVTF. While students who participated in after-school programs seemed to accrue the greatest amount of benefit due to prolonged engagement with instructors and the farm,[49] principals and teachers suggested that through the GSF program all students were able to try new foods, develop life skills beyond the curriculum, and, frequently, find a 'home base'.

Trying new foods. One of the clearest benefits to students of having a school farm and onsite instructors was the opportunity for students to try new and healthy food options. Participants agreed that the presence of JVTF had positively influenced student knowledge of and willingness to try different types of foods. Principal A noted that the farm produced fruits and vegetables that students "may not eat at home or may not see at the store they shop at." She further noted, "Students are not hesitant to try something they've never had before," and while they may discover foods that they do not care for, they are still willing to try something new the next time.

Principal E explained:

> I guess students are more willing to try things like a radish when they grow it themselves. When normally a child would be like "Ew, I don't want to try that." But, they're willing to do it….They're bringing it to us and they're like, "Oh, you need to try it. It's really good." So, those kinds of things will help them make healthier choices."

She continued:

> And I've heard parents even comment, "They want me to cook this. I gotta come up here and buy these because they said they were so good. I'm gonna go home and sauté them

> tonight." That's a conversation you wouldn't normally have with a parent about their fifth grader if you didn't have this at your school. Or second grader.

Developing life skills. Across schools, participants highlighted the valuable life skills that students gained from their involvement with JVTF, including real-world applications of math and science concepts to everyday situations as well as "soft skills" like cooperation, communication, teamwork, empathy, responsibility, and leadership. Principal D hastened to add, "and also learning how to be a good follower." Principal E observed that working as a team is "more fun than sitting at a desk and working." She stated, "When you're just collaborating and talking to each other, you're actually doing work together."

Finding a 'home base'. Participants suggested that the school farm provided a type of 'home base' for a number of students in which they could assume leadership roles or find a group of friends with whom they shared a common interest. Principal A stated, "I think all kids need a thing, one thing that's going to get them to school every day." She continued:

> If they can find their one thing it may make their transition from elementary school to middle and high school a little easier. …Of all the things that are so inconsistent in their lives, that's one thing they can hang their hat on.

Principal E agreed, "If it (the farm) connects a child to school, just one, then we've done a service back to children."

Challenges and Opportunities

Staffing. Because of their positive experiences with JVTF, teachers expressed a desire for less transition among instructors. Several participants identified high turnover rates of instructors (i.e., Farm Fellows) and suggested that this made it difficult for instructors and students to build meaningful, long-term relationships. Additionally, there were periods of time at

some schools in which instructors departed mid-year leaving only one instructor to maintain the school farm and teach classroom lessons. While they recognized that JVTF was a benefit to the school, both principals and teachers stated a belief that greater stability and more instructional staff, especially at the larger schools, would benefit the program and their students.

Facilities. At several schools, participants communicated the need for an outdoor kitchen and/or better arrangements to prepare and serve food. Principal C described plans for finding a dedicated classroom space for instructors: "Students can…go into their classroom and they can have everything set up instead of having to be so mobile throughout the building." Similarly, Principal D noted that they did not have a Family Consumer Sciences classroom so "we're still trying to work out what that might look like." Principal E called an outdoor kitchen a "pipe dream" but suggested that it would significantly expand instructor capacity to provide lessons in the farm.

Coordination. Participants also made suggestions for curriculum improvements including more consistent and/or systematic lesson planning with teachers and mid-year check-ins. Principal D advocated for greater collaboration between teachers and instructors to map out specific lessons throughout the year. Several teachers suggested that instructors and teachers should meet at the beginning of the year, during grade level meetings, and at the halfway point to ensure the schedule was still on track. One teacher expressed regret that they had to cancel several lessons because of a prolonged testing period; she wondered aloud if this situation could have been avoided through better communication and planning.

Discussion and Implications

Overall, principals and teachers expressed a great deal of satisfaction with JVTF at their schools and excitement about moving forward with the program. Participants recognized the

value of having farms onsite and indicated that many of these learning experiences would not otherwise be available to their students. Additionally, principals suggested that the program provided the right amount of flexibility and structure to meet the specific needs of their schools. Principal B said, "(JVTF is) adaptable to our kids and what they need at a particular moment… and then gear those resources towards them."

Across interviews and focus groups, participants identified instructors as essential to the success of the program. They observed that being onsite allowed instructors to build formal and informal relationships with students in the classroom and in the farm on a daily basis. From a pragmatic perspective, participants noted that the farms would not be in such excellent condition were it not for the regular and tireless efforts of the instructors, which is consistent with the findings of Yu who identified the maintenance of school gardens as a major barrier to success.[50]

Additionally, the physical presence of onsite instructors provided opportunities for both planned, standards-based classroom lessons as well as spontaneous learning activities to occur. Teachers described instructor-led lessons as "adding to" rather than "taking away" from classroom instruction, and viewed farm lessons as special events that students did not take for granted. For example, when the caterpillars emerged from their chrysalis in one teacher's classroom, the first thing her students wanted to do was tell the instructors, "We had to…go find the instructors. I mean there was no stopping them. I couldn't teach, I couldn't talk. I couldn't read. I couldn't do anything." According to the teacher, this example illustrates how deeply enmeshed instructors are in the fabric of the school community.

Finally, participants highlighted the many benefits students received through JVTF, from experimenting with new foods and developing a deeper understanding of where food comes from to learning to take turns and working together as a team. There was consensus among

participants that JVTF was an important component of students' K-8 experience. Consistent with the research literature on student engagement, participants viewed the hands-on, inquiry-based approach of JVTF as a compelling way to maintain student interest in school and provide some students a 'home base' to connect with others. In fact, at every school, principals and/or teachers shared at least one story of students who personally grew because of their interactions with instructors or through farm-based activities.

Despite widespread agreement among participants that JVTF positively contributes to the learning experiences of students, their 'wish lists' for additional staffing and facilities require financial resources. Responding to these requests may necessitate further collaboration between administrators and JVTF staff members to seek additional funding through grants and private foundations. Participants and JVTF staff members are encouraged to explore cost-sharing options and in-kind support from the greater Birmingham community. Administrators and program planners may also wish to explore options for marketing farm-based lessons and/or consulting with other school systems interested in developing a fully functioning onsite instructor/farm model.

Conclusion

Student disengagement from school is a serious issue in the United States, and it can have significant and negative consequences for under-resourced students in high-poverty, urban schools. However, there are strategies for combatting disengagement among students in early and middle grades, including hand-on, inquiry-based learning. Within the Birmingham City School System, JVTF instructors engage students in meaningful, experience-based learning through academic standards-based classroom lessons and informal learning activities in the farm.

Participants communicated the value of having (a) onsite farms for students to engage in hands-on experiences without leaving campuses as well as (b) onsite instructors to develop and teach inquiry-based lessons and maintain the farm; for this educational model to succeed one could not exist without the other. Furthermore, the model seemed to be both adaptable and responsive to the needs of elementary and middle school students. Essentially, the GSF program is still a work-in-progress, and JVTF will continue to monitor and modify it as needed. Nevertheless, the benefits it provides to students as well as its potential to retain students at risk for dropping out makes it highly successful and worthy of replication in other urban schools and settings.

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