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Sidewalks and City Streets: A Model for Vibrant Agricultural Education in Urban American Communities

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In 2005, The National Council for Agricultural Education (NCAE) unveiled The Long Range Goal for Agricultural Education also known as 10 x 15. According to NCAE, the primary goal of 10 x 15 was to create 10,000 new agricultural education programs by 2015 that focused on an integrated model of classroom and laboratory instruction, experiential learning, leadership, and personal skill development. In an effort to meet this goal, NCAE identified a need to design programs that focused on specific customers and communities. Urban programing was one area of emphasis cited in the report. In light of the call for several thousand new agricultural education programs nationwide and the dearth of literature to support direction for creating new programs, this instrumental case study resulted in a deeper understanding of the process that led one urban school district to create a new, community-focused agricultural education program. Five themes emerged that informed a model for originating future urban agricultural education programs: 1) reasoned motivation, 2) hourglass advocacy, 3) intentional innovation, 4) community rejuvenation, and 5) program regeneration. Each theme is presented in the sequence in which it unfolded and, subsequently, resulted in the creation of an urban agricultural education program.

Keywords: urban agricultural education; instrumental case study; new agricultural education program

The West Side of Town – A Description of the Case

This instrumental case study (Stake, 1995) is situated in Paxton (pseudonym), a Middle American city that is rich with history and culture but has witnessed steady decline. The town of Paxton was first incorporated in the 1880s as a railhead community located near a major navigational river. The small municipality was an oil boomtown at the turn of the century. As expected with most oil towns, when the crude dried up, so did the population. Eventually, Paxton was annexed into the city limits of its neighbor across the river and it became a community within a city – never completely losing its unique identity; however, it lost much of its vitality.

Residents of Paxton are generally low-income, blue-collar families who can ill afford to keep their homes in good repair; however, some long-term residents take pride in the area and maintain their properties. Thus, the city is a mix of decay peppered with occasional elegance. While Paxton has experienced negative growth and continues to decline, some signs of community remain. The most prominent sign of a prosperous past and a hopeful future is Thomas High School.

Thomas High School is the smallest of nine secondary schools in the state's largest district, which serves more than 41,000 students and is the district's only campus serving students who live on the west side of the river. District administrators have identified Thomas High School as the district's most community-focused school. One segment of the school's population consists of third-generation students who attend Thomas High School. Another segment of the population consists of students from transient, low-income families who move into the area and leave within the year. The contrast between the two groups is one reason for the high incidence of student transfers from Thomas High School to neighboring suburban districts.

During 2005, community leaders took action to save Thomas High School after reviewing data that indicated the school strongly reflected the community it served and would likely continue its downward trend. According to Mr. James, school board member, "a lot of kids that live in the Thomas High School attendance zone were transferring to suburban schools down the road. School administrators became very concerned when enrollment dropped below 500, making it the smallest high school in the district. There was talk of possible consolidation, and Thomas High School was in that conversation" [37].

Closing Thomas High School may have been the final blow to Paxton. Knowing this was a possibility, the superintendent empowered community activists, business leaders, elected school officials, and elementary, middle and high school administrators in the Thomas High School attendance zone to explore options to prevent the closure. The group identified student needs and desires within the high school curriculum including increased student activities, diversified course offerings, intensified community interaction, and alternative learning opportunities. The committee developed a list of projects that addressed identified needs in an attempt to reverse declining enrollment, largely due to out-of-district transfers. The recommendations were delivered to the superintendent and school board. Among the list of recommendations was the creation of an agricultural education (horticulture) program at Thomas High School.

Horticulture on the West Side – Rationale and Purpose for the Study

In 2005, The National Council for Agricultural Education (NCAE) unveiled *The Long Range Goal for Agricultural Education* also known as 10 x 15 (Team Ag Ed, n.d.). According to NCAE (2008) the primary goal of 10 x 15 was to create 10,000 new agricultural education programs by 2015 that focused on "an integrated model of classroom/laboratory instruction, experiential learning, and leadership and personal skill development" (p. 1).

At that time, 7,242 agricultural education programs existed in the United States. To meet the goal, 2,758 new programs need to be created in the next eight years (NCAE, 2008). Enns (2008) identified urban areas as having the most growth potential for agricultural education programs.

Around the same time, urban agriculture gained center stage in American popular culture when First Lady Michelle Obama installed a kitchen garden on the South Lawn of the White House early in the Obama presidency as part of her campaign to reduce childhood obesity (Obama, 2012). Urban agriculture is defined as "any agricultural venture that produces a diversity of food, fuel, and/or livestock in response to the daily demands of consumers within a town, city, or metropolis, primarily using local natural resources and recycling urban wastes" (Melcarek, 2011, p. 433).

American urban agriculture has a long history. From the 1890s to present, gardens have provided urban dwellers with fresh produce, meat, and eggs. World War I and the Great Depression necessitated the use of kitchen gardens. Already well adapted to home gardening, Americans produced over 40% of their fresh produce during World War II using urban agricultural techniques (Melcarek, 2011, p. 434). In Chicago alone, there were over 250,000 home gardens, termed Victory Gardens, that were a symbol of patriotism and self-sufficiency during a difficult time in our nation's history (Obama, 2012).

The current wave of urban agriculture began in the 1980s and peaked in 2008 when the global financial crisis, oil shocks, dramatic price increases of food, and loss of supply chains hit simultaneously (Cockrall-King, 2012). The Obama kitchen garden spurred the already burgeoning urban agriculture movement across America, giving voice to the undertones of economic self-sufficiency necessary in the new (and not so impressive) world economy.

The year 2008 also marked a turning point in human history as the year in which the earth's urban population outnumbered its rural populace. By 2060, over 60% of the world's population will live in urban areas (Dubbeling, de Zeeuw, van Veenhuizen, 2010). In 2012, 80% of Americans lived in cities. Rapid urban expansion puts residents at risk for poverty, food insecurity, and malnutrition; such expansion also

places demands on city infrastructure such as sanitation, waste disposal, water treatment, and land use (Dubbeling, de Zeeuw, van Veenhuizen, 2010).

The community of agricultural educators at secondary and tertiary levels are in a prime position to address many of the community, policy, and infrastructure needs for developing and executing a plan for urban agriculture; however, this opportunity has been largely overlooked by the profession. While studies have been conducted examining urban agricultural education students in the areas of career choices, student perceptions, and agricultural literacy, little attention has been given to understanding how urban agricultural education programs can be initiated and sustained (Anderson & Kim, 2009; Esters & Bowen, 2005; Hess & Trexler, 2011).

The profession recognized that teamwork and collaboration from all agricultural education stakeholders is required to meet the 10 x 15 goal (Boone & Boone, 2009), and the importance of training enough new teachers to guide these new programs (Blackburn & Robinson, 2008; Boone & Boone, 2009; Murray, Flowers, Croom, & Wilson, 2011). However, limited research exists to inform the profession about the process of creating new urban agricultural education programs.

In light of the call for several thousand new agricultural education programs nationwide and the dearth of literature to support direction for creating new programs, I embarked on an instrumental case study (Stake, 1995) to gain a deeper understanding of the process that led one urban school district to create a new agricultural education program. The innovation process at Thomas High School can serve as a model for other urban school districts.

Diffusing an Innovation – Theoretical Framework

The data collected for this case study were analyzed through the theoretical lens of Rogers' Diffusion of Innovations theory (Rogers, 2003). Rogers defined an innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (p. 12). He further explained that diffusion "is the process in which an innovation is communicated through certain channels over time among the members of a social system" (p. 5). I chose to specifically focus the case using Rogers' five stages of the innovation process in organizations, divided into two phases. Decisions to adopt or reject the innovation occur between the two phases.

A. The Initiation Phase

1. Agenda setting occurs when a problem within the organization results in the perceived need of an innovation to correct the problem. This first stage initiates the innovation process and is usually the result of a "performance gap" (p. 422). Performance gaps are incongruities that exist between the expected operation of an organization and the actual performance of the organization.
2. Matching occurs with the identification of a specific innovation in response to a perceived need within the organization whereupon the match is planned and designed.

B. The Implementation Phase

3. Redefining/restructuring occurs as the innovation undergoes modification to fit the organization, and in like manner, the organization modifies its existing structure in order to accommodate the innovation.
4. Clarifying occurs as the innovation is dispersed throughout the organization, and members develop a more complete understanding of the innovation and its corresponding relationship to the organization as a whole.
5. Routinizing occurs as the innovation becomes embedded into the daily processes of the organization, ending the innovation process.

Methodology

I determined that the instrumental case study approach to qualitative inquiry was the most appropriate method to gain a deeper under-

standing of the process to add agricultural education at Thomas High School. According to Stake (1995), instrumental case studies can be useful in examining a particular bounded system in order to understand a specific issue better for transfer to other situations. In this case, I studied the horticulture program at Thomas High School in an effort to illustrate the process for creating additional urban agricultural education programs using Rogers' (2003) innovation process in organizations.

Data were collected through semi-structured interviews with three key stakeholders, observations, and document analysis. I used *horizonalization* (Creswell, 2007) to discover profound statements or commonality in responses. Such statements were coded and compiled with information gained through observation and document analysis. All interviews were recorded using a digital recording device and transcribed verbatim for accuracy. Interview transcriptions and other supportive documents were hand coded. Finally, a holistic analysis (Yin, 2003) of the data provided the means to identify five themes that emerged from the analysis that led to the construction of a model for creating and sustaining urban agricultural education programs.

Purposive sample selection was derived from decision makers in the Thomas High School school district. I identified Mr. Howard, the district director of career and technology education, as the key informant for the study. The snowball sampling method (Noy, 2008) was then used to identify and contact other key decision makers who were involved in the initiation or implementation (Rogers, 2003) phases of the process. Three people were interviewed: the district director of Career and Technology Education (Mr. Howard), the principal of Thomas High School at the time of the innovation (Mr. Andrew), and one member of the school system's board of education (Mr. James). Per the request of the participants, all names and places are pseudonyms.

Trustworthiness

Credibility was paramount to the success and validity of the study. Every effort was made to ensure findings were reported using quotations from participants when possible to establish truth-value of the study. Quotations were included to assist the reader's ability to discover the emotion, meanings, and implications behind participant responses. Participants were asked to review reported data to ensure that the results were valid and reflected their interpretation of the case (member checking, Creswell, 2007).

Creswell (2007) and Stake (1995) emphasized the importance of thick, rich descriptions, and personalization of the case that allow the reader to understand the case from a holistic perspective to determine the transferability of findings, hence, the abundance of detail provided along with the use of first person narrative. Appropriate steps were taken to ensure that others could confirm the results of the study through the descriptions. An extensive audit trail was maintained during the data collection, coding, and reporting phases of the study.

Although the results of qualitative research are not generated for purposes of generalizability, the identified themes reported here could be transferred to other situations where decision makers are considering adding an agricultural education program at their school. Furthermore, researchers and practitioners in other Career and Technology Education fields may use the results of this study to inform practice or guide further research.

Reflexivity of the Researcher

According to Stake (1995) "the most distinctive characteristic of qualitative inquiry is its emphasis on interpretation" (p. 8). Stake further explained, "the function of the qualitative researcher during data gathering is clearly to maintain vigorous interpretation" (p. 9). Although I maintained a reflexive journal that identified inevitable biases, which ultimately influenced my interpretation and construction of meaning while conducting the study, a brief discussion of my background is appropriate to elucidate bias inherent in this study (Creswell, 2007; Stake, 1995).

As a youth, I was an exemplary participant in a suburban agricultural education program, having earned both State and American FFA

Degrees. I taught agricultural education for six years in a suburban school district less than 50 miles from Paxton. During those years, I observed many high-achieving students transfer from Thomas High School into my district. I left my teaching position to pursue a Doctor of Philosophy in Agricultural Education. My primary research agenda focuses on the impact of urban agricultural education programs on student achievement and community vitality.

I am a constructionist. Crotty (1998) explained that constructionism is the foundational belief that there is no discoverable objective truth. Crotty (1998) added that people who see the world with a constructionism epistemological viewpoint believe that "truth, or meaning, comes into existence in and out of our engagement with the realities in our world" (p. 8). I also find value in constructivism (Hirtle, 1996) because I believe people change their viewpoints based upon the way their thinking processes develop over time. Thus, my personal history and epistemological viewpoint framed data collection and analysis, influencing the interpretive conclusions and recommendations.

Ethical Considerations

"Ethics are not just a means, but rather constitute a universal end goal of qualitative quality itself" (Tracy, 2010, p. 846). Tracy identified several criteria, including ethical considerations, which comprise excellent qualitative research. In regard to protecting human subjects, I held candid conversations with each of the three participants before entering the field, at which time they were made aware of their rights and protections as participants in the study. Each subject received an informed consent form approved by the Institutional Review Board explaining the nature of the study and any implications that might arise as a result of it.

It was my responsibility to recognize the likelihood of a perception of a power imbalance between me and study participants and work to neutralize that perception. I relied on observation and intuition to determine if any power imbalance perception was inhibiting the transfer of information from participants to me. Tracy (2010) outlined a need for the researcher to consider the best way to ethically exit the field. Although my exit was not complicated, I allowed the participants to read the final report and provide feedback to ensure that all information was ethically reported and that their stories were not distorted.

Assertions, Discussion, and Recommendations

The findings are reported as interpretative *assertions*, followed by discussion and recommendations within the same section for greater clarity. During the data analysis process, five themes emerged and are framed within Rogers' theory. Each theme is presented in the sequence in which it unfolded, and subsequently resulted in the creation of an urban agricultural education program. Icons are utilized as representative illustrations for each theme, and will be integrated into a model at the conclusion of this section.

Reasoned Motivation

The objective of both the grassroots community group and the top-level school administrators was to increase enrollment at Thomas High School and prevent out-of-district and intra-district student transfers. Thus, they were reasonably motivated to vitalizing the school and community.

Mr. James, school board member, explained that because Thomas High School enrollment dropped below 500 "there was talk of possible consolidation within the district" [38]. He further explained, "We were losing more kids to other school districts in the Thomas feeder pattern than we were in any other high school feeder pattern in the district [75]. We thought finding ways to lure families or hold kids in the feeder pattern and prevent their families from wanting to transfer them out to suburban school districts was a more efficient way to rebuild our enrollment than to encourage new home construction" [80].

Committee members initially did not know their solution resided in an agricultural education program. As the grassroots community supporters and school district leaders conceptualized their solution, they outlined a

program that included student projects that used a greenhouse facility, horticulture coursework, and community activities. School leaders and stakeholders initially viewed horticulture through a traditional science education lens rather than recognizing it as an agricultural discipline. After communicating their conceptualized program to Mr. Howard, the district director of Career and Technology Education, they found their vision matched the current structure of a secondary agricultural education program, and all worked to push through its adoption.

The stakeholders' goal was not to grow the district but rather to reduce the flow of out migration. Remarkably, this urban school district concluded that adding a horticulture program could be a key factor in accomplishing this critical goal. This action on the part of the constituents and leaders of the district demonstrated that modified agricultural education programs can be relevant and appealing to urban students and their communities.

A critical element in this case was the presence of a *bridge builder*, someone who had knowledge of agricultural education and was capable of leading the district to discover the assets of the program. The expansion of agricultural education in urban areas may be dependent upon bridge builders who are knowledgeable of the program and can carry the message to urban districts. Agricultural educators need to identify key people in metropolitan school districts who can serve as bridge builders and educate communities about the structure and function of agricultural education programs to influence adoption and support sustainability.

In addition, the plan included the concept of outreach. Mr. Andrew, former principal, said, "The teaching position that was created required the horticulture teacher to spend time each week at the middle school and each of the elementary schools in the feeder pattern" [325]. He further explained that the goal was to "create an interest in horticulture that they could build on when students reached high school age" [327].

In summarizing this theme, Thomas High School stood on the precipice of closure with declining enrollment. District stakeholders and administrators concluded that the addition of a program based in science, student projects, and community engagement could be part of a solution to regenerate the student population and quality of education at Thomas High School. Because of a bridge builder, stakeholders were made aware of the assets of agricultural education and how it fit their needs with the three components of classroom instruction, supervised agricultural experiences, and FFA sponsored activities.

The new program offered a rigorous, applied science-based curriculum in horticulture that would complement the community. Students could satisfy newfound curiosities in the form of supervised agricultural experiences that allowed them opportunities to apply classroom learning in applied situations such as campus beautification projects. Finally, the FFA chapter served as an appropriate venue for students to develop personal leadership skills and engage in community activities that contributed to the regeneration of Paxton. The three components that form the nexus of school-based agricultural education offer legitimate solutions for urban school districts to meet students' needs for new opportunities. Paxton is not an anomaly; similar conditions exist in urban high schools across the United States (Kerbow, 1996; Martin, 2011).

Hourglass Advocacy

Hourglass advocacy refers to the bi-modal pressure from a grassroots community group (bottom) and from executive-level school administrators (top) to develop the horticulture program at Thomas High School. No identifiable persuasive pressure came from those individuals whose decision-making power would fall in between these two groups. For example, the opinions of teachers, school staff, and students were not sought or considered as the community activists (a group that also included principals and administrators from area elementary schools) and executive level district administrators jointly persuaded the school board to approve the development and implementation of the new agricultural education program.

According to Mr. Howard, the district director of Career and Technology Education,

"the community wanted a program for a long time. Specifically, people in the community seemed to prefer a horticulture program rather than a traditional agricultural education program" [38]. The board of education, according to Mr. James, school board member, agreed with the community's grassroots movement and approved the addition of a horticulture program to the school's course offerings. "The board recognized how important this was to the community, the superintendent had one extra allocation to devote to the program, and the board then approved the program. There was not a lot of fanfare." [184].

Rogers (2003) asserted, "the main outcome of the persuasion stage in the innovation decision process is a favorable or unfavorable attitude toward the innovation" (p. 276). In the case of Thomas High School, the school board had such a favorable opinion from the outset because the two entities that influenced the school board were in agreement on the innovation necessary to solve the problem of declining enrollment. As elected officials, school board members are committed to responding to the needs and concerns of their constituents. Board members trust and value the recommendations of their top-level executives who are usually hired by the school board. In this situation, the district's constituents wanted the innovation, the school administrators recognized its educational value and relevance to the community, and the school board acted in response to those two persuasive groups when it approved the program. Without *Hourglass Advocacy* from both ends of the organization, this innovation might not have been adopted.

Can new urban agricultural education programs be implemented without *Hourglass Advocacy*? According to Rogers (2003), the answer is no. The two persuasive groups who joined forces to construct the innovation to stop the declining enrollment at Thomas High School found commonality in the outcomes each group desired. With no agricultural influence or tradition in the area, a program will struggle to survive because neither advocacy group is strong enough on its own to sustain continued support for the program in a district with numerous programs competing for finite resources. Strong support from key *Hourglass Advocacy* groups is essential to developing successful urban agricultural education programs in large urban schools.

Intentional Innovation

All three participants indicated that the *agenda setting* stage of the diffusion of agricultural education at Thomas High School was a lengthy process. Mr. Andrew, former principal, estimated the duration of the entire process encompassed nearly three years. The first year was comprised of recognizing that the problem existed, and a solution was required. The second was devoted to forming a committee, which then formulated a plan. The final months were dedicated to making presentations and gaining the approval of the district's board of education for adopting the horticulture program.

The agenda-setting process at Thomas High School deviated from normal organizational diffusion practices to the benefit of the community. Most organizations constantly scan the horizon for new ideas that might benefit the organization (Rogers, 2003). When referring to organizational innovativeness, March (1981) explained that many times answers precede the question. Rogers further explained that most organizations struggle with a lack of knowledge of possible innovations as solutions; thus, the chance of discovering an innovation that addresses the problem is slim. The group of community members was removed far enough from the normal innovation process at Thomas High School that they were able to objectively view the problems facing the high school and purposefully identify innovations, such as agricultural education, that could serve as incentives for students to attend Thomas High School.

Mr. James, school board member, explained,

> many community members over here started pulling together to see if there were ways they could increase the enrollment at the school because obviously if the numbers got too low there was going to be a point in time where the cost-benefit analysis would not square up and they could be

> susceptible to losing a high school in that part of town [41].

He said the main function of the grassroots community group was to "sit around and brainstorm ideas about what could be done to pull kids back into the Thomas High School feeder pattern" [65].

Agenda setting occurs when a problem within the organization results in the perceived need of an innovation to correct the problem. In this case, Thomas High School followed the process by incorporating a lengthy agenda-setting stage and intentionally identifying organizational problems. The school district invested sufficient time and empowered thought leaders to identify authentic rather than assumed problems. Thus, urban school districts considering adoption of an agricultural education program should engage in extensive and effective agenda setting. Creating an urban program that does not match the school's agenda would likely fail.

Mr. Howard reported the new horticulture program was a great *match* with the culture at Thomas High School and the community. He stated, "The alumni group and the students are very happy with the program because it offers some alternative courses and helps keep the campus beautiful, which is a great point of pride over there" [p. 42]. Although the community group matched the innovation to the high school's need, Rogers (2003) pointed out that it is the responsibility of the organization's decision-makers to determine the viability of the program and ultimately decide to adopt or reject. The administration and board of education decided that adding horticulture courses at Thomas High School matched the need of the high school and was both viable and sustainable, thus ending the initiation stage of the innovation process in organizations.

Matching occurs with the identification of a specific innovation in response to a perceived need within the organization, whereupon the match is planned and designed. In response to enthusiastic support from stakeholders, the district board of education found the proposed agricultural education program to be viable and readily approved it for implementation. Although each group perceived the program's value differently, both school decision makers and community supporters championed the program addition. School administrators valued the science-based experiential learning potential for their students. The community group valued the potential positive contributions the program could offer the community. The inherent needs of students and communities are consistent in rural, suburban and urban schools. Agricultural education programs are uniquely designed to successfully serve students and communities in each of these environments. All three components of the agricultural education model must be present to achieve desired outcomes in any school setting.

Rogers (2003) explained that during *redefining and restructuring* the innovation and organization would change slightly. The adoption of agricultural education at Thomas High School confirmed this concept. Both the student body and urban location made the campus a non-traditional site for a new agricultural education program, requiring non-traditional courses, expectations for SAE, and FFA activities. It was evident that the innovation had to be modified to meet stakeholder needs. As a result, the program was designed with exploratory SAE's and a strict focus on local FFA programming.

Mr. Howard, director of Career and Technology Education, explained, "I never hear people call it an agricultural education program; they normally refer to it as the horticulture program" [39]. Mr. Andrew, former principal, and Mr. James, school board member, both stressed the importance of community development as the main function for the FFA chapter. Mr. James was proud of the improved physical appearance of the community and the campus as a result of the program. He said,

> Thomas High School has traditionally been the most beautiful campus in the school district; Paxton residents are very proud of that. The first project the FFA chapter completed was landscaping the front entryways that had gotten a little ratty and overgrown. The community was very proud of that. [p. 189]

Although few physical changes were made at the high school, there were fundamental

changes that occurred within the student population. Students who were previously offered traditional lab science classes, such as biology and chemistry, were now afforded a new opportunity to enroll in horticulture classes that offered an applied approach to science and provided science credit. Students were also faced with the decision to accept or reject FFA involvement based on their new, and possibly old, constructions of the organization. Rogers (2003) discussed the concept of radical innovations that create uncomfortable situations for some or all members of the organization. This innovation did not fit the description of a radical innovation per se because it caused only small disruptions in the normal organizational processes and gathered limited attention from teachers and other staff at Thomas High School.

Redefining and restructuring occurs as the innovation undergoes modification to fit the organization, and, in like manner, the organization modifies its existing structure in order to accommodate the innovation. Following Rogers' process, Thomas High School changed the program to become horticulture-based with a local and urban focus. Changes for students included new options to enroll in non-traditional science classes and participate in FFA activities that best suited their needs at the local level. Because those involved were invested in making the project succeed, it was not a daunting task to restructure the traditional agricultural education program in order to add the program at Thomas High School. Agricultural education programs can be successfully modified to fit urban environments while retaining the three components of the classic structure.

The *clarifying* stage can have negative repercussions if the innovation is implemented too quickly (Rogers, 2003). The clarifying stage at Thomas High School was naturally broken into two phases, the administrative phase and the student phase. The administrative phase was rushed in an effort to prepare for the upcoming school year. As a result, Mr. Andrew, former principal, was forced to make a hurried decision when hiring a teacher and chose a teacher with no agriculture education background (alternatively certified). "Although he was an arborist, he wasn't an experienced agricultural education teacher," he said [140]. This individual did not have a clear understanding of the teaching expectations and desired student outcomes associated with the new program. The teacher, who left after a short time, was unsuccessful at developing the program and meeting desired outcomes. The lack of clarity in terms of desired outcomes for the teacher nearly resulted in the failure of the new horticulture program. A seasoned agricultural education teacher replaced him and moved the program in a positive direction.

The student phase of the clarifying stage, however, was carefully and meticulously implemented. The program was clearly described to students during the enrollment process, and no enrollment expectations were developed for the first year. School administrators allowed the program to earn student support rather than risk failure due to high-pressure marketing that can lead students to enroll for reasons other than personal interest. Mr. Howard, director of Career and Technology Education, indicated that the program generated a lot of student interest and enrollment was strong from the beginning.

Clarifying occurs as the innovation is disbursed throughout the organization, and members develop a more complete understanding of the innovation and its corresponding relationship to the organization as a whole. School administrators deviated from Rogers' process as they hired the initial teacher without clarifying their expectations of his performance. School administrators at Thomas High School did not recognize the skills and expertise needed in an agricultural education teacher. Both the administrators and the new teacher lacked clarity regarding the teaching skills and program expectations required. In contrast, the student phase followed Rogers' process. Students were provided information about the program and given the opportunity to enroll. Students were also open to trying a new subject with limited previous exposure. Proper teacher selection is paramount to program success or failure. While the program may be new to the school district, decision makers, members of the community, and students, the teacher in an urban agricultural education program should be a product of an agricultural

education teacher preparation program to most effectively execute the three elements of an agricultural education program.

Rogers (2003) identified two factors that determine if a program will become *routine* within the organization: sustainability and participation. Sustainability is described as the degree in which an innovation is continually used after the initial diffusion effort has ended (Rogers 2003). The construction of a school greenhouse and purchase of additional equipment indicated that school decision makers, as well as community supporters, were confident that the program was sustainable. Mr. James, school board member, felt that the program was successfully diffused into the high school and accepted by teachers, administration, and community members. "It appears to be a permanent addition to the school," he said [353].

While the program adopted at Thomas High School may not reflect the characteristics of a traditional agricultural education program, the innovation process that occurred does reflect classic elements of Rogers' (2003) five-stage innovation process in organizations. *Intentional innovation* was achieved when a need was identified, a match developed, an organization restructured, a decision communicated, and a sustainable routine was established for the agricultural education program at Thomas High School.

Program Regeneration

Program regeneration was achieved by articulating the secondary curriculum with the elementary and middle school curriculum. One of the agricultural education teacher duties at Thomas High School was to collaborate with elementary and middle school teachers when he was on each campus throughout the week.

Mr. James, school board member, indicated that "each elementary and middle school was equipped with a teaching garden or outdoor classroom and that the teachers on those campuses were working with the horticulture teacher to offer foundational lessons in horticulture and botany" [147]. Mr. Howard, Mr. James, and Mr. Andrew posited that the practice of academic articulation led to high program enrollment and higher than expected student performance in the high school program. Furthermore, articulation was an effective mechanism to equip teachers in lower grades with content knowledge and teaching resources to teach fundamental horticulture and botany concepts at their grade level.

Knobloch, Ball, and Allen (2007) found that many elementary teachers do not teach agriculture because they do not have the "instructional resources" (p. 28). Additionally, Frick, Birkenholz, Gardner, and Machtmes (1995) recommended that "teachers in elementary and secondary schools should be encouraged to develop a greater understanding of the importance and significance of agriculture in this country and the world" (p. 8). Urban agricultural education teachers can use curriculum articulation to infuse agricultural literacy throughout elementary and middle schools to maintain a continuous supply of interested students for agricultural education programs.

Community Rejuvenation

Community rejuvenation occurred when the horticulture program at Thomas High School encouraged students to remain in the district via experiential science-based horticulture courses that integrated SAE and FFA, and established an FFA chapter that focused on local activities and community-building projects. Mr. Andrew, former principal, endeavored to design a program that not only helped boost enrollment and met community needs, but also included rigorous coursework that resulted in science credit. "Our goal was to tie horticulture and science together and offer classes that gave science credit," he said [60]. Mr. James, school board member, recounted the FFA chapter accomplishments and stressed the local focus of chapter activities that were confined to the Paxton community. He said, "The FFA advisor and students had a grant from Lowe's, which they used to make some attractive improvements around the school. These activities impressed the alumni and members of the community, and they told us how much they appreciated those improvements. These positive comments rein-

forced for the superintendent and others that they had good community support for their decision" [196].

When asked about student SAE's, Mr. Andrew, former principal, explained that most students conducted exploratory SAE's due to the high poverty rate within Paxton. Students were dependent upon school facilities and teacher-arranged externships and experiences for their SAE's. Similarly, the FFA chapter at Thomas High School focused on building school-to-community relationships. The local focus resulted in higher rates of student participation in chapter meetings, student development opportunities, and community projects. While families of neither the Thomas FFA members nor the school could fund student participation in traditional state and national FFA student development events and conferences, community members and school stakeholders recognized that FFA involvement was positively impacting Thomas High School students.

In conclusion, this instrumental case study contributed to the literature by deepening our understanding of how urban agricultural education programs are initiated and implemented. The proposed model is a graphical representation of the five components that must be present during the innovation process of adopting agricultural education in other urban school districts as elucidated in the case study. I propose a model to be implemented and studied in other urban settings (See Figure 1).

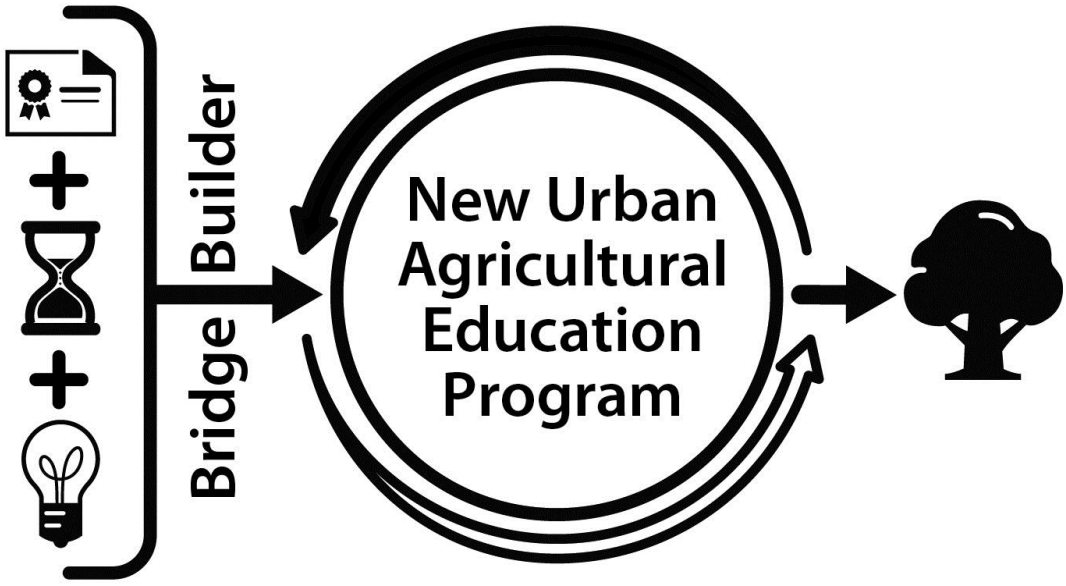

Figure 1. A Model for Successful Agricultural Education Program Expansion in Urban School Districts

References

Anderson, J. C., & Kim, E. (2009). Youth leadership development: Perceptions and preferences of urban students enrolled in a comprehensive agriculture program. *Journal of Agricultural Education, 50*(1), 8-20. doi: 10.5032/jae.2009.01008

Blackburn, J. J., & Robinson, J. S. (2008). Assessing teacher self-efficacy and job satisfaction of early career agricultural teachers in Kentucky. *Journal of Agricultural Education, 49*(3), 1-11. doi:10.5032/jae.2008.03001

Boone, H. N., Jr., & Boone, D. A. (2009). An assessment of problems faced by high school agricultural education teachers. *Journal of Agricultural Education, 50*(1), 21-32. doi: 10.5032/jae.2009.01021

Cockrall-King, J. (2012). *Food in the city: Urban agriculture and the new food revolution*. New York, NY: Prometheus Books.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: Sage.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process.* Thousand Oaks, CA: Sage.

Dubbeling, M., de Zeeuw, H., & van Veenhuizen, R. (2010). *Cities, poverty and food*. Warwickshire, UK: RUAF Foundation.

Esters, L. T., & Bowen, B. E. (2005). Factors influencing career choices of urban agricultural education students. *Journal of Agricultural Education, 46*(2), 24-35. doi:10.5032/jae.2005.02024

Enns, K. J. (2008). *Colorado's secondary school programs of agricultural education: Perceptions of sustainability* (Doctoral dissertation). Retrieved from ProQuest. (3321275)

Frick, M. J., Birkenholz, R. J., Gardner, H., & Machtmes, K. (1995). Rural and urban inner-city high school student knowledge and perception of agriculture. *Journal of Agricultural Education, 36*(4), 1-9. doi: 10.5032/jae.1995.04001

Hess, A. J., & Trexler, C. J. (2011). A qualitative study of agricultural literacy in urban youth: Understanding for democratic participation in renewing the agri-food system. *Journal of Agricultural Education, 52*(2), 151-162. doi: 10.5032/jae.2011.02151

Hirtle, J. S. P. (1996). Coming to terms: Social constructivism. *The English Journal, 85*(1), 91-92.

Kerbow, D. (1996). *Patterns of urban student mobility and local school reform* (Report No. 5). Baltimore: Center for Research on the Education of Students Placed At Risk.

Knobloch, N. A., Ball, A. L., & Allen, C. (2007). The benefits of teaching and learning about agriculture in elementary and junior high schools. *Journal of Agricultural Education, 48*(3), 25-36. doi: 10.5032/jae.2007.03025

March, J. G. (1981). Footnotes to organizational change. *Administrative Science Quarterly, 26*, 563-577.

Martin, T. (2011, September, 03). Declining student enrollment common issue in many of Michigan's rural, urban school districts. *The Republic.* Retrieved from http://www.therepublic.com/view/story/09c950e3b7644cb6bbf2b13dd027ea91/MI--Declining-Enrollment-Michigan/

Melcarek, H. (2011). Urban agriculture. In D. Mulvaney & P. Robbins (Eds.), *Green food: An A to Z guide* (pp. 433-435). Los Angeles, CA: Sage.

Murray, K., Flowers, J., Croom, B., & Wilson, B. (2011). The agricultural teacher's struggle for balance between career and family. *Journal of Agricultural Education, 52*(2), 107-117. doi: 10.5032/jae.2011.02107

National Council for Agricultural Education. (2008). *End of the year progress report-December 2008.* Retrieved from http://www.teamaged.org/council/images/stories/pdf/ncae2008 annualreportonagriculturaleducation.pdf

Noy, C. (2008). Sampling knowledge: The hermeneutics of snowball sampling in qualitative research. *International Journal of Social Research Methodology, 11*(4), 327-344. doi: 10.1080/136455707014001305

Obama, M. (2012). *American grown: The story of the White House kitchen garden and gardens across America*. New York, NY: Crown.

Rogers, E. M. (2003). *Diffusion of innovations.* New York: Free Press.

Stake, R. E. (1995). *The art of case study research.* Thousand Oaks, CA: Sage Publications.

Team Ag Ed. (n.d.). *Unmistakable potential: 2005-2006 Annual report on agricultural education.* Retrieved from http://cmhs.cabe.k12.wv.us/academics/agriculture/lpr07/ teamaged/aged_annualreport.pdf

Tracy, S. J. (2010). Qualitative quality: Eight "Big-Tent" criteria for excellent qualitative research. *Qualitative Inquiry, 16*(10), 837-851. doi:10.1177/1077800410383121

Yin, R. K. (2003). *Case study research: Design and method* (3rd ed.). Thousand Oaks, CA: Sage Publications.

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