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Jorhie Beadle
jbeadle@iastate.edu

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**Addressing food insecurity:
Experiential learning through entrepreneurship education in a second year Career and
Technical Education setting**

By

Jorhie E. Beadle

A creative component submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Agricultural Education

Program of Study Committee:

Dr. Scott Smalley
Dr. Nancy Grudens-Schuck
Dr. Mark Hainline

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A Note from the Student Author

This project offered me the opportunity to synthesize several components of my graduate studies gathered during my time at Iowa State University. Particularly, this experience defined my teaching philosophy, which is based on high levels of student ownership, emphasis on experiential learning opportunities, and real-world application. Using the skills I learned associated with research practices, I hope to expand upon this project to create a more evidence-supported curriculum. Content conveyed regarding program development throughout several courses included in my program of study also strongly supported my efforts in creating this curriculum. I feel honored to work as an educator within the agricultural sciences. I am passionate about exploring the interface that exists between learners and information and the application of skills that are bound to change the way we see the future.

Chapter 1. Introduction

Food security is a concept that is intricately connected to the agriculture industry. According to the USDA Economic Research Service (2018), food security is defined as “access by all people at all times to enough food to sustain an active, healthy lifestyle” (para. 2). Conversely, food insecurity occurs when a household has limited access to food supply due to social or economic reasons (CNSTAT, 2019). It is commonly defined as not knowing where your next meal will come from (McMillan, 2014). Food security is a force that motivates vast scientific innovations within the agricultural sciences and demands social accountability and environmental stewardship. Though efforts are being made to intentionally examine this issue, food insecurity is still a challenge in this nation that is known as an international leader in food production (USDA, 2020).

Agricultural educators at the high school level are uniquely situated to present food insecurity as a relevant local issue in a solutions-oriented framework because of the nature of the content within Agriculture, Food, and Natural Resources (AFNR) curriculum. Though high school students are directly impacted by food insecurity on a national scale (USDA, 2018), agriculturally based curriculum offers an option that empowers students to generate region specific solutions to food access within their own communities while applying technical skills.

This project is a curriculum geared towards high school students enrolled in a second year of an Agriculture, Food and Natural Resources (AFNR) course at a Career and Technical Education (CTE) center. The curriculum allows students to explore solutions to local issues of fresh food access through the development of a small agricultural business in partnership with a local food pantry. The curriculum is designed to guide students through the production of three different agricultural products (eggs, wholesale chicken, and mixed greens) produced from a

small footprint, classroom farm. When this curriculum was originally implemented as a trial, products were donated to a local food pantry to illustrate solutions to food access (though alternate sales plans existed to support the entrepreneurial learning experience). The food pantry partner for this project was the Lakeshore Food Club, which is the namesake for this curriculum, 'Food Club Challenge', and will be used throughout this document. (Further definitions are provided in Chapter 4 of this review.) The curriculum incorporates entrepreneurship training (business planning, management systems, etc.) to teach students employability skills. Lessons were delivered using the three-circle model, which is the foundation of agricultural education: supervised agricultural experience (SAE), FFA, and classroom instruction.

The goal of this project is to encourage students to explore solutions to food insecurity within their own community through the application of technical skills and entrepreneurship training. The curriculum was guided by three main objectives. (1) Students will learn to apply technical skills to produce a food product; (2) students will learn to utilize entrepreneurship skills as a way to address socio economic issues through an agroecological lens; and (3) students will develop an awareness of food insecurity at a more global level.

Chapter 2. Literature Review

According to the World Health Organization (WHO) (2020), food security can be examined through four different pillars: access, availability, utilization and stability. Food availability refers to quantity of food, which can be met from various sources including self-produced, domestic imports or assistance programs (WHO, 2018). According to the Food and Agriculture Organization of the United Nations (FAO) (2018), adequate food access means that individuals have the resources (monetary resources, transit, etc.) to access sufficient food sources and quantities. Food utilization, the third pillar, refers to the nutritional status of the food at consumption (FAO, 2008). The form in which the food is utilized should meet the nutritional needs of the individual, which indicates that resources and educational assistance is available to maximize nutritional value. Food stability, the final pillar, was last to be added by the FAO. Stability refers to the external variables that may impact the three previous pillars such as politics, economics, etc. (FAO, 2008, p. 1). An individual is considered food secure only when all four pillars are adequately sustained. Additionally, for food security to be fully addressed, all four pillars should be considered in a non-siloed approach. Literature reflects arguments that support these variables be evaluated frequently and acted upon concurrently to achieve maximum positive impact (Poppy et al., 2014, p. 4).

There are campaigns underway designed to address all four pillars of food security guided by global and local agencies. This project proposes one such campaign, which uses entrepreneurship education and experiential learning theory to deliver content to students interested in examining local food insecurity through the utilization of technical agricultural skills. The literature review relevant to this curriculum set is primarily focused on effective delivery models for high school CTE Agriscience students. This project employed several

popular themes that are common within agricultural curriculum and should be defined to provide context throughout this description.

Experiential Learning Theory

Experiential learning theory (ELT) is explained by Kolb et al. (2001) as “... two dialectically related modes of grasping experience- concrete experience (CE) and abstract conceptualization (AC)- and two dialectically related modes for transforming experience- reflective observation (RO) and active experimentation (AE)” (p 228). From a less granular perspective, experiential learning theory draws from the idea of learning by doing. This theory of learning is commonly practiced in CTE settings and secondary agricultural education because of the project-based nature of both learning settings. According to ELT, experience acts as a bridge between thought and action, knowing and doing, body and mind, etc. (Beard & Wilson, 2002).

Literature focused on assessing experiential learning in secondary agricultural education attests to the effectiveness of this learning theory. Students engaged in experiential learning are often more self-motivated and achieve higher learning outcomes compared to students enrolled in courses that utilize direct instruction for content delivery (Steinke & Buresh, 2002). Additionally, experiential learning can cultivate a strong learning identity among students through enhancing meta-cognitive skills, which translates to lasting success for learners regardless of the academic topic (Baker & Robinson, 2012).

Experiential learning offers learners the opportunity to apply problem solving to real-world situations where variables are authentic and not easily replicated in the traditional classroom domain. (Within the context of this project unique variables include cultivating community partnerships, production challenges, and entrepreneurial failures). In a study conducted by Baker and Robinson (2016), researchers compared students taught experientially

and compared them to students taught using direct instruction. The authors used three metrics to assess the impact of instruction: creativity score, practical score, and analytical score. The research unveiled that students taught experientially had higher creativity and practical scores than students taught through direct instruction. Analytical scores were comparable between both student groups, which indicated a balance of both instructional methods to be most effective. Implementing experiential learning opportunities into curricula provides students with multiple benefits to grow as learners through content application and the opportunity to practice interpersonal skills associated with academic and professional success.

Entrepreneurship Education

In addition to experiential learning theory, concepts based on entrepreneurship education were used to influence the content delivery of this program. There is a significant amount of literature that reviews entrepreneurial experiences as content delivery in postsecondary education, but agricultural education remains to be one of the few specialties that uses this as a prominent delivery model within the secondary education setting.

The benefits of incorporating entrepreneurship training into curricula extend beyond the graduation of students from a secondary institute. According to Dollisso (2010), there is a standing body of support that suggests students that participate in entrepreneurship training go on to have a more global influence (in the economy, politics, etc.). This support firmly addresses the third objective of this project. In addition to future global impact, students that participate in entrepreneurship training benefit from safe experimentation with risk taking and risk management (Tatilla, 2010). Other positive character qualities can be cultivated by incorporating entrepreneurship into content such as personal-control, higher achievement potential, and greater self-esteem (Rasheed, 2003).

In addition to recognizing the educational benefits of incorporating entrepreneurship training into agricultural curricula, it should also be noted that entrepreneurial skills are essential if students are to maintain success in the agriculture industry. According to a USDA report from Purdue University that predicted employment opportunities within agriculture from 2015-2020, 46% of careers within the industry will be ‘management and business’ (2015). Almost half of the available careers within the agriculture industry will require some components of entrepreneurial training. This is complemented by Vand der Ploeg and Roep’s report (2003) which emphasized the changes within global agricultural employment will be a response to growing rates of global food insecurity.

Beyond examining entrepreneurship education and experiential learning strategies to support methods of content delivery, practitioners should also consider supporting research that identifies educational needs tied to food insecurity rates specific to a community. Hogue (2019) conducted a needs assessment, which evaluated teacher knowledge and perspectives on the impacts of food insecurity through a Qualtrics survey administered to K-12 educators within Rutherford County, Tennessee. The results of the survey indicated that teachers within the school district agreed that student learning was impacted by food insecurity. “Seventy-eight percent of teachers ‘strongly agreed’ with the statement that students had trouble focusing on learning due to hunger” (Hogue, 2019, p. 13). Educators may consider developing a similar needs assessment to support the implementation of a curriculum as seen in this report.

Chapter 3. Methods and Procedures

It is important to note the circumstances under which the curriculum was created. The environment, delivery model, local partnerships, and timeline are specific to this project conducted and can be helpful in replicating the curriculum delivery. Though it should also be noted that the content can be flexed to fit a more comprehensive high school program or an alternate learning setting.

Identifying the Need

The primary motivation for this project was launched from an in-class analysis of food insecurity with first year WSESD CTE AgriScience students in the 2017-2018 school year which was dedicated to exploring agricultural issues in preparation for district FFA leadership contests. Students expressed a significant level of interest during discussions related to food insecurity (which was also re-enforced on a topics-style survey students completed at the end of the academic year). This was used as evidence that this topic could be used effectively as a vehicle to deliver technical content for a second-year program.

It was no surprise students indicated such a high level of interest, as more than 18% students within the district were classified as food insecure (Feeding America West Michigan, 2019). This is higher than the national average, which reports that 11.1% of households are categorized as food insecure (ERS, 2018). This is in part due to the rurality of the districts served by West Shore ESD. While households may be within driving distance to convenience stores, these locations rarely offer healthy food options such as fresh food products. These rural locations can also be identified as food deserts, which are defined by the USDA (2011) as “low levels of access to retail outlets selling healthy and affordable foods” (para. 3). Though there are several publications explaining local food insecurity rates that can be accessed as evidence to

pursue curriculum focusing on this topic, there is also extensive literature which outlines the national and international battle against hunger and food insecurity.

Building the Learning Environment

This curriculum was created and delivered in the 2018-2019 school year. It was created for high school students enrolled in a second year of a Career and Technical Education (CTE) AgriScience course. This specific course was funded through the West Shore Educational Service District (WSESD), which serviced four counties in rural Western Michigan (Mason County, Lake County, Oceana County and Manistee County). Collectively, the four counties have eleven different school districts that send students to the CTE center where they can choose from seven different programs. Students are eligible to enroll in West Shore CTE courses if they are juniors and seniors in high school. CTE class formats are designed to deliver content in a two-hour block throughout the entire year. There are two CTE sessions in one day where the different schools have varied arrival and departure times. The CTE programs were housed at West Shore Community College (WSCC).

Delivery Model

The CTE AgriScience second-year program is different for every CTE center. For this project both the morning and afternoon session had four students enrolled in the second-year program. All of the students were high school seniors. These students were employed by various industry partners and working three days per school week (Tuesday, Wednesday, and Thursday) in their respective industry settings. The remaining two days (Monday and Friday) were spent in the classroom completing self-guided projects (personal SAE records, FFA competition tasks, and The Food Club Challenge). This is important to note because the lessons should be offered in a way that is collaborative between learners, but also with the ability to be self-paced. Second-

year students used the Canvas online learning platform, which regularly communicated learning objectives and set tasks. Though Canvas was used for the implementation of this curriculum, other online learning platforms can be used to create the hybrid (online and in-person) course formats. There were several lessons that demanded instructor support and facilitation. This is denoted on lesson plans and should be considered when planning content delivery.

This curriculum is not designed to be an introduction to Supervised Agricultural Experiences (SAE's), FFA, or classroom content. Rather, this curriculum is designed to be delivered to students that have successfully completed one full year of course content under the CTE delivery model, which includes SAE's and FFA experiences, in addition to technical content. This delivery schedule may be adjusted for comprehensive high school programs that use block scheduling or other Agriculture, Food and Natural Resources (AFNR) delivery structures.

Establishing Community Partners

Several local entities were identified to partner with students while completing this content. CTE values rely heavily on real-world scenarios, so it was necessary to partner with several current and well-established enterprises for the delivery of this content. For this project, the 'You Dig It!' Community Garden and the Lakeshore Resource Network and Food Club contributed significantly to the learning experience. The 'You Dig It!' Community Garden offered students a space to grow additional produce items that were not suited for the classroom farm space provided. The community garden also allowed students to interact with Michigan State University Extension Master Gardeners and other community members. Identifying a community garden to partner within the delivery of this content is helpful in providing students with real-world challenges outside the protection of a classroom farm space. This is also helpful

if programs do not have a classroom farm space. The Lakeshore Resource Network and Food Club is a non-profit that operates as a food pantry. The Food Club is unique since they facilitate food donations as a grocery operation more than a traditional food pantry as a way to empower patrons to make healthy food choices. It will be necessary to identify a food pantry or food donation hub for the completion of this curriculum. By working closely with community partners, students are able to practice interpersonal skills and problem-solving outside of predetermined classroom variables.

Skills for Success

Several lessons implement Skills for Success (S4S). This is a set of seven skills selected by industry members in Western Michigan to be essential when students graduate a CTE course and enter the respective industry. They are also referenced as employability skills and include problem solving, communication, and critical thinking. Though specific to West Shore ESD, other regional CTE centers used a similar list of skills to integrate into course content. There was no set assessment of these skills at the conclusion of a course, rather, school administration encouraged teachers to incorporate the skills into content that was specific to each CTE course. The Skills for Success list can be referenced in Appendix F.

The Timeline of Delivery

The curriculum includes a set of seven lessons which align with the three-circle model. This project was restricted by the mobile nature of second year students enrolled, the seasonality of the products, the availability of stakeholders and partners, and obligations of other course requirements (FFA competitions, SAE demands, etc.) As a result, the timeline of 'The Food Club Challenge' curriculum is largely dictated by these site-specific variables and should be

considered when planning the delivery of the content. Though weighted by these variables, it is possible to allocate time to each module and learning objective (Appendix E).

Chapter 4. The Product

The curriculum provided was disbursed between six lessons. The lessons are delivered through a hybrid model where the content is facilitated in-person, online (using the Canvas platform), or a combination. Each lesson aligns with one element of the three-circle model: FFA, SAE, or classroom instruction.

The lesson plans are curtailed to the learning settings (high school CTE). This is especially relevant to note when implementing state standards, which will also change depending on the type of program that is implementing the curriculum. Due to second year structure of this program, the standards are most heavily aligned with ‘Q’ segment standards as outlined by Michigan Center for Career and Technical Education (MCCTE) and the Michigan Department of Education (MDE). Support material necessary for content delivery is included in the appendix. The content delivery platform is noted in the title of each lesson. All of the lessons offer the instructor the ability to interchange or alter the method of delivery, duration, caliber of content, and the ability to scaffold throughout the implementation process. The six lesson plans are a starting point for programs interested in the objectives of this project as previously explained.

Lesson: Classroom Instruction (Introduction to Food Security)

Delivery: Hybrid (in-person and online)

Student Material	Access to canvas, note taking material
Teacher Material	Supplies for poster maker (pre-grouped into three groups with varying amounts of tools)
Objective	<p>I can...</p> <ul style="list-style-type: none"> • Explain food security. • Identify local, national, and global examples of food insecurity. • Define a food desert.
Standards	<p>I.A.2. Describe current issues impacting AFNR activities.</p> <p>I.A.3. Identify, organize alternatives, and evaluate public policy issues related to AFNR.</p>
Preview: Context	<p><i>As a way to introduce the concept of food security, complete the following activity in-person with students.</i></p> <p>ACTIVITY 1: Unequal Resources Activity Divide students into three groups provide each group with a varying set of tools needed to create a poster. Instruct students what should be on the poster. Due to unequal resources, some groups may not be able to complete the task. Discuss resources distribution; define equity v. equality.</p> <p>ACTIVITY 2: NPR ‘The Salt’ Direct students to the canvas module with NPR ‘The Salt’ URL (https://www.npr.org/tags/160626115/food-insecurity) with a list of audio clips discussing topics relating to food insecurity. Instruct students to select and listen to one clip. Turn to partner and provide an overview. Select students to report out and facilitate discussion that defines food security and food desert.</p> <p><i>Now that we have explored food security nationally, I will refer you to canvas for a self-paced activity that will look at international examples of food insecurity.</i></p>
Lesson/ LAB	<p>Canvas Page (Context): After having completed the introductory activity, you probably have a better understanding of food insecurity. This module will provide multimedia content delivery as a way to learn more about this topic.</p> <p>Canvas Page (Instruction): View film included in this module. Be sure to take notes and pay special attention to concepts relating to food security.</p> <p>Canvas Discussion (Film Discussion): Compose a brief reflection of the film ‘Living on a Dollar’. Your response should be 5-7 sentences in length. Use</p>

	<p>complete sentences, proper spelling and grammar, etc. Consider the following questions as you compose your response.</p> <ol style="list-style-type: none">1. What are examples of food insecurity within this film. Explain at least three.2. How did families in the film combat food insecurity?3. How is food insecurity in the film different from food challenges faced in the United States? <p>In addition to composing your own response, please reply to at least two other student posts. Your response may include agreement comments or connections.</p>
Evaluation	Canvas Discussion Thread

TIME	<p><i>providing access to food (solution). Our next project is designed to orient us as catalysts of change... ”</i></p> <p><u>Activity 3: Project Description</u> Provide each group with the project description. Preview project using the description to guide the conversation (Appendix A). Inform students that group norms will be established in the following lesson. Students must submit the agricultural product they will be working with in addition to the names of team members or declared independent.</p>
Evaluation	Students will submit a piece of paper with group members and agricultural product selection.

Lesson: FFA (Learning Contract and Skills for Success)

Deliver: In-person

Student Material	'Skills for Success' handout, giant post-it per group, learning contract description
Teacher Material	Team building activity supplies: three rubber bands, several 1-foot lengths of strings (to be tied to the rubber band by one end), solo cups.
Objective	I can... <ul style="list-style-type: none"> Apply skills for success to create a learning contract
Standards	I.A.1. Act as a responsible and contributing citizen and employee. I.A.2. Apply appropriate academic and technical skills. I.A.6. Demonstrate creativity and innovation. I.A.12. Work productively in teams while using cultural/global competence.
Review	<ul style="list-style-type: none"> Project Description: Within your groups, explain the Food Club Challenge project. Report out by selecting students to explain certain elements of the project (timeline, evaluation, etc.) Skills for Success: What are the seven S4S?
Preview: Context	<p><i>As a way to review Skills for Success, we will be completing a team building activity that will put several S4S into practice.</i></p> <p><u>ACTIVITY 1. Cup Pyramid</u> Attach three pieces of string to a rubber band, space equidistant. Provide each group with one rubber band/ string and six cups. Instruct students to build a cup pyramid using only the rubber band string tool by holding the string at the end and stretching the band to fit over the cups. The first group to build the pyramid wins. Challenge students by instructing them to close their eyes one round or not talk.</p> <p>Facilitate discussion: What skills for success were used? What was the most challenging part?</p>
Lesson/ LAB	<p><i>You have your groups assembled, you have selected an agricultural product, and you know the general outcomes of the project. Today, we will be creating success criteria through a learning contract.</i></p> <p>Provide students with a copy of learning contract description (Appendix C) and large post-it. Instruct students to begin brainstorming learning contract on poster, which will be transposed later. Assist students as needed. Facilitate discussion based on common themes.</p>
Evaluation	Learning Contract (one per team; collectively decided due date)

Lesson: SAE (Creating the Plan)

Deliver: Canvas

Student Material	Chromebook, rubric for SAE plan, rubric for SAW records
Teacher Material	Canvas Instructions
Objective	I can... <ul style="list-style-type: none"> • Create an SAE plan that aligns with my goals for the Food Club Challenge.
Standards	IV.A.4. Utilize record keeping accomplishing AFNR business objectives while complying with laws and regulations.
Review	Review in groups the four types of SAE's (Entrepreneurship, Placement, Exploratory, and Research) and the eight pathways.
Lesson/ LAB	<p>Canvas Page (SAE Plan Instruction):</p> <ol style="list-style-type: none"> 1. Log into Agricultural Experience Tracker (AET) 2. Select Journal, click Project Experience Manager 3. Create 'New' SAE plan 4. Follow instructions as prompted on screen <p>Canvas File (SAE Plan Rubric) Canvas File (SAE Records Rubric) *Reinforce that each student is responsible for their own SAE plan and records throughout the duration of this project.</p>
Evaluation	SAE Plan (collectively decide due date)

Lesson: Classroom Instruction (AgriBusiness: Writing the Business Plan)

Delivery: Canvas

Student Material	Chromebook/ access to Canvas
Teacher Material	Canvas instructions
Objective	I can... <ul style="list-style-type: none"> Develop a business plan specific to AFNR
Standards	IV.A.1. Describe AFNR businesses and identify global opportunities in agribusiness. IV.A.4. Demonstrate knowledge of an AFNR plan.
Preview: Context	Canvas Page (Context: AgriBusiness) Post TreeTeepee Shark Tank episode to Canvas page with the following instructions. "Watch this 2-minute episode of Shark Tank. Take notes relating to AFNR Business Management."
Lesson/ LAB	<p>Canvas Page (Introduction to Business Plans) <i>A business plan is used to guide entrepreneurs as they embark on a business venture. It is a document that asks important questions to consider prior to investing time and energy into a good idea. As part of the Food Club Challenge, your team will be creating a business plan that will accommodate the production of your selected agricultural product. Please refer to the project description and past notes to create your business plan.</i></p> <p>Canvas File (Elements of a Business Plan Description and Rubric)</p> <p>Canvas Discussion (Project Questions) <i>Please post any questions regarding this assignment in this discussion thread. Consider reading through previous posts before submitting a question to avoid repeat questions. You may discuss solutions among yourselves in this thread, but all questions will be answered prior to this assignment beginning.</i></p>
Evaluation	AFNR Business Plan (collectively decided due date)

Lesson: SAE (Report for Reflection)
Hybrid (In-class and Canvas)

Student Material	Rubric for SAE report, Chromebook/ access to Canvas
Teacher Material	Presentation technology for student reports
Objective	I can... <ul style="list-style-type: none"> Report measurable outcomes from a learning experience Reflect on challenges and successes of a learning experience.
Standards	I.A.4. Communicate clearly, effectively and with reason. I.A.7. Employ valid and reliable research strategies. I.A.8. Utilize critical thinking to make sense of problems and persevere in solving them.
Review	Review good presentation techniques and presentation formatting. Show poorly formatted slides and allow students to discuss with each other elements that can be improved. Report out. Also instruct students to select 2-3 presentation techniques that are effective (volume, eye contact, etc.) and report out. Discuss.
Lesson/ LAB	<p>Canvas Page: Food Club Challenge Report</p> <p>Reflection is a very important part of the learning process. Now that we have concluded the Food Club Challenge, it is time to reflect on the experience. There are two parts to the report.</p> <p><u>Individual: AET Report Form</u> Log into your AET account. Click on the report tab and select</p> <p><u>Collective: PowerPoint Presentation</u> Use the rubric posted in this module to guide the creation of your presentation.</p> <p>In-class students will present a slide show. Instruct students to submit AET report form and rubric into the instructor prior to presenting.</p>
Evaluation	SAE Final Report

Chapter 5. Reflections

There were several successes and challenges associated with the creation and implementation of the curriculum in this project. In order for the program to be more successful in future replication, educators should consider several leading variables: (1) developing a comprehensive assessment tool that considers student growth and protocol; (2) implementing levels of security designed to protect student privacy; (3) instructors should be aware of the food safety restrictions associated with the classroom production space and other requirements of the community enterprises partnering on this project (food pantry, community garden, etc.).

It is difficult to declare this curriculum a success within the framework provided. Though there were several small assignments assessed throughout the duration of this project to gauge student learning, there was no assessment tool used that measured overall student growth. The development of a pre-test and post-test would be helpful to measure the impacts of this curriculum especially regarding specific metrics or themes such as entrepreneurial tendencies, awareness of local food insecurity, and technical agricultural skills.

When implementing curriculum, instructors should also be cautious of introducing themes associated with food security. For this project, several participating students were classified as food insecure, and therefore discussions relating to statistics used to illustrate the demand for food access were personally relevant. Additionally, several students and student families were members of the Lakeshore Food Club, which was the food pantry used to collect student donations. In replication, this may require more transparency at the initial phases of the project. The proximity of relevance to students encouraged several in depth, meaningful discussions; however, there is potential for students to feel uncomfortable if lines of mutual

respect are not created. Privacy disclosures may also be necessary on the part of the partnering food pantry.

There were also several other challenges associated with cultivating healthy community partnerships to effectively deliver the content. The Lakeshore Food Club had stringent food safety standards that required the CTE program to acquire more advanced food safety licensing. In replication, instructors should assess the capacity of the program to support additional food safety regulations within the framework of the production space prior to launching the program. This may restrict the diversity of products that can be donated or produced- especially regarding animal products such as eggs, milk, or meat. Additionally, the Lakeshore Food Club only serviced Mason County, which represented 43% of the students in West Shore ESD programs (LiveWell Mason County, 2019). West Shore ESD also served three other counties (Oceana, Lake, and Manistee Counties). In future, selecting community partners with more equal resource distribution will be necessary.

The Food Club Challenge was able to provide the Lakeshore Resource Network with thirty whole chickens and 75 pounds of produce throughout the duration of the project. Two students went on to work at the community garden through a summer season, which was a paid experience sponsored by several local businesses. Through informal interview sessions, students provided critical feedback, which echoed the challenges previously described. Students also spoke of the lasting impact the project provided. To reiterate, a more formal survey and assessment tool is necessary to measure the quantitative and qualitative impact of the curriculum.

The Food Club Challenge provided students with a learning experience guided by experiential learning theory and principles of entrepreneurship education. The content allowed students to explore a relevant local issue which also had personal ties for many participating

students. The delivery was open enough to encourage students to innovate, think beyond the classroom, and orient themselves in a solutions mindset by applying technical skills. A student summarized the success of the Food Club Challenge best in the final interview, “The Food Club Challenge made me feel like I had purpose as a student. It gave purpose to my learning too” (Cooper, 2019).

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APPENDIX A. Food Club Challenge Project Description and Assessment

PROJECT DESCRIPTION

Food Club Challenge

Context

Food security is a term that we will be exploring throughout the next few weeks. As a way to define food security within the context of our own local communities, West Shore FFA will be partnering with the Lakeshore Food Club, which is a non-profit that operates as a food pantry to service the residents of Mason County. Students will be working with groups to supply the Food Club with fresh food options straight from our classroom farm. This is a project based learning experience, which means that student groups will be faced with unexpected challenges that may demand flexibility and adaptability. However, student teams will also benefit from the long term positive impact they will be generating through their work.

Learning Targets

- Explain food security.
- Identify local, national, and global examples of food insecurity.
- Define a food desert.
- Explain at least three barriers to local food access using the pillars of sustainability.
- Identify at least three local agencies that work to eliminate barriers to food access.
- Apply skills for success to learning contract.

Description

Part 1. Each student will select one of three agricultural products from our classroom farm (eggs, chicken, or produce). Students may be working independently or partnered with a peer to develop a production plan that utilizes technical skills learned from the first year of AgriScience enrollment.

Part 2. In addition to creating and following the production plan, students will be responsible to create a business plan that outlines management of the product and resources as if the product were to be sold in the local market.

Part 3. Finally, the student(s) will be coordinating with a local food pantry to donate the agricultural products. This task will involve attention to customer service.

Committee Descriptions

Team Produce: As a member of this student group, you will be primarily working with produce donations. Your production space will be the hoophouse, GrowTower, You Dig It! Community Garden, and any other additional indoor/ outdoor space agreed upon with the instructor. Due to weather, this team will primarily be producing lettuces and mixed greens with potential to generate a crop plan that extends into the summer.

Team Broilers: Students enrolled in this team will be working with broiler chickens- from start to finish. Elements involved in this process will be breed selection, space maintenance, poultry health, processing and packaging. Students in this team may also be working with culinary students to deliver the most consumer-friendly version of the final product.

Team Eggs: Students interested in learning more about commercial egg production will work with peers to build a flock of assorted laying hens. A primary responsibility for members of this group will include procuring a commercial egg producers license from the Department of Agriculture- this process will be guided by an instructor. Additional tasks will include maintaining flock health and facilities, in addition to developing packaging and marketing for the final product.

Timeline

Month	Essential Tasks
October	Select product, establish team (or declare individual), establish learning contract.
November	Tour Food Club/ coordinate with Food Club representative, develop production plan, make necessary purchases.
December	Start weekly AET journal entries and organize holiday care as needed.
January	Start production if not yet started, compose business plan
February-March	Maintain agricultural product, continue to coordinate with Food Club regarding quality and quantity of the product, maintain AET records.
April	Complete final production and deliveries and prepare final reports.
May	Compose thank you to Food Club representative and request rubric completion

Assessment

Each assessment included within the Food Club Challenge will be accommodated by a more thorough description and a rubric as students' progress through Canvas modules.

Assignment	Description	Grade
Learning Contract DUE: October	Establish learning contract using skills for success. This document will be used to maintain accountability between stakeholders. Be sure metrics are measurable and goals are realistic.	20 points (4%)
SAE Plan DUE: October	Complete the SAE plan on the Agricultural Experience Tracker (AET).	60 points (12%)
Production Plan DUE: November	Submit a plan that outlines your plan for agricultural product. Include information regarding resource management, timeline, packaging, processing, etc.	50 points (10%)
Business Plan DUE: January	Develop a business based on the outline provided in class. This is a group development and will be graded accordingly.	100 points (20%)
SAE Records DUE: April	Weekly journals should be composed to illustrate change over time throughout the duration of the project. Records should offer insight into the challenges and successes of various stages of the project.	50 points (10%)
SAE Report DUE: April	Print final SAE report from AET. This document will be referenced to create a PowerPoint presentation summarizing your experience.	60 points (12%)
Technical Content Report DUE: May	This is based on the rubrics established with your group in class. Your report will reflect challenges and successes of producing the agricultural product.	100 points (20%)
Canvas/ Participation	Evaluated throughout course- these assignments will often be pass/ fail.	60 points (12%)

APPENDIX B. Skills for Success

Name _____ Date _____

4 – Distinguished; 3 – Proficient; 2- Needs Improvement; 1 - Not Yet; 0 - No Evidence

Skill	Program Example	Score	Evidence
<p>TECHNOLOGY LITERACY</p> <p>The ability to understand, use, and adapt to new technology concepts, systems, and operations.</p>			
<p>COLLABORATION AND GLOBAL THINKING</p> <p>The ability to collaborate and work as a member of a team in order to achieve a common goal. This involves knowing 1) your strengths and recognizing strengths in others, 2) how to take other's perspectives, and 3) how to resolve conflict.</p>			
<p>COMMUNICATION</p> <p>The ability to effectively communicate a message or an idea to someone else through verbal and non-verbal means. Included within this is the ability to know how and when to listen to others' communication and to use communication to build interpersonal relationships with others.</p>			
<p>CRITICAL THINKING AND PROBLEM SOLVING</p> <p>The ability to generate innovative and creative solutions & PROBLEM SOLVING to issues of interest through the gathering, analysis and evaluation of relevant information.</p>			
<p>FLEXIBILITY AND ADAPTABILITY</p>			

<p>The ability and self-motivation to continuously learn to respond to changes and to increase one's understanding. Included within this is being open-minded to different viewpoints and ways of doing things and continuous reflection on one's own knowledge base.</p>		
<p>ETHICAL CITIZENSHIP</p> <p>The ability to act in a caring and principled manner (e.g. - with integrity, honesty, respect and discernment) in order to promote the common-good of one's community. Included within this is finding balance between attending to one's own needs (e.g. - health, work, etc.) and the needs of others.</p>		
<p>PERSONAL ACCOUNTABILITY</p> <p>The ability to productively work toward a goal with a positive attitude. Included within this is being reliable and dependable (e.g. - being present and punctual) and having the confidence to take risks and hold oneself and other accountable for their work.</p>		

AFNR Business Plan

Project Description

Section 1: Executive Summary

This is an overview of your business. It includes a brief overview of people, products, services, markets, and financials. It is best to write this section last- you will have a better visual of your business. This section is often read by lenders.

Section 2: Company Summary

Included in this section should be your **company name**, **mission statement**, and vision statement. Additionally, include a brief overview in non-technical language what exactly your business does.

Section 3: Products and Service

This section should detail information on your product/ service including **suppliers, customers, competitors, and marketing**. This section should offer a detailed list of products/ services and relate the application to users.

Section 4: Environmental Analysis

This analysis should include...

SWOT (Strengths, Weaknesses, Opportunities and Threats)

PEST (Political, Economic, Social and Technological)

Industry Analysis: Dissect factors that will influence the success of the business.

Section 5: Management Structure

Deciding the management structure of your business should include two parts: The first is identifying the business structure (LLC, S Corporation, Partnership, Sole Proprietorship, etc.). Additionally, you must decide how you will organize various employees. This should include a description of their roles, salaries, hours, essential strengths, etc.

Section 6: Financial Plan

The financial plan should include income statement, balance sheet, and strategic profitability model.

AFNR Business Plan

Grading Rubric

Section	Description	Points
Section 1. Executive Summary	Brief overview and written last (5-7 sentences)	10
Section 2:	Company Name	2

Company Summary	Mission Statement	5
	Vision Statement	5
	Overview	3
Section 3: Products and Service	Detailed list of products	5
	Explanation of services	5
	Competitors: List at least three competitors and explain how you will differentiate yourself	5
	Suppliers: Detailed list for all necessary materials	5
	Customers: Include demographics on target audience (age, gender, income, location, etc.)	5
	Marketing: Describe at least three marketing strategies (radio, billboard, poster, event, etc.)	5
Section 4: Environmental Analysis	SWOT: Completed full SWOT analysis	5
	PEST: Select two variables of PEST that you would like to include	5
<u>Section 5:</u> <u>Management Structure</u>	Business Structure: Select a business structure and defend your reasoning	5
	Business Management: List all essential employees and a brief job description for each	5
<u>Section 6:</u> <u>Financial</u>	Completed financial plan worksheet	10
Team Assessment Score: Based on team dynamics and peer evaluations.		10
Overall Organization and Completeness: Based on organization of information presented.		5
TOTAL		

Learning Contract

Grading Rubric and Assignment Description

Description

A learning contract is a way for your team to track success and establish healthy group dynamics. Please create a typed word document that addresses the four metrics listed on the rubric. The document can be formatted in a way that suits the needs of the group. Page limit is two pages.

Metric	5 points	3 points	1 point
<u>Skills for Success</u> <i>List at least three S4S that your group will focus on. Explain why these metrics were selected and examples of them in use during the duration of this project.</i>	Contract includes three S4S metrics that are closely linked the Food Club Challenge. Examples are relevant.	Contract includes two S4S metrics. Metrics are loosely tied to Food Club Challenge. Examples loosely illustrate importance to project.	Contract includes one or fewer S4S metrics. The contract has poorly described examples or no examples. Metrics are not relevant to Food Club Challenge.
<u>Technical Outcomes</u> <i>List at least four metrics that are related to the technical skills needed for production. Outcomes should be measurable.</i>	Contract includes four technical outcomes. Outcomes are directly related to product. Outcomes are measurable.	Contract includes 2-3 technical outcomes. Outcomes are semi-measurable.	Contract includes one or no technical metrics. Metrics are not measurable. Metrics are not tied to product.
<u>Collaborative Conduct Agreement</u> <i>Decide how you will maintain healthy group dynamics. Create at least three statements that dictate how your group to maintain accountability. All group members have signed contract.</i>	Agreement includes three statements. The statements align with group dynamics and are success-oriented. All groups members have signed the agreement.	The agreement includes two statements. The statements are difficult to connect to group success. Not all signatures are present.	The agreement has one or no agreement statements. Statements are not connected to group dynamics. No signatures support the agreement validity.
<u>Project Goals</u> <i>Identify at least three project goals. Ensure that these are measurable goals.</i>	There are three goals listed. Goals are measurable.	There are two goals listed. It is difficult to identify how the goals will be measured.	There are one or no goals listed. Goals are not measurable or clear.

Supervised Agriculture Experience

Grading Rubric: SAE Plan

Content Area	PTS	Comments
<p>Description</p> <p><i>Student has provided an overview of the SAE including reasons he/she is interested, overall challenges, importance, etc. (20 points possible)</i></p>		
<p>Time Investment</p> <p><i>Student has provided a detailed timeline of SAE from November-May. Student has included daily weekly time investment and requested assistance with management if needed. (20 points possible)</i></p>		
<p>Learning Objectives</p> <p><i>Clearly stated at least three learning objectives. Learning objectives are measurable and realistic. (20 points possible)</i></p>		
<p>Neatness and Completeness</p> <p><i>Student uses correct grammar and punctuation. Sentences clearly communicate goals. Content is articulate and thorough. (20 points possible)</i></p>		
<p>Student Engagement</p> <p><i>The student was self-motivated and organized in creating the plan- contacting potential employers, organizing materials, developing a business plan, etc. (20 points possible)</i></p>		

Supervised Agricultural Experience

Grading Rubric: SAE Records

Metric	Points Awarded	Comments
<p>Quantity of Journal Entries</p> <p>The number of journal entries reflect regular documentation of learning experience. Entries are frequent and routine (10 points).</p>		
<p>Composition of Journal Entries</p> <p>Records are well-written. Proper sentence structure, grammar and spelling are considered. Entries are at least seven sentences in length (10 points).</p>		
<p>Pictures</p> <p>Records include at least one image per week throughout the duration of the project. Images are appropriate and illustrate the challenges and successes described in journal entries (10 points).</p>		
<p>Content</p> <p>Journal entries include quality content. Content addresses challenges and successes of learning experience. Written portion indicates routines but adds detail when needed (20 points).</p>		
TOTAL		

Supervised Agricultural Experience

Grading Rubric: SAE Report

Content Area / Description	Points Awarded	Comments
<p><u>Overview</u></p> <p><i>Describe your SAE. Was it entrepreneurship/ placement/ research? Summarize variables.</i> (10 pts)</p>		
<p><u>Images</u></p> <p><i>Include at least three images of your SAE- include captioned explanations.</i> (10 pts)</p>		
<p><u>Challenges</u></p> <p><i>What posed as a challenge to the success of your SAE? Weather, communication, timing? How did you attempt to overcome these challenges?</i> (10 pts)</p>		
<p><u>Successes</u></p> <p><i>What went well in your SAE? What steps did you follow to ensure your SAE was successful?</i> (10 pts)</p>		
<p><u>Learning Objectives</u></p> <p><i>List your learning objectives from your plan/ proposal- located on AET. Did you achieve your goals? Why/ why not?</i> (10 pts)</p>		
<p><u>Conclusions</u></p> <p><i>What Skills for Success did you employ in your SAE? Overall, how would you rate your SAE? What advice would you offer to students planning for an SAE?</i> (10 pts)</p>		
TOTAL		