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Filling the Third Circle with Interdisciplinary Lesson Planning: A Case Study of Pre-Service Teachers

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The three-circle model of agricultural education focuses on the importance of in-class instruction, supervised agricultural experiences, and FFA involvement. The agricultural communications career pathway is available to students through agricultural communications supervised agricultural experiences (SAE) programs and career development events within FFA. However, specific curriculum that teaches agricultural communications in the classroom is not readily available. The purpose of this qualitative case study was to examine the interdisciplinary lesson planning and integration process of pre-service teachers with focus on opportunities and limitations to teaching communication in the agriculture, food, and natural resources (AFNR) curriculum. In this case study, four pre-service teachers worked with agricultural communications faculty to develop communication curricula and lesson plans to be incorporated into high school AFNR classrooms. These pre-service teachers developed interdisciplinary lessons prior to student teaching and, when appropriate, used these lessons in their classrooms. While current research regarding teaching science in the AFNR curriculum is ongoing, the literature is silent regarding teaching social sciences such as communication in the AFNR curriculum. These pre-service teachers want more opportunities to develop interdisciplinary lessons. They believe teaching communication skills while tying them to the content area can improve student knowledge, retention, and engagement in the learning process while exposing them to the agricultural communications career pathway.

Keywords: agricultural communication, pre-service teacher, lesson planning, interdisciplinary, school-based agricultural educators, SBAE, critical thinking, higher order thinking, case study

Introduction

The three-circle model of agricultural education focuses on the importance of in-class instruction, supervised agricultural experiences (SAE), and FFA involvement (Shoulders & Toland, 2017). Many students discover career opportunities through their involvement in SAEs and FFA events as well as in their in-class instruction (Shoulders & Toland, 2017). The agricultural communications career pathway is available to students through a structured

agricultural communications SAE program as well as an agricultural communications career development event within FFA (National FFA Organization, n.d.). However, a specific curriculum that teaches agricultural communications in the classroom setting is not readily available to school-based agricultural educators (SBAE). Additionally, many SBAE teachers are restricted or limited to specific course offerings. Interdisciplinary lessons that maintain the integrity of the course science content while teaching communication principles could be a way of incorporating agricultural communications into the third circle of the three-circle model of agricultural education.

Instructional Planning

Persuading pre-service teachers to recognize the importance of instructional planning and helping them become effective instructional planners is an essential role teacher preparation programs play in the development of future educators (Baylor & Kitsantas, 2005). In 2008, Greiman and Bedtke noted limited research existed with regard to the instructional planning process during teacher preparation. Additionally, the American Association for Agricultural Education outlined the need for meaningful, engaged learning in all environments in Research Priority #4 (Roberts et al., 2016). Beginning teachers have long been concerned with their ability to design and develop lesson plans (Fritz & Miller, 2003; Greiman & Bedtke, 2008). Previous literature has also suggested that pre-service teachers' attitudes toward lesson planning have had a significant, positive correlation with the self-efficacy these teachers experience (Lee & Lee, 2014).

Lesson plans work as the clear roadmap teachers use as they navigate through the events of the day concerning student-teacher interactions (Wood & Miederhoff, 1988). Lesson plans should provide teachers with guidelines, allow for time for the teacher to motivate the students and navigate individual learner differences, and allow teachers to evaluate their own activities so they can make needed adjustments to their teaching skills (Hoover & Hollingsworth, 1975). Sound lesson planning has been attributed to good teaching (Wilén et al., 2000). Thus, the opportunity to practice lesson planning is an imperative part of teacher education programs (Janssen & Lazonder, 2016). Upon graduation, many pre-service teachers recognize that they wish they had had more opportunities to practice lesson planning before embarking on their student teaching experience (Rauduvaite et al., 2015).

Interdisciplinary Curriculum

Interdisciplinary teaching and learning research through the lens of SBAE programs and incorporating science and math into the curriculum is ongoing (McKim et al., 2018; Pauley et al., 2019). McKim et al. (2018) explored SBAE teachers' intentions to teach science within agriculture, food, and natural resources (AFNR). Findings suggest that SBAE teachers have a positive attitude toward teaching science in their AFNR courses, but perceived knowledge level was between "somewhat knowledgeable" and "knowledgeable" regarding the science content

(McKim et al., 2018). Additionally, Pauley et al. (2019) identified that Curriculum for Agricultural Science Education (CASE) certified AFNR teachers generally had a slightly higher perceived science knowledge than non-CASE-certified teachers. However, this did not indicate a higher science teaching intention in CASE-certified teachers than in non-CASE-certified teachers. In fact, non-CASE-certified teachers had higher science teaching intentions than CASE-certified teachers (Pauley et al., 2019).

While current research regarding teaching science in AFNR curriculum is ongoing, the literature is silent regarding incorporating social sciences such as communication into AFNR curriculum. The lack of literature is in spite of the fact that science educators and organizations have explicitly identified communication skills as a requisite competency for scientific literacy in the twenty-first century (National Research Council, 2012). A variety of pedagogical teaching tools and methods have been proposed regarding teaching communication in the science classroom. These include staging class discussions or debates (Driver et al., 2000) and using case study approaches where students roleplay to problem solve scientific issues (Sadler et al., 2007).

The National Science Teachers Association defines high-order thinking as “the ability to engage in effective inquiry using scientifically defensible methods, which are considered a hallmark of scientific literacy” (2003, p. 18). Scholars have previously proposed that by integrating multiple disciplines, students are better able to gain a general core of knowledge needed to develop a deeper understanding of topics and are better able to make knowledge connections (Lattuca et al., 2004; Newell, 1994, 1998; You, 2017). Further, interdisciplinary lessons and interdisciplinary curricula have been shown to increase critical thinking skills (Ivanitskaya et al., 2002). Geissler and colleagues (2012) found that fostering creativity and developing communication skills were key components of developing critical thinking skills among students.

Despite the lack of literature regarding the incorporation of communication skills in the SBAE classroom, other science, technology, engineering, and math (STEM) education disciplines have identified value in incorporating science communication skills into their classrooms. Chung et al. (2016) identified that teaching science as a socioscientific issue in the science classroom had a moderately large impact on students’ communication skills as they learned the process of gene modification technology. Bequette and Bequette (2012) stated, “art is and has always been a form of mass communication” (p. 44). Their study found that “when the arts are seen as an end goal, not just an entryway to presumably more important STEM topics, thoughtfully developed STEAM curricula can truly engage sustained cross-disciplinary student learning in PK-12 settings” (Bequette & Bequette, 2012, p. 43). Thus, incorporating visual communication skills into the SBAE classroom could allow students to better understand the science topic being taught and open their eyes to career opportunities available within the agricultural communications career pathway.

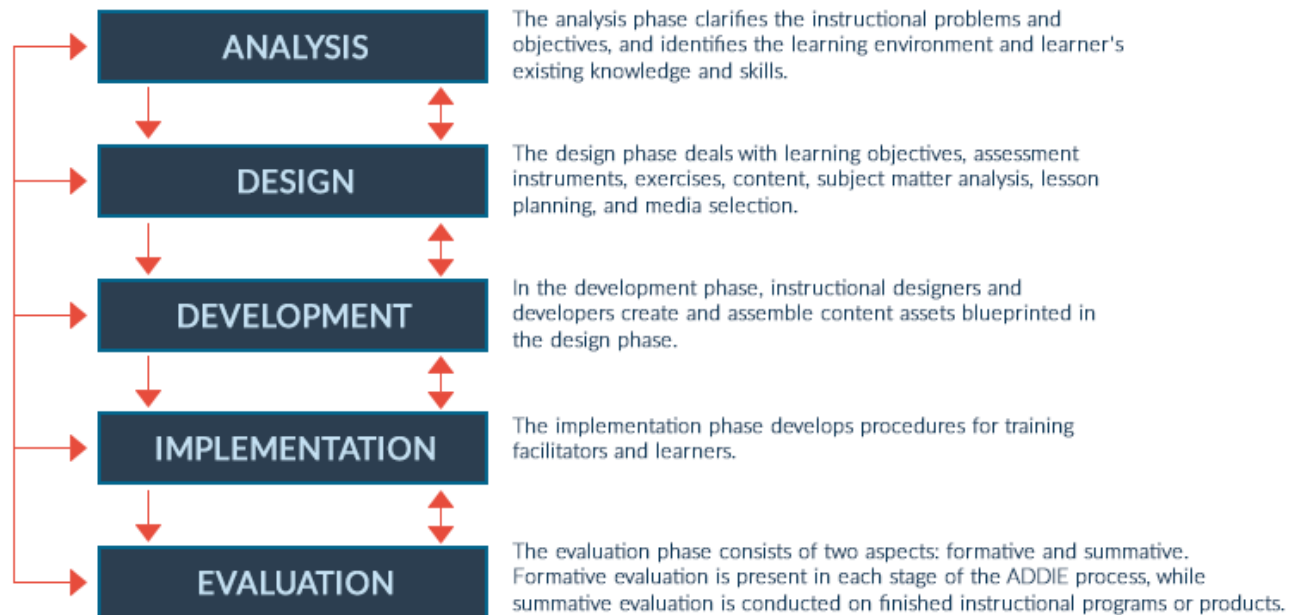
In the present study, four pre-service teachers worked with a team of agricultural communication faculty to develop communication curricula and lesson plans to be incorporated into high school AFNR classrooms. The purpose of these lessons was to teach communication skills to students enrolled in secondary agricultural education programs in Minnesota to improve their ability to communicate about and advocate for AFNR, increase the communication skills needed to participate in various career and leadership development events (CDE/LDE), and to provide agriscience teachers with tools to train an agricultural communications CDE team.

To better understand pre-service teachers' interdisciplinary instructional planning process and their experience with incorporating agricultural communications in their AFNR lessons, one-on-one interviews with the pre-service teachers were conducted at the conclusion of their student teaching experience. These pre-service teachers worked to develop interdisciplinary lessons prior to their student teaching experience and, when appropriate, used these lessons in their classroom. This qualitative case study examines the interdisciplinary lesson planning and integration process of pre-service teachers with specific focus on opportunities and limitations to implementing agricultural communication skills and lessons in the AFNR classroom and the impact these lessons have on student interest in the agricultural communications career pathway.

Conceptual Framework

In this study, the curriculum development and integration process was evaluated through the lens of the ADDIE instructional design model. The ADDIE model consists of five steps: Analysis, Design, Development, Implementation, and Evaluation (Davis, 2013). These steps serve as a strategic plan for the curriculum development and implementation processes (Davis, 2013). The ADDIE model is flexible in its use as a conceptual model. This flexibility was crucial in analyzing the data set due to the variable nature of student teaching responsibilities and workloads. Forest (2014) stated, "each stage is a clear instruction on its own. This means that even if the individual applies ADDIE in the middle of the project, it will still retain its value and be able to provide a sense of structure to the whole program" (p. 1). Figure 1 presents the steps taken during the curriculum development and implementation processes through the ADDIE instructional design model.

Figure 1. The ADDIE Instructional Design Model



Note. The ADDIE Instructional Design Model. Reprinted from “What do course designers need to know about the ADDIE Model?” In *E-Learning Heroes*, by D. Anderson (2020). Retrieved January 19, 2022, from <https://community.articulate.com/articles/using-the-addie-model-in-elearning>.

Previous research has used the ADDIE model to evaluate teacher development programs (Bamrara & Chauhan, 2018). While this study does not directly intend to evaluate the teacher development program at the University of Minnesota – Twin Cities, the model does allow us to peek into the self-perceived preparedness of pre-service teachers regarding the overall lesson planning, implementation, and evaluation process. Because the ADDIE model can be used as a roadmap for curriculum development, it can also be used as an evaluation tool for the curriculum development process (Yeh & Tseng, 2019). Yeh and Tseng used the ADDIE model to evaluate the inclusion of computer-assisted language learning instruction in English as a Second Language (ESL) classrooms (2019). Through the lesson design process, they found that teachers were able to move away from traditional language teaching resources. Additionally, the evaluation process allowed the researchers to identify that teacher confidence was elevated using computer-assisted language instruction (Yeh & Tseng, 2019). Reinbold (2013) found that the ADDIE model was an effective method for designing and evaluating library instruction, especially since librarians are often not trained in education but have content knowledge. Our use of the ADDIE model to evaluate the pre-service teacher’s interdisciplinary curriculum development experience plays a similar role in that these pre-service teachers are trained in agricultural education but lack the communications skills training to be incorporated into their lessons.

Purpose and Research Objectives

The purpose of this study was to describe pre-service teachers' experiences during the interdisciplinary curriculum development and implementation processes. The following research objectives guided this study:

- RO1: Describe the interdisciplinary curriculum development and lesson planning process of pre-service teachers.
- RO2: Describe the implementation of an interdisciplinary curriculum in the classrooms of pre-service teachers.

Method

Qualitative research was chosen for this study because it allows for an examination and deeper understanding of the experiences and perceptions of participants (Ary et al., 2010). This qualitative study was a descriptive case study (Grandy, 2012) that sought to understand the particular case of pre-service teachers preparing interdisciplinary lessons.

Four pre-service teachers were asked to develop one to five lesson plans for animal science and/or plant science courses. The pre-service teachers selected were recruited through a voluntary recruitment call. This call was presented to pre-service teachers currently enrolled in the SBAE teacher preparation program at the University of Minnesota – Twin Cities. Only pre-service teachers who would be student teaching the following semester were targeted for recruitment. This decision was made because the pre-service teachers would have previously taken courses related to lesson planning and were most prepared for the teaching experience. Two of the pre-service teachers identified as female and two as male. All four pre-service teachers were white and non-Hispanic. Pre-service teachers selected topics based on their interest areas and developed instructional materials, including lesson plans, instructions, activities, and PowerPoint presentations. As student teachers developed the curriculum, they brainstormed ways to infuse communication into their lesson plans. Then, they worked with an agricultural communication faculty member to share their ideas and strengthen how they incorporated communication principles and learning evaluation activities into the instructional material.

One example of material created aimed to teach plant genetics while also teaching design principles. Students were taught the scientific material associated with plant genetics while also being taught principles of design such as use of white space, fonts, colors, and basic graphic design skills using the free online program Canva. Upon completing the unit, students were assigned to design an infographic using Canva to visually communicate the basic science of plant genetics while using good design principles taught in the lesson.

Upon completion of their student teaching experience, the pre-service teachers returned to campus, signed informed consent documents, and participated in individual one-on-one

interviews where they discussed their interdisciplinary lesson planning process and, when applicable, discussed the process of using the lessons in their classrooms. Each interview lasted between 15 minutes and 34 minutes. Shorter interviews can be attributed to pre-service teachers who could not implement the curriculum in their classrooms. After recorded interviews were completed, interviews were transcribed, and pseudonyms were assigned to each participant. Table 1 outlines the semi-structured interview questions used in the data collection process relevant to the scope of this study.

Table 1. Semi-structured Interview Questions

Tell me about what this curriculum development process was like.
Had you developed a lesson plan like this before you started your student teaching?
How did developing this/these lesson plan(s) influence developing other lesson plans as you were in your student teaching experience?
What was the most challenging aspect of developing the lesson plans with the communications content?
What could you have done to be better prepared to develop these lesson plans?
What could we or the teacher education faculty have done to better prepare you to develop these lesson plans?
Did you end up using the lessons plans during your student teaching
What was your cooperating teacher's response to these lessons? Do you believe they will use the lessons again now that you're gone?
Which lessons did you teach?
What aspects of the lessons do you feel worked best?
What challenges did you find in using these lessons?
What changes, if any would need to be made before other teachers are provided access to these lessons and resources?
How do you think these lessons impacted your student's exposure to the agricultural communications CDE and career pathway?

Prior to beginning the coding process, the five steps of the ADDIE model were established *a priori* as the themes in which the data collected would fall. Previous qualitative research has used codes established *a priori* when a clear theoretical or conceptual framework is used as the research lens (Thiel & Marx, 2021). In doing so, this allowed us to parcel out the specific aspects of the curriculum development, implementation, and evaluation portions of the experience for each of the pre-service teachers. This method of analysis allowed us to better conceptualize the experiences of each of the pre-service teachers even if they did not have the opportunity to implement their lessons during their student teaching experience. Because this was a case study, data collection could only be limited to those pre-service teachers who participated in the curriculum development process. Because of this and the varying experiences of the pre-service teachers, emergent themes and subthemes were not identified outside of the preestablished ADDIE codes. Direct quotes from each pre-service teacher were used to determine how they

navigated the lesson planning and implementation process. To accomplish this and to improve trustworthiness (Patton, 2015), we triangulated our analysis by independently coding quotes from the interviews as reflective of either the Analysis, Design, Development, Implementation, or Evaluation process. We then compared our notes and adjusted codes as needed until an agreement was established.

Audit trails were used to ensure further trustworthiness, confirmability, and dependability of the results as we met to discuss coding after the first independent round (MacQueen et al., 1998). Bias was reduced via the use of debriefing sessions (Guba, 1981). Guided by Lincoln and Guba (1985), transferability was established through the use of detailed quotations in the findings. Findings from this study are limited to the experiences of each pre-service teacher and how these experiences were interpreted. These are common limitations in qualitative research (Pauly, 1991). Since this is a case study, results are not generalizable to the entire population of pre-service teachers. Instead, this case study provides a foundational understanding of pre-service teachers' interdisciplinary lesson planning process with regard to the implementation of social science curriculum into the AFNR classroom. Finally, researcher bias can never be completely removed; however, the research team approached this study with an awareness of our personal biases regarding our field of study being agricultural communication rather than agricultural education. We recognize our experiences in the agricultural education and communication domain helped conceptualize this study within the development of the interview questions and how the results were interpreted.

Findings

To fulfill the purpose of this study, four pre-service agricultural educators were interviewed regarding their interdisciplinary curriculum development and implementation processes.

RO1: Describe the interdisciplinary curriculum development and lesson planning process of pre-service teachers

Research objective one sought to understand pre-service teachers' experiences as they developed interdisciplinary lesson plans that incorporate communications principles into plant and/or animal science coursework. This research objective aligns with the Analyze, Design, and Develop portions of the ADDIE model.

Analyze

The pre-service teachers determined their target audience during the first step in the curriculum development process. During this process, the pre-service teachers needed to identify their student population; however, they were met with some challenges once they were actually in the field. Evan found he had not analyzed enough to offer adaptations and modifications for his students:

Every single lesson that I taught had to have adaptations and modifications for, upwards of 12 students out of 24 in one of my classes. So... it's just a whole different world there. And so that's something that, you know, we're taught as students in agricultural education, but we don't really realize how necessary it actually is until we're out there doing that.

Kandice also found it difficult to develop lessons for a group of students she had never met:

I think the first thing that I came across when writing the lesson was how hard it was to develop a lesson in that vacuum of I don't have the students in front of me to know how I need to structure this to meet their needs.

While Kandice and Evan identified challenges associated with their student audience during the analysis process, Kara battled with who the other teacher audiences would be if and when they received her lesson(s) to use:

I wanted to make [the lesson] in a way that other teachers would want to use it because I didn't want to make something that people might not use. [The lesson] still might not be used if we roll it out, but just like not making it only Kara friendly.

Design

In the second step of the curriculum development process, the pre-service teachers designed learning solutions that align objectives and strategies with the instructional goals. During this step, the pre-service teachers had to think specifically about the interdisciplinary nature of these lessons. Kandice found this to be a new experience for her: "Outside this particular lesson, I don't think I've designed a lesson that is intentionally interdisciplinary to hit other standards."

DeAngelo also found this step to be challenging despite being a double major in agricultural education and agricultural communication:

I have a pretty decent background in agriculture and a pretty decent background in communication, but I feel like at this point I'm not strong enough in both of them to blend them together. It's easy for me to write a communication lesson plan. It's easy for me to write an ag lesson plan, but since I'm kinda decent at both of them, putting them together, it can be a little bit more challenging sometimes.

Evan felt more comfortable with this process as he reflected on how agricultural education is inherently interdisciplinary: "I think every day in agriscience, agricultural education, we're able to do interdisciplinary work, whether that be agriculture and science, agriculture and math, agriculture and communications, even agriculture and English."

Develop

In the development step, pre-service teachers identified learning resources and revised drafts. Kandice found that working with an agricultural communication faculty member helped with this step:

My lesson was on plant nutrition specifically and trying to find a way to link that to a communication concept was a little more interesting. Working with [Professor] really helped with that because I don't know how I would've come up with that idea otherwise.

However, Evan found the siloed collaboration with the agricultural communication faculty member made the development process more challenging:

How [Professor] and I worked on ours is I created the [agricultural] curriculum, then we were gonna talk through it and then she was going to infuse comm curriculum into what we had. And so, it was really difficult to plan it to keep it flexible enough to have comm curriculum infused.

DeAngelo found the lesson planning process was beneficial in and of itself: "I think any practice you can get developing lessons or organizing curriculum will only help you. So, it gives you new ideas, fresh ideas."

RO2: Describe the implementation of an interdisciplinary curriculum in the classrooms of pre-service teachers

Research objective two sought to understand pre-service teachers' experiences as they implemented interdisciplinary lesson plans that incorporate communications principles into plant and/or animal science coursework. This portion of the ADDIE model includes Implementation and Evaluation. Two of the four pre-service teachers had the opportunity to implement their interdisciplinary lessons during their student teaching experience. The two pre-service teachers who were unable to implement their interdisciplinary lessons reflected on the limitations they experienced with implementation.

Implement

Evan had the opportunity to implement a portion of his lesson during his student teaching experience. He felt the communication content he had originally planned to teach was too much for his student audience, so he narrowed it down to more digestible content:

I used the fact sheet piece from the communications content and then briefly went over principles of design and talking about the rule of thirds and then about some different lines...horizontal and vertical lines and what some of those meant.

Kara used her entire lesson plan but allowed for some flexibility with her students regarding how they completed the deliverable portion of the lesson:

My lesson is dairy focused, but I gave my students an option to do any species life cycle because we had talked about beef, dairy, and sheep prior to where I stuck in the advocacy lesson because that was before we went out to farm visits. I used the communication content, and I had the same requirements as what I would have in the lesson. So, I wanted the kids to have some choice, but also [guided by] what I wanted that fact sheet to look like.

DeAngelo was limited in his ability to implement the curriculum at his school due to technology issues:

[During] student teaching I did have some experience integrating interdisciplinary content. I didn't really have as much of an opportunity to integrate the [communication] content just because they don't have as much technology at that school and the Chromebooks can only handle so much. And the internet just wasn't very good. Whenever I tried to use Canva on their laptops, it just never worked very well.

However, despite the internet connectivity and technology issues DeAngelo experienced, he worked to navigate alternative methods to allow his students to develop communication skills:

One of the lessons that we did here with [communication] was we created a Canva template. And then the students would go in and edit the template, putting in their own pictures and texts. And although Canva wasn't working very well for me, I was able to do the same thing on a PowerPoint slide and students just duplicated the PowerPoint slide and filled in that information with what they learned in a science experiment they did in my classroom.

Evaluate

The overall goal of the development of these interdisciplinary lessons was to offer agricultural teachers the opportunity to introduce career opportunities in agricultural communication, increase the communication skills of their students for career and leadership development events, expose students to and train them for the agricultural communication career development event, and allow teachers to have alternative manners of evaluating student learning after teaching plant and animal science curriculum. The four pre-service teachers reflected on how these lessons impacted their students and helped meet these goals.

Evan found that because of these lessons, he had increased student interest in both the agricultural communications CDE as well as career opportunities in agricultural communications:

I now have two students interested in ag communications that had never even heard of it as an option before. I even had an opportunity to then talk to them about the ag communications CDE and it was too late for us to have a team this year in Wisconsin, but I found a team of three that is looking forward to doing it next year.

Kandice found the added value of the communications content was beneficial for her students:

I think it's also a really good thing to do because the students are going to need those skills of communication and they will probably last longer in the student's [mind] than knowing what nitrogen deficiency looks like. That's not something everyone's going to use every day, but they will use communication.

While reflecting on this experience, DeAngelo found that he took for granted the technology knowledge level of his students: "One of the most challenging things was that I kind of expected my students to be at my same level of technology. It's kind of challenging to step back and reteach how to use Google Drive and how to send an email."

Kara said she felt the students in the teacher preparation program are not taking full advantage of the resources the agricultural communication faculty have to offer them: "Some people will take comm classes, some people don't. But you guys are right at our fingertips. And why not use that resource? Because those are activities that kids are going to be more excited about later."

Conclusions, Implications, and Recommendations

These pre-service teachers had varying experiences throughout their lesson planning process and even more varying levels of success in implementing the lessons during their student teaching experiences. The ADDIE model was used as the lens through which the pre-service teachers' experiences were evaluated (Davis, 2013). While the students had more control over the Analyze, Design, and Develop portions of the process, the Implementation process was the most challenging.

Some pre-service teachers were limited by technology accessibility and others by the science topic not relevant to the courses they were teaching. A major conclusion of this study was that all four pre-service teachers felt the interdisciplinary lesson development process was rewarding, eye-opening, and a beneficial personal learning experience. Upon graduation, many pre-service teachers recognize that they wish they had had more opportunities to practice lesson planning before embarking on their student teaching experience (Rauduvaite et al., 2015). Beginning teachers have long been concerned with their ability to design and develop lesson plans (Fritz & Miller, 2003; Greiman & Bedtke, 2008). Thus, the need to practice and complete interdisciplinary lessons prior to embarking on the student teaching process was highlighted by all four pre-service teachers during the interviews.

While previous research regarding teaching science as the interdisciplinary piece in the AFNR curriculum is ongoing (McKim et al., 2018; Pauley et al., 2019), the literature has been silent regarding incorporating social sciences such as communication into AFNR curriculum. Findings from this study expand our current understanding of interdisciplinary lesson planning as these pre-service teachers found the use of communications as the interdisciplinary component of the agricultural science curriculum beneficial and allowed for increased student interest in careers related to agricultural communications, the agricultural communications CDE, and increased student communication skills in the long run. The development of communication skills has long been viewed as an important piece in the cultivation of critical thinking skills (Geissler et al., 2012), thus allowing students to develop their higher-order thinking skills (Lattuca et al., 2004; Newell, 1994, 1998; You, 2017).

This case study found that pre-service teachers are interested in and value the interdisciplinary lesson planning process for teacher preparation programs. These pre-service teachers want more opportunities to develop interdisciplinary lessons, and they believe teaching communication skills in the classroom while tying the skills to the content area can improve student knowledge retention and engagement in the learning process. For agricultural communication programs, this case study highlights a possible avenue for engaging high school students with the potential career opportunities available within agricultural communications. Additionally, a partnership with agricultural education faculty could result in a mutually beneficial relationship that brings new agricultural communication majors into programs while also offering currently enrolled agricultural education majors the opportunity to practice interdisciplinary lesson planning.

Results from this study lay the groundwork for further inquiry into the use of social sciences, such as communications as an interdisciplinary component of the SBAE curriculum, further building on the work of McKim et al. (2018) and Pauley et al. (2019) concerning AFNR curriculum. Additionally, this research builds on the work of Driver et al. (2000) and Sadler et al. (2007) in that it explored communication tools and methods outside of interpersonal communication. Future research should identify how these pre-service teachers use these lessons in their classrooms as they are now in SBAE programs. Further qualitative inquiry should investigate how the type of communication tools taught in the classroom impact student engagement, content knowledge, and CDE/LDE participation. Finally, quantitative research could allow us to understand the interest and motivation of current SBAE teachers to implement social science-based interdisciplinary lessons in their classrooms.

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