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Experiences of Agricultural Education Preservice Teachers Engaging in Critical Friendships

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Abstract

As teachers search for ways to improve their craft through reflection, critical friendships have proven to be effective at improving preservice and inservice teachers' reflective behaviors. This qualitative study sought to understand the experiences of agricultural education preservice teachers participating in critical friendships with other agricultural education majors and with teachers in other disciplines. After three weeks of engaging in critical friendships, analysis of discussions between critical friends and interviews with participants indicated that, while the critical friendships were perceived as helpful, their utility was dependent on specific conditions within the teachers' settings. Additionally, preservice agriculture teachers engaged in different types of discussions when working with peers within or outside the discipline. The findings and implications from this study can assist teacher educators in developing parameters for critical friendships that can ensure their effective use and success within agricultural education.

Keywords: critical friendships, reflection, preservice teachers

Introduction

In their quest to discover what mkes an effective teacher, Cruickshank and Haefele (2001) found that the answer is not so simple. They posited that, among many other qualifiers, effective teachers possess a "strong, sustained interest in learning about the art and science of teaching and about themselves as teachers" (p. 28). Specific to agricultural education, the American Association for Agricultural Education (Doerfert, 2011) stated that educators with "adaptive expertise" (p. 22) were best suited to teach today's students.

There are multitudes of ways in which educators can hone their expertise in adaptation, one of which is the practice of reflection. Dewey (1933) defined reflective thought as the process of examining the basis of one's beliefs and declared the reflective process to be the most effective method of improving one's self. Methods and types of self-reflection used in agricultural education teacher training have been examined in several studies (Epler, Drape, Broyles, & Rudd, 2013; Greiman & Covington, 2007; Lambert, Sorenson, & Elliot, 2014), exploring topics ranging from the transfer of specific teaching skills and using reflection to understand the student teaching experience to determining differences in depth and content of reflection based on methods of reflection and discovering student teachers' preferred methods of reflection. However, as self-examination often excludes outside viewpoints (Valli, 1997), the reflector may have difficulty

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evaluating the effectiveness of his or her actions (Webb, 2000). Another avenue of educator development involves a trusted individual, or critical friend, who provides supportive feedback and, as Costa and Kallick (1993) described, "nudg[es] the learner to see the project from different perspectives" (p. 50). The critical friend facilitates reflection by helping the educator visualize a situation from a different view (Swaffield, 2007). However, the use of critical friendships has not yet been examined in the context of agricultural education teacher preparation. The proven benefits of critical friendships in other educational contexts (Baskerville & Goldblatt, 2009; Farrell, 1998; Golby & Appleby, 1995; Petrarca & Bullock, 2014; Schuck & Russell, 2005) suggest potential for improving the reflective experiences of agricultural education preservice teachers.

Agricultural education students are often able to form tight-knit bonds with their intradisciplinary peers; however, their network of teaching cohorts expands greatly during their teaching experience. Differences in the professional identities and values of agricultural education preservice teachers and preservice teachers of other subjects (Parr & Aldridge, 2016; Shoulders & Myers, 2011) may prevent agricultural education preservice teachers from actively pursuing professional relationships with preservice teachers in other disciplines. Agriculture teachers have a known history of loyalty toward one another, with researchers noting their tendency to "stick together" over three decades ago (McCracken & Etuk, 1985, p. 6). Shoulders and Myers (2011) suggested this loyalty implies a shared professional identity among agriculture teachers. Essentially, agricultural education teachers adhere to the homophily principle: strong bonds are formed with little effort between similar individuals (McPherson, Smith-Lovin, & Cook, 2001). The list below details the characteristics that distinguish agricultural education from other education disciplines, leading to a unique professional identity among agriculture teachers:

1. Agricultural education majors have displayed a stronger orientation toward the subject of agriculture (Parr & Aldridge, 2016), while elementary teachers have been reported to be more child-oriented (Richardson, 1996).
2. In most teacher preparation institutions, agricultural education preservice teachers are enrolled in programs housed within colleges of agriculture, while other preservice teachers are enrolled together in programs housed within colleges of education (Knebel, 1977; Parr & Aldridge, 2016).
3. Agricultural education has historically been a male-dominated profession (Camp, Broyles, & Skelton, 2002; Kelsey, 2006), while most other teaching disciplines have historically been female-dominated (Paechter & Head, 1996; Shoulders & Myers, 2011; Skelton, 2003).
4. The traditionally production-oriented focus of agricultural education, paired with educational reforms that focus on the STEM and critical thinking skills, may cause agriculture teachers to perceive "a gap between their disciplinary culture and new social demands" (Simonneaus, 2000; p. 28).
5. Societal beliefs about the prominent and diverse roles of the agriculture program (Terry & Briers, 2010) give the agriculture teacher a perceived degree of informal power and leadership unavailable to teachers of other disciplines (Paechter & Head, 1996).

While agriculture teachers may perceive their professional identity as markedly different from that of teachers in other subjects, they still work alongside teachers in other disciplines in their schools. At least half of the nation's high school agriculture programs employ one agriculture teacher (Smith, Lawver, & Foster, 2017), suggesting that a considerable number of teachers must rely on collaborative relationships with teachers from other disciplines for within-school collaboration. Participation in critical friendships may allow agriculture teachers to form bonds over shared struggles and problems with peers in their discipline and in other disciplines; however,

little is known about how homophily within teacher professional identity shapes their critical friendship discourse.

Conceptual Framework

Critical friendship is both an extension and an essential part of peer observation, as it involves peers observing one another and reflecting together in person, over the phone, or through written correspondence. Achinstein and Meyer (1997) defined it as a process that engage peers "in critical reflection in the climate of friendship" (p. 4). Critical friendships emphasize trust between participants (Farrell, 1998; Handal, 1999), which allows for a clearer and more honest discussion of the teaching process (Costa & Kallick, 1993; Franzak, 2002). Critical friendships are based on the exchange of constructive criticism, meant to be supportive of the person being criticized, to advance the development of the involved parties as educators and encourage them to carefully examine their methods and the beliefs that underlie those methods (Özek, Edgren, & Jandér, 2012). A critical friend assists by "'hold(ing) up a mirror to another person in terms of their practice or ideas so that they can examine them critically'" (Swaffield, 2007, p. 209).

Most critical friendships have been found to be positive experiences which allowed the participants to develop trust in each other and improve educational practice (Baskerville & Goldblatt, 2009; Farrell, 2001; Flessner & Horwitz, 2012; Manouchehri, 2002; Peel & Shortland, 2004). Swaffield (2008) agreed that trust was essential to the success of a critical friendship, and added that dialogue, or "the exchange of ideas and the search for shared meaning and common understanding" (p. 328), was an additional core feature of critical friendship. Petrarca and Bullock (2014) came to a similar conclusion, stating that participating in a critical friendship helped them find "support and reassurance" (p. 277) in each other as they realized that they were struggling with similar problems. However, Golby and Appleby (1995) cautioned that differences in the levels of experience between participants may inhibit the formation of a truly equal partnership. Schuck and Russell (2005) suggested that entering into a critical friendship with an individual who is already a friend may make the process easier at first, but did not guarantee that the partnership will be successful over time. Although critical friendships among experienced educators typically developed from a need for informal feedback on teaching effectiveness (Farrell, 2001; Petrarca & Bullock, 2014; Schuck & Russell, 2005;), critical friendships among preservice teachers tended to form only if it was required as a part of the teacher preparation program (Franzak, 2002) or if they were participating in a research study (Manouchehri, 2002). Especially important was the stipulation that participants in critical friendships be given the choice to pick their critical friend, as Farrell (1998) postulated that choice of a "partner who is already known and familiar" (p. 85) could shorten the time needed to develop trust in the relationship.

The literature suggests critical friendships could be a promising method to encourage reflection in early practitioners. Terry and Briers (2010) encouraged agriculture teachers to build relationships with colleagues in their schools and with peers in the agricultural education profession both state- and nation-wide. However, Shoulders and Myers (2011) suggested that agriculture teachers have a unique professional identify which differs from the professional identity of educators in other subject areas, which may cause challenges in the formation of effective critical friendships between agriculture teachers and colleagues within their schools. An examination into how preservice agriculture teachers are able to establish and use critical friendships within and outside of the discipline can assist the profession in utilizing critical friendships in ways that improve self and peer reflection, and in turn, teaching behaviors.

Purpose and Research Questions

The purpose of this study was to understand the experiences of agricultural education preservice teachers participating in critical friendships with other agricultural education majors and with teachers in other disciplines. The following research questions guided the study:

1. What are the experiences of agricultural education preservice teachers in critical friendships with other agricultural education majors?
2. What are the experiences of agricultural education preservice teachers in critical friendships with education majors in disciplines outside of agricultural education?

Methods

The day-to-day conversations between teachers influence their future actions, but the connection between the two is taken for granted, and therefore remains largely unnoticed. Further hidden within this mundane discourse is the ways in which teachers decide who they talk to, and which conversations influence their actions more or less heavily. Therefore, this study utilized a phenomenological approach to examine teacher-to-teacher conversation to understand how agricultural education students interpret and react to feedback from critical friends within and outside of the agricultural discipline (Shutz, 1967).

A complete sample (Flick, 2006) of all agricultural education preservice teachers participating in a student teaching internship at the University of Arkansas in the Spring 2016 semester was used (N = 6). Five of the six agreed to participate in the study. The participants included four females and one male, all in their early 20s. Following a thorough briefing on the subject of critical friendships during a one-hour training session, participants were randomly assigned to one of two groups. Three participants were randomly assigned to select a critical friend in the agricultural education discipline. The critical friend could be a preservice teacher, a recent graduate of the program, or a current agricultural education teacher with two years of teaching experience or less. The remaining participants (n = 2) were required to choose a critical friend in an education discipline outside of agricultural education. The critical friend in this instance could also be participating in a student teaching experience during the same timeframe, a recent graduate of a teacher preparation program, or a current teacher with two years of teaching experience or less. The literature indicated that having a critical friend with a similar level of experience was most effective, as Schuck and Russell (2005) and Golby and Appleby (1995) suggested that critical friends with different levels of experience might hesitate to offer critique.

For the first three weeks of the student teaching period, all participants were required to conduct a weekly discussion with their critical friends and complete a post-conversation critical friendship-focused journal entry, adapted from a critical reflection worksheet developed by Baskerville and Goldblatt (2009). The journal entry served as a motivator and guide for students during their conversations – they were told the conversations were a means of gathering content for their journal entries, with the intention of increasing their motivation for engaging in the conversations regularly and in a timely fashion. Content and face validity were confirmed by an expert in teacher education. The journal also included guidelines and frequently asked questions about the characteristics of critical friendships and participation requirements. To help the participants get started, some prompting questions for critical friendship conversations were also included. The participants recorded their conversations from weeks four through six; conversations from the first three weeks were not recorded so participants could become comfortable talking with their critical friend.

In addition, participants were required to engage in a peer observation exercise with their critical friend during the three-week data collection period. To control variability within the peer observation process, a 30-minute lesson plan informing high school students about higher education

opportunities was developed. The lesson plan was reviewed by a panel of experts in agricultural education for face and content validity. The participant-critical friend dyads were required to participate in a pre-observation meeting to achieve an understanding of the school and classroom context, and in a post-observation meeting to collaboratively reflect on the experience, as per the protocol for previous studies using peer observation (Cosh, 1999; Kohut, Burnap, & Yon, 2007). Following the completion of the lesson, participants completed a written journal entry and then discussed the reflections with their critical friend. Near the end of the student teaching experience, semi-structured one-on-one interviews about having a critical friend and serving as a critical friend were conducted with participants using a protocol adapted from Dahlgren et al. (2006). The 30-minute interviews were conducted via voice recorded phone calls over the course of the last two weeks of the participants' student teaching experiences. Interview questions addressed participants' perceived teaching styles, changes in their teaching they may have made as a result of participation in the critical friendship, and their perceptions of risks and benefits of engaging in critical friendships.

Data were collected via participant-critical friend conversations and through one-on-one semistructured interviews conducted and recorded by the researcher. Participants were instructed to download a call-recording app to their phones and use it to record their conversations with their critical friend. Each participant was assigned a Google Drive folder, where audio files were to be saved and uploaded following each conversation.

The interviews and recorded conversations between critical friends were transcribed verbatim using ExpressScribe and coded for themes using the constant comparative method (Glaser, 1965). In this method of analysis, the researcher sorts incidents in the data into categories, first comparing the incidents with other incidents in the same category as they are coded, and then comparing the incidents in a category with the properties of the category (Glaser, 1965). As the limits of the developing theory become clearer, the researcher focuses on achieving theoretical saturation in the coding categories; at the end of the process, the researcher uses the data to formulate a theory (Glaser, 1965). Journal entries were collected and served as a means for triangulation, but were not analyzed separately, as they contained students' summaries of the conversations already being analyzed.

Rigor of the study was ensured through use of Lincoln and Guba's (1985) techniques for evaluating qualitative research, including establishment of credibility, transferability, dependability, and confirmability. Credibility was established through triangulation of sources, as data was collected weekly for the duration of the study and again at the end of the study. Data was also triangulated through the collection of the critical friendship journals (Patton, 1999). At times when researchers were either individually unclear or collectively in disagreement on the meaning or intent of data from the recorded conversations, written journal entries were referenced to establish and confirm the participant's meaning or intent. Peer debriefing was also used to discover researcher-oriented assumptions and determine the suitability of the methods used in the study (Lincoln & Guba, 1985). Transferability was established using thick description of the participants' experiences in critical friendships and how they fit in the context of the existing literature (Holloway, 1997). Dependability was established via an inquiry audit performed by an expert in teacher education. The expert examined the research process and the findings, and prompted us to reexamine the data and revise themes. This inquiry audit was made feasible by an audit trail, which also established confirmability (Lincoln & Guba, 1985). Following Halpern's (1983) recommendations for developing an audit trail, the design process was recorded in a researcher notebook in order to illuminate the process by which final design decisions were made. We kept all raw data including participant recordings, interview recordings, and journal entries. Transcriptions were verbatim and were checked against the raw data to confirm accuracy. All notes

and coded copies of transcriptions were reviewed by the researchers to confirm connections between themes and the data.

In order to foster reflexivity within the study's design, data collection, and analysis, the researchers developed a reflexivity statement. This statement was constructed prior to the study's design and reviewed and revisited by all researchers throughout the research process. Additionally, an expert in social science research but outside the teacher education program was included in the research process to provide additional accountability for recognition of preconceptions (Cohen & Crabtree, 2006).

Each of the researchers is responsible for instruction at the University of Arkansas and share office space within the same building; these circumstances have led the researchers to engage in informal critical friendships with one another in the past. All are certified to teach high school agricultural education. The lead researcher is a graduate student in the Agricultural Education program, and graduated from the University of Arkansas with a degree in agricultural education. One of the researchers is responsible for agriculture teacher education, one is responsible for teaching some of the elective courses undergraduate and graduate students within the major may take, and one is responsible for teaching courses within agricultural business and law. Through these roles, three of the four researchers have interacted with the participants before this study. Each of the researchers holds value in constructive criticism from others, and perceives that it is this concept which forms the very foundation of critical friendships. We believe there are prime learning opportunities to be found within positive and negative teaching experiences, and that these are enhanced through open discussion and reflection with peers. However, we recognize that these perspectives are not held by all teachers, and believe that teaching experiences can increase the value one holds in critical friendships.

Findings

Of the five participants from the Spring 2016 student teaching cohort, three chose to complete the entire study. One preservice teacher dropped out of the group assigned to selecting critical friends outside the discipline, while one dropped out of the group assigned to select a critical friend within agricultural education. Two of the student teachers within the homogeneous dyad were placed at the same school and served as each other's critical friend, and the third participant selected a critical friend outside of agricultural education as requested. Different main and sub-themes emerged from the critical friendship conversations, depending on whether the critical friendship was between two agricultural education preservice teachers or between an agricultural education preservice teacher and an early-career teacher in another discipline. This was not the case for the interview data, where the same two themes were seen in the interviews of participants in both types of critical friendships.

Agricultural Education Critical Friend Conversations

Four main themes emerged from the conversations between Participant 1 (P1) and Participant 3 (P3), the two participants in the agricultural education—agricultural education critical friendship: concern about dealing with the uncooperative minority of students; discussion of potential solutions; openness to feedback; and uncertainty about problems and solutions.

Concern about dealing with the uncooperative minority of students. Throughout their conversations, the agricultural education-agricultural education critical friend pair began by describing a specific problem related to teaching practice that one of the two had experienced, such as "five of [the students] are just—they don't pay attention, they don't wanna do what I ask them

to do" (P1-P3 conversations, p. 1 lines 3-4), and "most of my class does really well, but I have a handful of students that want to sit on their phone, constantly, no matter what, no matter how many times I ask them to get off" (P1-P3 conversations, p. 3 lines 18-19). Nearly every teaching problem described by the participants involved just a few students and usually involved a lack of motivation, engagement, or attentiveness. In describing a problem they had with several students, P3 reflected on the details of the situation:

> P3-sigh-There's only like, f--there's three kids that I don't think that they're learning anything, because half the time, they're just looking off into space....but, I can't test that ability.
>
> P1-Mmhmm.
>
> P3-I mean, they turn their worksheet in like they're supposed to...well, one of them doesn't, but most of them--they, the other two do, and I just, I guess I don't know...where to go....(P1-P3 conversations, p. 9 lines 22-26)

Discussion of potential solutions. After listening to their partner's teaching concerns, the critical friend usually tried to seek additional understanding of the problem by asking a clarifying question. Regarding P3's five problem students, P1 asked if there were "one or two that like, kind of egg it on, that really start up" (P1-P3 conversations, p. 1 lines 11-12). P1 then used this information to recommend a solution that they had used themselves. After P1 described their problem with cell phones later in the conversation, P3 asked "do you give them daily participation points?" (P1-P3 conversations, p. 5 line 3), and proceeded to recommend implementing a three strike rule, where every strike is a grade deduction (P1-P3 conversations, p. 5 lines 16-17). The proposed solution was usually presented via a detailed description of an experience where the critical friend had successfully implemented the technique. This description might also include relevant details about the situation it was used in, and a description of how the students reacted to the implementation of the technique. P1 demonstrated this theme while presenting another option for handling P3's problem students:

> Oh my goodness, [student] was giving me so much...trouble, and whenever I pulled him out of class... and, er, class was over and I asked him to stay back, and I just talked to him for a few seconds. I was like "Hey...dogging [sic] on you hour--all hour is not what I want to do, it's hard on me, it's hard on you, it's annoying, it wears me out...I just need you to do your work. This is my job, and I'm your teacher, that's all I'm doing. I'm not trying to pick on you, I just want you to get your work done. He's like...."Yeah, I understand, I don't know why I was being like that," and honestly, I haven't had much of a problem since... (P1-P3 conversations, p. 2, lines 16-24).

Openness to feedback. The participants were accepting of the constructive criticism offered by their critical friend, especially if the feedback they received fit in the established classroom culture. P1 liked P3's suggestion of a three strike rule, stating that they were "going to try that…the basket thing and the three strike" (P1-P3 conversations, p. 7 line 16), and P3 said they would "take all suggestions for eighth grade now" (P1-P3 conversations, p. 7 line 17). Participants often verbally indicated that the suggested solution might be something they would attempt to implement in their classroom.

Uncertainty about problems and solutions. There were a few teaching problems for which neither participant had an effective solution, and doubts were expressed about the ability to

change. In discussing their teaching issues, the participants expressed uncertainty about how to proceed and doubt about the solutions they had already attempted to implement and about their ability to change themselves or their students. The description of the teaching problem was usually followed by an admission of lacking knowledge of how to handle that particular situation. P3 admitted that "I don't know, I'm just…struggling with, should I keep stuff in my classroom the same, or should I change it?" (P1-P3 conversations, p. 9, lines 7-8), and P1 stated that "I just don't know how to not keep harping on those few students while the rest of them are doing fine" (P1-P3 conversations, p. 3, lines 25-26).

However, in several instances, the participant describing the problem would also state that they knew of a potential solution to their problem, but preferred to avoid resorting to such an action as they perceived it to be ineffective or troublesome. On two occasions, after P3 had given a description of a potential solution, they also included a caveat saying that although the solution worked for them, it may not work for the other partner for their particular problem. P3 stated that they had successfully used small group work in connecting motivated students with unmotivated students, but conceded that "I know not everything's going to be group work" (P1-P3 conversations, p. 11 line 22).

Agricultural Education – Non-agricultural Education Critical Friend Conversations

P4 and their non-agricultural education critical friend used their critical friendship for slightly different purposes. The recordings of the critical friendship conversations between P4 and the non-agricultural education critical friend were fewer in number and much shorter in length than P1 and P3's conversations, and thus yielded less data. Data from the conversations between P4 and their critical friend revealed three major themes: establishing common ground as teachers, offering reassurance, and openness to feedback.

Establishing common ground as teachers. Participant 4 (P4) and their critical friend used their conversations to discuss some teaching problems, but spent most of their time reflecting on what happened in their classrooms that week. This discussion of teaching events allowed P4 and their critical friend to establish common ground as educators amid different grade levels and subjects. Similar to P1 and P3, P4 and the critical friend's teaching problems mainly dealt with student motivation and engagement. P4 said that they were having problems with student motivation towards completing a unit on electricity and that they did not really know how to solve their problem. The critical friend responded by saying "I've been having the same motivation issue in my class too" (P4-CF conversations, p. 1 line 15), followed by an example of a solution that they had implemented in their own classroom.

Seeking reassurance. In each conversation, the non-agricultural education critical friend mentioned that they had experienced a similar situation to the one described by P4, and suggested a solution that had worked in their classroom or reaffirmed the action taken by P4. In response to P4's unmotivated electricity students, the critical friend described a situation where they had successfully used extrinsic motivation to encourage a student:

> I have one kid who never gets his work done, and I found out that he will get his work done if he gets some extra reward. If he gets his work done in the morning, he gets to go to his brother's classroom and see their classroom pet after recess every day. (P4-CF conversations, p. 1 lines 5-8)

In discussing how to maintain student motivation before spring break, however, the critical friend said they were having the same problem but did not offer potential solutions. The critical

friend helped P4 confirm that their teaching concerns were not exclusive to agricultural education teachers, and often agreed that solutions utilized by P4 were similar to solutions that they would use in their classroom.

Openness to feedback. P4 was receptive to the critical friend's feedback, and based on later conversations, actually implemented the particular suggestion offered by the critical friend. After the critical friend suggested trying to find a reward of some type to motivate the students, P4 agreed that they had been "trying to think of some…kind of extrinsic motivators like that" (P4-CF conversations, p. 1 lines 21-22), and that "maybe if I...have a reward...that would kind of get them motivated to get this over with so that they can move on to the next thing, or move on to what they want" (P4-CF conversations, p. 1 lines 24-25). P4 expressed belief that the suggestion of using a reward was something that would work for them in their particular situation. In the next week's conversation, P4 mentioned that "…we finished our lesson in agricultural mechanics, we finished our last electricity lesson on three- and four-way switches, and...it seemed like it finally clicked. They were finally getting it" (P4-CF conversations, p. 2 lines 15-17).

P4 and their critical friend used their discussions to establish common ground, offered reassurance that they were experiencing the same problems and implementing similar solutions, and expressed their openness to feedback. These purposes differed from the purposes sought by P1 and P3; however, interview data from P1, P3, and P4 revealed the same two themes: critical friendship as a valuable experience and critical friendships work under certain conditions.

Critical Friendship as a Valuable Experience

Participants agreed that engaging in a critical friendship was helpful for several reasons. The ability to access an outside viewpoint on teaching concerns was a benefit cited by all, a sentiment summarized by P1: "…it helped me so much. It was nice to have somebody to bounce ideas and concerns off of" (P1 interview, p. 2 lines 17-18). P4 identified the outsider's perspective as one of the benefits of participating in a critical friendship. Having a critical friend in a different educational discipline was perceived as an advantage by P4, who said that the critical friend "wasn't afraid to tell me what [they] saw from an outsider's perspective, being not in agricultural education" (P4 interview, p. 3 lines 11-13).

Critical friendships allowed participants to discover things about themselves as teachers of which they were not previously aware. P1 came to realize that they "don't joke around with my students during lecture time" (P1 interview, p. 4 line 11). Similarly, the critical friend helped P4 realize something about themselves of which they were previously unaware: "I kind of try to make every experience into a learning experience, um, and I guess really had no idea that I did this" (P4 interview, p. 4 lines 14-15). Participants found that being observed by their critical friend was another useful aspect of the relationship as it provided more external input. P1 admitted that they didn't "necessarily think about, at that moment…so much the things I'm doing as, as whenever I watched somebody else" (P1 interview, p. 2 lines 24-25). P3 identified accountability as an additional benefit of being observed by their critical friend:

> When I am observed and someone gives me constructive criticism, I am more likely to apply that to myself. Next time they come and see me, I want it to be perfect. (P3 interview, p. 2 lines 7-9)

P4 echoed this sentiment, but did not adopt any features of their partner's teaching style because they found their particular settings and situations to be too disparate.

Participants reflected on the usefulness of regularly discussing teaching problems. P4 noted that working with a critical friend helped them examine their teaching problems, and "gave me a chance to not only to vent about the situations that I had, but be working with somebody who is also struggling" (P4 interview, p. 4 lines 29-31). The participants also mentioned that their conversations as critical friends were an opportunity for them to talk about situations that went well during the week, in addition to the parts of their teaching practice they could improve: "I think as much as we talked about what we could change and what we could do different, we talked about…what we were doing and were doing well" (P1 interview, p. 3 lines 7-8). P1 referenced an encounter the two had with a student who told them an inappropriate joke despite the participants' declining to hear it. The participants had felt unprepared for such a situation and, through the use of each other as a critical friend, reflected on the situation together and brainstormed ideas for what to do if such an incident occurred again in the future: "it was nice to have one another there and talk about what we felt comfortable with allowing and not allowing" (P1 interview, p. 4 lines 6-7).

Another valuable benefit of critical friendship was the opportunity for both participants to observe and experience a different teaching style. For P1, the observation of a peer allowed them the opportunity to reflect on and examine their own teaching practices. P1 talked about how they compare their own teaching style to that of the person they observed:

> I really pay attention to what they're doing and think, am I doing that, or not doing that, or am I doing enough of it, am I doing too much?... Or how can I incorporate what they're doing and kind of tweak it and make it work in my classroom? (P1 interview, p. 5 lines 27-32)

P4 stated they looked for ideas that would work for them in their particular setting, and noted that observing the critical friend had exposed them to a teaching style that was much different than the lecture-type style to which they had grown accustomed. P4 said the transition from a teacher-centered style to a student-centered style "was different" (P4 interview, p. 2 line 27).

Critical friendships work under certain conditions. While they identified the practice as one that helped them improve as teachers, the participants cautioned that their particular situation allowed them to overcome several risks and problems associated with critical friendships that might otherwise impede the establishment of such a relationship. Being open to giving and receiving criticism was identified by the participants as a condition essential to forming a critical friendship. P3 mentioned that "there is [sic] some people I know that can't handle [criticism] very well" (P3 interview, p. 4 line 14) who "could possibly not do very well in this" (P3 interview, p. 4 line 12). P4 also recognized that giving and receiving criticism could be a major roadblock to establishing a critical friendship:

> …if you wanna be a better teacher, and if you ask somebody to observe you and be honest with you, then yeah, be ready for.. some criticism, and, if you're not ready for it, then, you know, that might be difficult. (P4 interview, p. 5 lines 2-4)

While participants said they felt comfortable bringing up issues with their critical friend, P1 mentioned that "there was a few times I felt a little hesitant to say something" (P1 interview, p. 2 lines 30-31). P3 believed that some teachers might be resistant to the idea of receiving criticism because "they believe that their teaching style is perfect and everything's great" (P3 interview, p. 4 lines 23-24). P3 stated that since they were friends with P1 before the study began, they were more comfortable with each other and felt more freedom to give criticism and discuss teaching issues freely. P3 explained they would have found it difficult to give criticism to their critical friend if they "didn't know [P1] so well" (P3 interview, p. 2 line 16). Like P1 and P3, P4 knew their

critical friend very well before the study, which made it easier to form the critical friendship and facilitate the exchange of honest feedback. The participant noted they were "not sure how other people liked it," (P4 interview, p. 5 line 14) and they knew "the others are not in the same situation as me, so for my situation, it was great" (P4 interview, p. 5 lines 19-20).

P4 also mentioned that it was easy to accept criticism when they realized their critical friend was offering it in the spirit of helping them improve as a teacher. Similarly, P1 noted that engaging in a critical friendship and practicing giving criticism helped them become more comfortable with the practice, and eventually made it easier to continue being a critical friend: "realizing that [the critical friend] knew I was doing it out of…um, genuine concern and being helpful, it made it a lot easier" (P1 interview, p. 2 lines 32-33). The participants' philosophies on criticism also appeared to make the potentially controversial exchange of criticism an easier process. P1 stated that "receiving criticism is something I've always tried to work on being okay with" (P1 interview, p. 3 lines 2-3), while P3 preferred to receive constructive criticism because the idea of an external expectation of change was a more effective motivator for them than internal expectations. P3 thought the concept may not work as well with teachers who did not see in themselves a need for improvement, and stated that the success of a critical friendship "depends upon what environment it's used in" (P3 interview, p. 4 line 26).

Conclusions & Recommendations

Data indicated that after listening to the partner's teaching concern, P1 and P3 would ask a question for clarification and then recommend a solution, technique, or idea they had personally used with success or a method that they had not yet used themselves. Additionally, P1 and P3 both presented sample scripts to each other for use in potentially solving their teaching concern. Costa and Kallick (1993) stated that asking questions for clarification allowed critical friends to better understand the context of their partner's problem or concern, a characteristic confirmed in the types of questions asked by P1 and P3. The interactions between P1 and P3 support Fritz and Miller's (2003) findings that requiring communication between agricultural education preservice teachers while student teaching encouraged the exchange of advice and ideas.

Farrell (2001) suggested that "reflection can cause doubt, and that for this reason some people may not want to face any further uncertainties at this stage of their life" (p. 373). In helping each other reflect on their teaching concerns, P1 and P3 revealed doubts about their ability to change themselves or their students. These doubts only represented a small minority of the teaching concerns expressed by P1 and P3, and involved problems that were not easily solved.

P4 and their non-agricultural education critical friend used the critical friend concept mainly to find common ground as teachers. P4 and the critical friend's successful search for commonalities as teachers supports Fritz and Miller's (2003) conclusion that agricultural education preservice teachers and preservice teachers in other subjects share the same basic teaching concerns. The presence of this theme supports Swaffield's (2008) postulation that dialogue, defined as a "search for shared meaning" (p. 328), was an essential feature of critical friendships, as well as Petrarca and Bullock's (2014) finding that critical friendships help participants find "support and reassurance" (p. 277) in the knowledge that they struggle together.

All participants saw their critical friendship as a valuable experience, which supports conclusions from numerous studies (Baskerville & Goldblatt, 2009; Farrell, 1998; Handal, 1999). Participants stated that the peer observation component prompted them to compare themselves to the peer they were observing, and that they would ask themselves if they were doing what the peer was doing, or were they doing different things than the peer. This aligns with Cosh's (1999)

definition of peer observation as a technique that encourages awareness of and reflection on one's own teaching practices. Participants also found that peer observation allowed them to see different styles of teaching and get ideas for their own teaching practice, statements that support Hendry, Bell, and Thompson's (2014) finding that peer observation allowed participants to learn about new teaching techniques. However, P4 indicated that while the critical friendship did find the critical friendship to be beneficial, they did not gain many new ideas about teaching. This finding is similar to Farrell's (1998) study, wherein the researcher did not notice any actual change in the critical friend's teaching practice, but both parties still maintained that they had derived some benefit from the relationship.

Implications for Practice

The findings of this study support the idea that critical friendships are a useful technique to help agricultural education preservice teachers connect with agriculture teacher peers and with other teachers. The participants indicated that the critical friendships helped them improve as teachers in some way, and thus it is recommended that agricultural education preservice teachers be encouraged to form critical friendships with their teacher peers during the student teaching experience. However, only half of the preservice teachers invited to participate were able to finish the entire study. Of the non-respondents, one participant assigned to the non-agricultural education critical friend group had initially indicated interest in participating and knew of a potential critical friend they could contact, but dropped out of the study due to scheduling conflicts between the participant and the critical friend. The third participant assigned to the agricultural education critical friend group did not respond to the researcher's attempts at contact until the end of the study, when they indicated they did not know of any potential critical friend and had decided not to participate. Based on the experiences of five of the six potential participants, familiarity was the most important qualification for a prospective critical friend.

The purpose and results of this study were not designed provide a definite answer as to which type of friendship was better for teachers, but rather to gain an understanding of how the two types of dyads conversed with one another about their teaching. While the conversations between the two dyads varied in content and direction, with the inter-disciplinary dyad focusing more on establishing common ground than the intradisciplinary dyad, the participants stated that they benefitted from either type of critical friendship. The agricultural education critical friends used their friendship to find new solutions to teaching concerns; the non-agricultural education critical friend pair used the relationship to gain understanding of each other's teaching practices. Over half of the nation's agriculture teachers lack an intradisciplinary teaching partner within the same school, and all teachers share their students and their work days with teachers of other disciplines. Professional development events that encourage teachers to establish common ground and gain a better understanding and appreciation of one another's teaching practices may assist in the formation of interdisciplinary critical friendships.

Recommendations for Research

Further research should explore the reasons why the non-respondents chose not to or were unable to form a critical friendship. Research should examine whether participants who decline to participate in critical friendships do so because they did not know any qualifying peers whom they trust or whether they did not want to invest the effort in developing trust in another person while navigating the struggles of student teaching. Further lines of inquiry should also examine whether a critical friendship helps preservice teachers cope with the stress of student teaching or it was too much of a burden to shoulder. It is also possible that the non-respondents were not ready to give and receive criticism from peers on a regular basis.

Research should also seek to replicate this study with more participants. The participants all thought that their critical friendships were successful, and identified the characteristics that made it easier for the relationships to form. Including more participants would allow researchers to find what characteristics discourage the formation of critical friendships. These three were all familiar with their critical friend long before beginning the critical friendship, a condition identified by the participants as making it easier for them to trust each other enough to offer and accept criticism. The effect of spatial distance between participants on the effectiveness of the critical friendship should also be examined. Future research should examine whether critical friends who cannot physically meet on a regular basis derive as much benefit from the relationship as critical friends who are located in close proximity to each other.

Additional research might examine how the critical friendship forms over the course of the semester or how they evolve over the span of a teaching career. This study only analyzed conversations from weeks 4 to 6 of the critical friendship. We do not know what the participants discussed at other times, or whether they continued their critical friendships after graduation. Research should seek to investigate whether teaching concerns discussed by the critical friends change as their experience level increases. Researcher should also look to see if there are differences in the teaching concerns that participants bring to their critical friend and the concerns that they address with their cooperating teacher, and if these concerns overlap.

Limitations

Time was a limiting factor in this study. The participants had less than one semester to actively engage with each other as formal critical friends. Since all of the participants were previously very familiar with their choice of critical friend and had convenient access to them during the student teaching experience, it is possible that the participants would have engaged in very informal critical friendships anyway, even without intervention from the researcher. The non-agricultural education critical friend was not briefed on the concept of critical friendship by the researcher. Thus, the non-agricultural education partner may not have been as effective as a critical friend who had gone through the briefing. As the conversations were voice-only, there was no indication of what message the participants transmitted through their body language at the time. P3 did not verbally indicate openness to feedback as often as P1 did; it is possible they indicated this through facial expressions or body language, neither of which could have been detected via the instrumentation used in this study.

This study sought to improve agricultural education preservice teachers' ability to reflect on their teaching practices via critical friendships, pushing them closer to becoming educators with the "adaptive expertise" (Doerfert, 2011, p. 22) needed to teach students in the 21st century. During the one-on-one interviews, all of the participants indicated that they found being and having a critical friend as beneficial, even though they had different experiences as critical friends. In this study, critical friendships were beneficial to agricultural education preservice teachers, and their use during the student teaching experience is recommended.

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