

The Perceptions of the Quality of Education Received from PhD Graduate Teaching Assistant Instructors through the Eyes of Four Agricultural Education Preservice Teachers

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Abstract

University faculty members have been challenged with increased teaching and research responsibilities. As a result, universities have employed graduate teaching assistants (GTAs) to serve undergraduate students. This study used a qualitative approach in order to explore the perceptions of the quality of education received from PhD GTAs. Four in-depth interviews were conducted with preservice agricultural teachers and domain analysis was conducted to identify the preservice teacher's feelings regarding the quality of education received from PhD GTAs. Three domains were delineated from the findings and revealed that the four participant's felt that PhD GTAs served a vital role in their education and provided a quality education. The findings from this study should be used to improve instructional capabilities of PhD GTAs in order for preservice agricultural teachers to continue to receive a high quality education.

Introduction

In 2011, the United States Department of Education reported that 2.4 million graduate students were currently working on a degree within the United States, while the number of professors in the United States exceeded 1.7 million (The United States Bureau of Labor Statistics, 2011). While completing graduate degree programs, graduate students have been commonly employed as graduate teaching assistants (GTAs) and frequently used in large universities to help the university operate smoothly and to serve undergraduate students (Austin, 2002), since university faculty member's teaching and research responsibilities have increased (Pillar et al., 2008; Shannon et al., 1998). GTAs are accepted as an integral part of the higher education system in North

America through their research and teaching roles (Park, 2004).

GTAs, with teaching roles, are expected to be experts in their field and to provide undergraduates with an excellent and effective education, through the utilization of appropriate pedagogical strategies (Luft et al., 2004). According to the National Research Council (2009), the teaching methods and styles that instructors integrate into the classroom are often based on how the instructors were taught. As university budgets are constrained, GTAs are likely to face increased workloads (Bettinger and Long, 2004; Luft et al., 2004; National Research Council, 1996; Park, 2004). However, faculty and higher education institutions have acknowledged that expertise in teaching takes time to develop (Luft, et al, 2004). In turn, GTAs need proper training and support in order to perfect their teaching abilities (Luft et al., 2004; Shoulders et al., 2013).

Parents, employers and legislators are interested in the quality of teaching provided at universities and colleges across the United States. This includes teaching methods used by individuals who provide instruction in the collegiate classroom (Austin, 2002). Since GTAs are a major part of the university system in the United States (Park, 2004), it is critical to examine the quality of education provided by GTAs.

Bettinger and Long (2004) found that when a graduate student serves as the lead instructor of a course, students will often take fewer credits within the particular content area. This experience reduces the likelihood of the student choosing that content area as a major. Shoulders et al. (2013) found that undergraduate students that had bad prior experiences with GTAs were hesitant to take additional courses taught by GTAs.

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However, if the GTA had prior teaching experience and established credibility at the beginning of the course, undergraduate students could be influenced to change their opinion of the course and GTA instructor.

Furthermore, Schuckman (1990) found that GTAs in introductory courses received higher teaching evaluations than professors that taught the same course. A study conducted by Prieto and Altmajer (1994) found that GTAs self-efficacy increased as the GTAs prior teaching experience increased, or when the GTA attended training to help prepare them for their teaching responsibilities. However, Luft et al. (2004) reported that the majority of GTAs that attended university led trainings did not feel the trainings were effective. The GTAs reported that the trainings were too generalized and needed to be more focused in order to effectively prepare them for their teaching responsibilities (Luft et al., 2004). GTAs often have little to no training or prior teaching experience upon entering the college classroom (Lumsden, 1993), causing GTAs to be placed under an extreme amount of stress and being unprepared to be an effective classroom instructor (Bettinger and Long, 2004).

Shoulders et al. (2013) found that undergraduate preservice agricultural education students' perception of GTAs may change when the preservice teachers recognizes that GTAs have recent experiences that relate to their future. However, additional perceptions from undergraduate students regarding the quality of education received from PhD student lead instructors are lacking from the literature. Shoulders et al. (2013) argued that a need exists to better understand the relationship between a GTA, who has teaching experience and preservice agricultural education teachers.

Theoretical Perspective/Epistemological Perspective

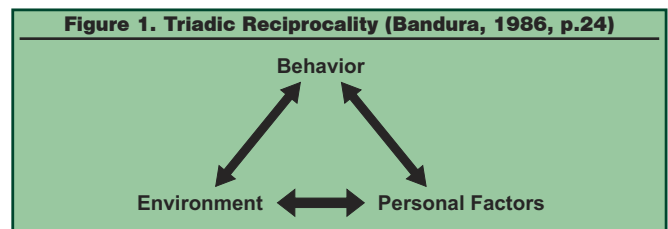
This study utilized constructivism as the theoretical perspective. Constructivism posits that people individually create their own knowledge based on personal experiences (Crotty, 1998); furthermore, social interactions can influence an individual's construction of reality and knowledge (Flick, 2006). Crotty stated, "constructivism describes the individual human subject engaging with objects (inanimate or animate) in the world and making sense of them" (p. 79). Constructivism takes into consideration each person's unique experience and views their experience and knowledge formation as valid (Crotty, 1998). This study sought to describe preservice agricultural education students perceptions of education received from PhD GTA lead instructors. The theoretical perspective of constructivism allowed the researchers to obtain, focus on and analyze the individual experiences that shaped the participants view of education received from PhD GTA student instructors.

Additionally, the epistemology for this study was constructionism. Crotty (1998) asserted that the epistemology provides a theory of knowledge, which is part of the theoretical perspective and the methodology

of the study. The epistemology of constructionism was used due its assertion that humans construct their own reality through interactions with the external environment (Crotty, 1998).

Theoretical Framework

Bandura's (1986) social cognitive theory served as the theoretical framework for this study. The social cognitive theory asserts that learning happens through observation, imitation and modeling (Ormrod, 2008). According to Bandura (1986), interactions between the individuals' internal cognitive processes and external factors combine to produce learning. The model of triadic reciprocity was used due to its emphasis on the interaction between behavior, personal factors and the environment (Bandura, 1986). Bandura (1989) described the determinants of the triadic reciprocity model (Figure 1) as interacting determinants that exert influence on one another, but do not always exert an equal amount of influence on each factor.



Purpose

The purpose of this study was to describe preservice agricultural education students perceptions of education received from lead PhD GTAs to gain further understanding the qualities of a Phd GTA instructor. The National Research Agenda calls for research to "deepen our understanding of effective teaching and learning process in all agricultural education environments" (Doerfert, 2011, p 9). The research question addressed in this paper was: How do preservice agricultural education students perceive their experiences in classes where their lead instructors are PhD students?

Subjectivity

According to Glense (1999), the subjectivity statement within a qualitative research study allows the researchers to share their personal experiences and beliefs that may influence the research study. Subjectivity statements have been provided by both of the researchers and will be presented in first person.

Researcher A

The research question investigated in this study is a question that I have much experience with. I have been a doctoral student TA for 3 classes and the doctoral lead instructor for 3 classes. I have often wondered how the students feel about having a course taught by someone other than a professor. I am connected to the topic of finding out the perceptions of undergraduate students regarding the quality of education received from a GTA.

I hope and want to find that the undergraduate students feel that they are receiving a high quality of education from their GTA. My feelings could potentially influence the way I interrupt and code the data. However, if the findings do not support what I hope they do, I would like to grow from this experience and alter my teaching in order to provide a higher quality of education to the students.

The participants for the study are not my own students so hopefully they will be inclined to give honest answers to the questions. I do not know the participants and am not expecting certain answers from them. I do not feel that my relationship or lack of relationship with the participants will affect how the participants answer the questions.

Researcher B

Growing up in a rural community, I have experienced a variety of instructional techniques both in high school and during my collegiate coursework. As an undergraduate student, I found that having a GTA as an instructor was a normal occurrence. These experiences varied in relation to the effectiveness of the PhD student as an instructor. This could be attributed to a variety of reasons such as: the area in which they were earning their PhD, the instructional training they received, or even their interest in teaching an undergraduate course.

The most memorable experience that I had while working with a PhD student was during my public speaking course. My PhD GTA instructor was expected to graduate at the end of the summer term. She was extremely engaging and would enter the classroom every day with a smile on her face. When we were required to present a speech to the class, she always provided positive comments. She would note areas for improvement on your grading rubric instead of announcing them in front of the entire class. This experience may seem normal to some individuals, but I found that most of the PhD GTAs that I had as instructors were not courteous to students and were not as in-tuned with their instructional needs.

As a current PhD GTA instructor for an undergraduate course, I find myself attempting to emulate my public speaking course instructor. Each day I enter the classroom excited to present new information and to provide a positive environment for my students to learn and grow professionally. I can only hope that I have a positive impact on my students' career paths. Additionally, the participants of this study are not currently my students and will hopefully provide honest information. I feel this research will benefit my instructional abilities and assist me in becoming a better instructor both as a PhD GTA and as a professor.

Methods

Participants/Sampling

This study consisted of four undergraduate students studying agricultural education at the University of Florida within the College of Agricultural and Life

Sciences. Participants were recruited by email. An email was sent to the College of Agricultural and Life Sciences administrative secretary, who forwarded the email to the undergraduate students on the college's list serve. The four students in this study were purposively selected based on their enrollment in the agricultural education teacher preparation program. A purposive sample was collected to examine the specific objectives of the study. Specifically, typical sampling was utilized to seek the average participant (Merriam, 1998).

The participants included one male and three female students. Three of the participants were in their senior year and planned to conduct their student teaching experience in the spring of 2012. The fourth student was in her junior year and had three more semesters to complete in her program. Three of the four participants had GTAs both inside the [Department] as well as in their general education courses. One participant only had experiences with GTAs within the [Department]. The educational training that all four of the participants have received played a role in constructing their perceptions of GTAs.

Data Collection

The protocol was approved by the University of Florida's Institutional Review Board and participants provided written consent prior to data collection. This study used individual interviews to determine the perceptions that preservice agricultural education students, within the Agricultural Education and Communication department at the University of Florida, have regarding the quality of education provided by GTAs that were lead instructors of a course. Semi-structured interviews were developed and used for this study. According to Koro-Ljungberg et al. (2009), when using a constructivist methodology, one of the proper data collection methods is the use of individual interviews. Dooley (2007) purported that *"most qualitative researchers are guided by a set of basic questions and issues to explore but deviations may occur in order to capture nuances and emerging trends not previously determined"* (p.36).

Participants were asked a variety of questions related to the experiences they had with PhD students as instructors. Additionally, participants were asked questions about qualities that aided GTAs in being successful or unsuccessful as an instructor. Questions were also used to compare the quality of instruction provided by a professor that taught a course. The interviews lasted between 30 and 45 minutes and were audio recorded on a digital voice recorder. The data files were transcribed verbatim using an audio program called Express Scribe. Pseudonyms were used to protect the identity of the participants. There were two researchers for this study and each researcher was responsible for conducting interviews with two participants with identical semi-structured questions.

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Data Analysis

Domain analysis was used to analyze the collected data. The domain analysis method breaks data sets into small units of cultural knowledge or key topics called domains (Spradley, 1980). The domain analysis method examines the transcripts for common words or phrases that exist within each interview. The four steps of a domain analysis include:

1. Select a single semantic relationship
2. Prepare a domain analysis worksheet
3. Select a sample of field-note entries
4. Search for possible cover terms and included terms that fit the semantic relationship (Spradley, 1980)

However, the researchers deviated from Spradley's (1980) process of domain analysis. Overarching themes were established and then broken down into domains which consisted of the cover term. Included terms were pulled from the data set and matched with the appropriate cover term (domain). The last step that the researchers completed was to identify the semantic relationship between the cover term (domain) and the included terms. The entire domain analysis procedure was completed and consisted of one domain analysis worksheet for each domain.

Each interview transcription was reviewed three times in order to gain contextual understanding of the data. With each reading a separate theme was examined and key words and phrases were determined. The key words assisted the researcher in establishing the cover terms that were extracted. The researcher delineated broad and narrow terms that described the domains that were established. Spradley (1980) reported that researchers can omit or adapt steps based on the individual research program.

Trustworthiness

In order to ensure the trustworthiness of the findings, attention was given to the credibility, transferability, dependability and confirmability of the research. Credibility was achieved through the use of triangulation, peer debriefing and member checking (Lincoln and Guba, 1985). Triangulation was attained through the use of multiple interviews and multiple researchers. Member checking was verbally done throughout the interview process to ensure the appropriate meaning of the respondent's statement was recorded. Additionally, peer debriefing was utilized throughout the research process and allowed the researchers to remove themselves from the research and gain a fresh perspective from a qualitative researcher that was not directly involved in this research study (Erlandson et al., 1993). Transferability was addressed through the use of thick description within the data (Dooley, 2007). The context, findings and thick description should be reviewed by readers in order to determine if the findings, from this study, could transfer to their situation and context (Lincoln and Guba, 1985). In order to trace data to the original

source, a methodological journal was used to document the researchers' methodological decisions in order to demonstrate dependability and confirmability (Dooley, 2007).

Limitations

Due to short interview times, only four participants and only agricultural education students participating in the study, the conclusions and results could be swayed. The findings from this study could be influenced by the participant's coursework and interest in the education field. In addition, the participants primarily experienced GTAs in small classroom setting within agricultural education classrooms.

Furthermore, the researchers found that the questions included in the interview guide did not provide as much detail, as initially perceived, about undergraduate students' perceptions of the qualities of PhD GTA lead instructors. The lack of participant review of the transcripts could also be a limitation of the study. These limitations suggest a need for further investigation on the topic both in a qualitative and quantitative manner.

Findings

The findings were broken down into overarching domains and then into sub-domains. The findings will be described one domain/sub-domain at a time. The following three domains were delineated from the transcripts:

1. Relationship between GTAs and undergraduate students
2. Qualities of GTA student instructors
3. Qualities of a Professor

Relationship between GTAs and Undergraduate Students

When examining the preservice agricultural education students' responses, the researchers determined that a relationship existed between PhD GTA lead instructors and undergraduates. It was found that GTAs can benefit and hinder a student's success. Sub-domains were used to describe the students' responses.

Personable

Two participants focused on the importance of building positive relationships with their GTAs. They strongly felt that GTAs need to be personable with their students. Sara said, "*We were trying to . . . get to know her more on the personal side which makes it easier for her to help us.*" She wanted a GTA that was willing to talk to her about classroom activities as well as life outside of the classroom. She felt that being personable showed how much the GTA cared about her and it enhanced their relationship. Jenny said, "*they [GTAs] are always willing to sit down and talk to me and it doesn't even have to do with school.*" Jenny wants the GTA to be personable and willing to take the time and talk with her.

Understanding/Lack of Understanding

One participant felt that the GTAs better understood their individual situations. Jenny said, *"I feel like they [GTAs] are more willing just to sit down because they understand what you are going through a little better than your professors do."* She felt that GTAs understood her situation because, typically, GTAs had recently graduated with their undergraduate degrees and were current students. Thus, understanding from a GTA demonstrated how they cared for their students and were willing to take the time to listen and help their students succeed in the course. This participant felt more comfortable asking for guidance when they knew that the GTAs would understand their current situation.

However, sometimes GTAs lack understanding regarding undergraduate knowledge. Jason stated, *"They were saying she was too easy . . . with her testing and the way that she taught. They said it was more of a middle school/high school base than a collegiate level style of learning."* The students' prior knowledge was not always recognized and integrated into the course content/learning activities. The failure to recognize undergraduate knowledge gave the impression that GTAs have low expectations for their students.

Relatable/Unrelatable

Another domain that was evident was the GTAs ability to relate to their students. The participants felt that the undergraduate students were better able to relate to the GTAs than their professors. Sara said, *"I think with the TA you get more, you like connect and they put it down on your level and make it connect with the real world."* It was clear that Sara felt more comfortable with GTAs and counted on them to help her understand the material and make it relevant to her and her future career. Since Sara could relate to the GTAs she was much more comfortable working and talking with them. Additionally, Sara felt that she could talk to the GTAs due to the relationship they had built. Jenny also felt GTAs related well with their students. Jenny stated, *"They understand what you are talking about and they know what you are going through."* The personal connection established between the participants and their GTAs helped foster a positive learning environment.

However, one participant reported that GTAs take their role extremely seriously and at times do not provide for the instructional needs of the students. Jessica echoed this by stating, *"If that TA umm took time to just kinda chill out I guess and not be so serious and not almost put a face on. Umm for me I would learn better from that TA."*

Outgoing

The willingness of the GTAs to go the extra mile helped foster a positive relationship between the GTAs and the students. Jenny said, *"I feel like they're [GTAs] more willing at times to spend the extra minute."* The extra effort that the GTAs put into the course came off as a positive aspect and made for a better learning

environment. Therefore, Jenny expected GTAs that go above and beyond their job requirements. Jenny stated, *"I know that they [GTAs] are willing to help."* The awareness of the GTA being willing to help, stems from the relationships that the PhD GTA lead instructors formed with the students.

Qualities of a GTA

Experience

The participants found that GTAs have a broad knowledge base due to their personal course requirements. They felt GTAs were currently learning themselves, that there was a higher interest level in sharing information with others. In addition, the participants felt that GTAs have more relevant experiences that would influence undergraduate students' learning. The participants felt strongly about the importance of their GTAs having several years of experience teaching agricultural education in the public school system. Sara said: *"They [GTAs] should be able to know what they are teaching about and have at least a couple years of experience just so they can give us real world scenarios they've encountered."* Jessica stated, *"A lot of times when I will be there teaching I have done something she [GTAs] has done in her classroom, umm she is able to relate how to make it more effective."* The GTAs public school teaching experience helped to show the participants that a PhD GTA lead instructor had valuable knowledge to share.

Additionally, the GTA was capable of understanding what their students were currently experiencing and what they may experience in the future. Sara stated, *"Umm being knowledgeable and having that real world experience [teaching] so it's like this going to happen just wait, you'll see it will happen."* Sara expressed the importance of having GTAs with high school teaching experience. She felt that the experience her GTAs had enhanced their teaching at the University level. It validated what the GTAs said and the teaching methods that they were advocating. It is evident in the following quote that Sara also valued the teaching experience of her GTAs. Sara stated, *"In the agricultural education department I feel like having the experience of being a teacher and relaying that to us in the classroom and letting us know well this is what I did in this type of situation definitely makes me understand more of what I am going to be doing in the near future."*

The sub-domain of teaching experience came up often in a positive way. The participants felt that GTAs should have prior teaching experience if they are in the field of education. If the GTAs are in a field outside of education, they should attend university workshops that prepare GTAs to teach and utilize various teaching methods.

Age Proximity

The participants felt very comfortable with their GTAs and one reason was due to age proximity between the GTAs and preservice agricultural education students. Jenny said, *"PhD students can relate to students better*

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because not only often are they younger than a lot of professors, but they are still a student." The participants felt more comfortable working with and talking to GTAs since they were typically closer to their age than professors. Age proximity helped the student be relaxed around the GTAs and focus on the course material without feeling uncomfortable. Furthermore, GTAs were found to be more helpful and approachable. Jason stated, *"I feel like he [GTAs] is more on a level with the students more than a professor."*

Workload

The participants felt that the GTAs had a large workload, but were still willing to help them succeed. This made the participants feel more comfortable about asking the GTAs for assistance. Jenny said, *"PhD students have tons on their plate, but I feel like they're more willing at times to spend the extra minute."* The participants acknowledge the time commitments that GTAs have and felt that they were still willing to help. That made the participants feel at ease with their GTAs and they did not feel as if they were disturbing their GTAs when they had questions or concerns.

Intimidation/Lack of Intimidation

The participants felt comfortable engaging in conversation with their GTAs. Jenny stated, *"I feel like they [GTAs] are often much more approachable than a professor because there are professors that are kind of intimidating and you don't want to bother them."* The approachability of the GTAs allowed the participants to feel confident and comfortable going to their GTAs and asking for guidance. Participants did not feel intimidated by their GTAs and were willing to communicate with them.

Additionally, one of the four participants felt that it was beneficial to take a class taught by GTAs because they were typically less intimidating, easier graders and had lower expectations than a professor. Jason stated: *"The average of the class prior to her teaching [taught by professor] was the average C and everyone in the class received A's and B's that semester."* The thought of receiving a higher grade encouraged the participant to become more engaged in the course.

Finally, one of the participants felt that GTAs were less intimidating than professors because of the amount of time the GTAs have put towards developing and implementing the course. Jessica perceived that GTAs often perform a large amount of the legwork in preparing a course. The involvement of GTAs in the course allowed this participant to perceive GTAs as unthreatening, approachable and interested in student needs. Jessica said, *"I think that a lot of times you see a PhD student doing the bulk work."*

Qualities of a Professor

Over all the participants were very avid about the fact that professors seem too busy to spend time talking with undergraduate students. The participants felt that a

professor was busy because of their increased workload. In turn, this workload would cause them to miss class, which one participant noted as an additional negative aspect of having a professor as the lead instructor. However, one participant noted that they enjoyed having professors and that their teaching has been beneficial. Finally, it was noted by one participant that a professor has little to learn and this can cause them to seem distanced from the material that they are teaching. Jason said: *"With a professor they have a lot on their plate. Ahh they could possibly teach multiple different lectures and classes, and with umm TA's from our standpoint as an undergrad, they have their classes as well but they also only teach a minimal amount of lecturing and lessons and so I would say that they have less responsibilities than a professor ... , I believe that a professor has already hit their point [in regards to learning] of what they are going to be teaching."*

Jessica stated: *"Our professors are very busy people and they do very very important things. They won't be there because they are out of town for something. Umm so that has sometimes been a hindrance because you want your professor you like your professor, you love the way that they teach."*

While this does seem to show a tendency that participants have less enjoyment from professor led courses, it can be seen in the quotations that students do respect their professors and appreciate their involvement in the educational process.

Discussion

Based on the domains and sub-domains established through the interviews, the participants were interested in having GTAs as instructors of courses. Participants in this study felt it was critical for GTAs to have prior teaching experience and that prior teaching experience made the GTAs more knowledgeable and credible. This study concurred with the importance of GTAs having prior teaching experience (Prieto and Altmajer, 1994).

Training to help GTAs become effective teachers is something that the participants in this study suggested for GTAs that did not have prior teaching experience (Shoulders et al., 2013). According to Luft et al. (2004), GTAs often feel that university led trainings are not effective. In order to extend university led training sessions and to further develop the teaching skills of GTAs, the participants indicated that GTAs should enroll in a teaching methods course, which could be a viable option for many GTAs. This could assist GTAs outside of education to gain a better understanding of how students learn and how they are engaged in coursework. The teaching methods course should allow the GTAs to gain knowledge of commonly used teaching methods. The teaching methods presented should include, but are not limited to demonstration, inquiry based learning, cooperative learning, discussion and lecture with questioning. The GTAs should also be given the opportunity to conduct microteachings in order to

practice using the various teaching methods. The GTAs should also be introduced to the experiential learning process and to be shown different ways of incorporating the experiential learning process into the classroom. Additionally, a teaching methods course could serve as a refresher course for GTAs that had previous teaching experience. Furthermore, professors overseeing courses should provide more guidance for GTAs, which could aid in increasing the teaching effectiveness of GTAs and provide continuity between semesters. Professors should spend more time supervising and evaluating the GTAs teaching. Professors should help GTAs set goals in order to help improve their teaching skills. It is also recommended that GTAs observe both professors and other GTAs that have been deemed effective teachers.

Additionally, the experience that GTAs possess is of large benefit to students. The participants of this study found that the experience that the GTAs have is relevant to them. However, depending on the field the GTA is in, it is not always possible for them to enter the university setting with prior teaching experience at the secondary level. It is important to mention that preservice agricultural education teachers from this study recognized additional forms of teaching experience that included current and previous coursework, including the GTAs degree program and teaching workshops or trainings that are available through the university or outside agencies. In order to assist preservice agricultural education teachers in gaining knowledge and skills from their classroom interactions with GTAs, it is important for faculty members to encourage GTAs to share their prior experiences with their students when it aligns with the curriculum. The awareness of experiential learning techniques will help encourage GTAs to link current experiences to prior experiences. Professors should set the example by sharing their past experiences with the GTAs when the experiences are educative. This may be done through formal and non-formal meetings and conversations.

This study differed from Lumsden's (1993) study of Biology GTAs and found that the majority of GTAs, described in this study, had prior teaching experience at the secondary level. According to the National Research Council (2009), one's teaching style is influenced by how the individual has been taught in the past. Due to the GTAs prior pedagogical training and their teaching experience at the secondary level, the preservice teachers should be positively influenced by the GTAs instructional capabilities.

The importance of positive relationships between GTAs and their students was a major contributing factor on a preservice agricultural education teacher's perceived educational value of a PhD GTA instructed course. The willingness of a GTA to talk with undergraduate students and take time out of their schedules was a major reason the participants thought highly of the education they received. It is recommended that GTAs focus on building relationships with students to help preservice agricultural education teachers to feel comfortable

communicating with the GTA. The participants preferred GTAs who were closer to their age and were willing to talk with them about class content and assignments, as well as life outside of the classroom. Through the GTAs effort to build positive relationships with students, it was evident that GTAs were effective at communicating with others and counseling or advising students (Roberts and Dyer, 2004). The participants in this study felt that they received a quality education from GTAs. However, it is critical for a GTA to have prior teaching experience in the classroom or through workshops and to focus on building positive relationships with their students.

Research Recommendations

Future research should be conducted to further explore preservice agricultural education teachers' perceptions of GTAs. This study should be replicated at multiple institutions to evaluate similarities and differences between different regions and an increased sample size should be used. Additionally, survey research methods should be used as a part of a national study.

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