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Toward Globally Competent Teaching: A One-Year Retrospect on Agriscience Teachers' Changes in Perspective after an International Experience

Whitney L. Figland-Cook[1]
Jacob Englin[2]
Richie Roberts[3]
Kristin S. Stair[4]

Abstract

This study aimed to understand how agriscience teachers' lived experiences during an international experience influenced their perspective changes on globally competent teaching one year later. Using a phenomenological approach, four themes emerged – (1) personal growth, (2) intellectual growth, (3) professional growth, and (4) advocacy growth. By drawing on transformational learning theory, the themes demonstrated the phenomenon's essence – one year after an international experience in Costa Rica, the Louisiana agriscience teachers matured in their perspectives regarding globally competent teaching, which inspired a transformation in their personal and professional lives. Despite this, we concluded the teachers' global competence, knowledge, and skills remained emergent and not fully formed. As such, we recommend future research examine strategies that could be used to continue to support agriscience teachers' global competence and pedagogical development after returning from an international experience. Nevertheless, the growth experienced by the teachers should be further considered. Moving forward, we also recommend future research obtain evidence regarding the extent to which the teachers have integrated global concepts into their curriculum to develop an understanding of the breadth and depth of their perspective changes.

Introduction and Review of Literature

A growing body of evidence has suggested that graduates must have adequate knowledge and skills to work in a globalized society (Fernandez et al., 2020). As such, the demand for a culturally competent workforce has been growing, and agriculturalists must understand domestic food production and consumption while also having the skills to navigate agricultural markets on a global scale (Fernandez et al., 2020). However, many agricultural graduates lack the global knowledge needed to flourish in today's competitive workforce (Goecker et al., 2015).

[1] Whitney L. Figland-Cook is an Assistant Professor of Agricultural Education at East Texas A&M University, P.O. Box 3011, Commerce, TX, 75429, whitney.figland@tamuc.edu; https://orcid.org/0009-0003-8669-2692

[2] Jacob Englin is a Doctoral Candidate in the Department of Agricultural and Extension Education and Evaluation at Louisiana State University. 225A J.C. Miller Hall, 110 LSU Union Square, Baton Rouge, LA, 70803, jengl13@lsu.edu

[3] Richie Roberts is a Professor and Department Head for the Department of Agricultural and Extension Education at New Mexico State University, MSC 3501, P.O. Box 30003, Las Cruces, New Mexico, 88003-8003; roberts3@nmsu.edu; https://orcid.org/0000-0002-2993-4945

[4] Kristin S. Stair is a Professor and Department Head for the Department of Agricultural and Extension Education and Evaluation at Louisiana State University, 135 J.C. Miller Hall, 110 LSU Union Square, Baton Rouge, LA, 70803, kstair@lsu.edu

One strategy advanced to address these challenges has been global education – an approach designed to equip students with the competencies required to thrive in a world where national borders are becoming increasingly less distinct (Hall & Hite, 2022; Mardi, 2023; Parkhouse et al., 2015; Parmigiani et al., 2022). However, achieving such necessitates that teachers possess the competencies needed to teach from a global perspective (Foster et al., 2014; O'Malley et al., 2019; Pigg et al., 2020, 2021). Consequently, it has become crucial for students to enhance their global competence to be successful in their future careers (Rampold et al., 2020; Roberts & Edwards, 2016; Roberts, 2024; Roberts et al., 2020, 2024; Roberts-Hill et al., 2023).

On this point, the Longview Foundation (2008) suggested a globally competent teacher should exhibit (a) global knowledge of their subject, (b) a commitment to teaching students using multiple perspectives, and (c) the ability to help students become responsible global citizens (Longview Foundation, 2008). Equipping teachers with global competence is a somewhat new concept (Parkhouse et al., 2015). As a result, a paucity of evidence has existed regarding how best to prepare teachers to achieve such competencies. For instance, Zong (2009) found that fewer than 10% of teacher preparation programs addressed global education in their preservice coursework. As such, the integration of global education concepts into teacher preparation has been insufficient due to a lack of preservice teachers' exposure to such concepts (Zong, 2009). In a similar study, Zhao (2010) reinforced this notion with evidence demonstrating a statistically significant and negative relationship between teachers' attitudes about global education and their intent to teach such concepts frequently.

Despite these deficiencies, Conner et al. (2017) called for agriscience teachers to integrate global concepts into their curriculum more profoundly. When exposed to a globalized agricultural curriculum, high school students have reported that the knowledge acquired from such an approach could positively influence their future careers (Heinert et al., 2020; Radhakrishna et al., 2003). Further, students have also suggested that experiencing instruction from an international perspective could help them develop an understanding of global agricultural practices (Heinert et al., 2020; Radhakrishna et al., 2003). However, many agriscience teachers have reported lacking the global knowledge and skills needed to teach such competencies to their students (Roberts et al., 2024). To complicate this issue further, there has been a dearth of empirical evidence examining teachers' global education needs (Mikulec, 2014). Such a paucity is concerning since teachers cannot instill global competence in their students without possessing such knowledge first (Tichnor-Wagner et al., 2019).

To help promote the acquisition of global knowledge in agriculture, some scholars (Brooks & Williams, 2001; Gorter et al., 2020) have called for more opportunities to allow agriscience teachers to engage in international learning experiences. However, agriscience teachers have reported that it has been difficult for them to participate in these endeavors because of limited time and financial constraints (Acker, 1999; Hurst et al., 2015). The inability to obtain global competence, therefore, has led to a narrow disciplinary approach from some teachers who can often only provide instructional content from a localized viewpoint, resulting in students having less understanding of the broader agricultural industry (Acker, 1999).

Granted, some progress has been made to promote the cultural competence of agriscience students. For example, Conner and Butcher (2016) reported that when agriscience students were exposed to a globalized curriculum, they attained greater employability skills. Further, a globalized agricultural curriculum has also been shown to enhance students' cultural competence and equip them with the 21st Century skills to be successful after graduation (Weeks et al., 2020). Conversely, some educators have indicated that they lack the confidence to teach concepts from a global perspective (Conner & Butcher, 2016). Therefore, the successful integration of this content into the agriscience curriculum has become a critical barrier to the cultural competence development of agriscience students (Roberts et al., 2024). To combat this issue, more evidence has been needed to understand whether international experiences could

be used to expand agriscience teachers' knowledge and skills in ways that allow them to be better prepared to create a pipeline of globally competent graduates for the agricultural industry. The dearth of evidence on this phenomenon served as the basis for this investigation.

Theoretical Framework

John Mezirow (1991, 2000) proposed transformational learning theory (TLT) after studying U.S. women returning to work – or higher education – after leaving their profession. TLT describes how individuals' perspectives change due to a profoundly impactful learning experience from an adult's frame of reference (Mezirow, 1997).

Frames of reference refer to the associations, concepts, values, feelings, and conditions that define a learner's lifeworld (Mezirow, 1997, 2000). Therefore, individuals' frames of reference shape how they process new information, ideas, and viewpoints, ultimately allowing them to reject or accept new information. Early in individuals' lives, their frames of reference result from the influence of their caregivers (Mezirow, 2000). However, frames of reference can evolve as individuals become exposed to new experiences and viewpoints that challenge their perspectives. Mezirow (1991) theorized that for adults to challenge their assumptions and engage in transformational learning, they must reflect on the experience and negotiate new meanings regarding a particular issue. This reflective process results in a transformation in an individual's frame of reference. The change in perspective often moves individuals toward a more inclusive, open-minded, and integrated perspective (Cranton, 1994; Mezirow, 1991).

Previous research on international experiences has recognized their potential to initiate transformative shifts in individuals' perspectives (Strange & Gibson, 2017). However, fostering such transformations necessitates that practitioners design and deliver such experiences purposefully to ensure that individuals are exposed to dissonance (Kiely, 2004). Dissonance represents the lack of agreement between an individual's previous frame of reference and what they observe during an international experience (Kiely, 2005). Kiely (2005) argued that the level of dissonance individuals encounter during international experiences also influences the transformative process they undergo by differentiating between low-intensity and high-intensity dissonance. Examples of low-intensity dissonance during an international experience are individuals noticing differences in the customs, traditions, and practices between their home and host country (Kiely, 2004). Meanwhile, high-intensity dissonance would likely occur when an individual experiences conflicts regarding class, race, social status, and human welfare. Therefore, high-intensity dissonance may initiate more reflective thought, believed to trigger more profound shifts in individuals' perspectives (Brewer & Cunningham, 2009).

In the current investigation, we examined an international experience's role in challenging agriscience teachers' previous assumptions and whether such led to them adopting globally competent teaching practices after one year. In particular, we sought to describe whether teachers' engagement in an international experience led them to challenge their previous assumptions and create a more diverse global perspective that they could impart to their students through curricular and pedagogical changes.

Background of the Study

In July 2021, eight agriscience teachers from Louisiana were selected to participate in a one-week international experience in Costa Rica – an opportunity funded by a USDA-NIFA grant. During their experience abroad, the participants interacted with academic and technical experts about issues that affected the country's agricultural industry. The intent of the international experience was to provide agriscience teachers with the knowledge needed to expand their pedagogical acumen to incorporate globally competent teaching in their classrooms. We achieved this by designing and delivering purposeful experiences across

five programmatic focus areas: (1) coastal loss sessions with scientists in Costa Rica, (2) STEM-focused site visits, (3) cultural tours, (4) the development of instructional case studies, and (5) reflective sessions that helped the teachers make connections to their experience and the agriscience curriculum in Louisiana.

Through these interactions, our goal was to ensure the agriscience teachers gained a more nuanced understanding of the issues and problems affecting Costa Rican agriculture. To help globalize their curriculum, we required the teachers to collect audio recordings of interviews with experts, documents, photographs, and videos. The teachers then used this information to create 24 instructional case studies, which were dispersed to agriscience teachers throughout Louisiana. Despite these efforts, little was known about how the agriscience teachers used their new knowledge and skills to promote globally competent teaching in their agriscience programs. Therefore, data for the current study were collected one year after the teachers returned from their international experience.

Purpose and Research Questions

This study aimed to understand how agriscience teachers' *lived experiences* in Costa Rica influenced their perspective changes on globally competent teaching. One research question guided this study: How have the agriscience teachers' lived experiences in Costa Rica inspired them to instill global competence in their students one year later?

Methodology

Moustakas' (1994) transcendental phenomenological approach guided this study. A phenomenological study describes "the common meaning of several individuals and their lived experiences of a phenomenon" (Creswell & Poth, 2018, p. 75). This approach allows the investigators to gain deeper insight into participants' shared experiences on a phenomenon. To achieve this, Moustakas (1994) advanced a four-step process to ensure qualitative quality: (a) epoché, (b) phenomenological reduction, (c) imaginative variation, and (d) synthesis of textual and structural descriptions. Each of Moustakas' (1994) recommendations was embedded in this investigation.

Participant Selection

The participants for this study were agriscience teachers who participated in an international experience in Costa Rica. In phenomenological research, low sample sizes (with as few as five individuals) are considered acceptable since the intent is to understand individuals' shared experiences in depth rather than seek to generalize the findings (Polkinghorne, 1989). In alignment with Polkinghorne's (1989) recommendations, five participants agreed to participate in this investigation. Multiple attempts were made through email and telephone correspondence to reach the three unresponsive participants who also participated in the international experience; however, contact could not be established. Of those participants, all were agriscience teachers who taught from four to 25 years and had previously traveled internationally at least once. Four of the participants were female, and one was male. It should also be noted that three of the participants were traditionally certified, while two achieved certifications through alternative licensure. Therefore, the participants had a great diversity of personal and professional experiences.

Reflexivity

In the first stage of Moustakas' (1994) phenomenological approach, epoché, it was critical to be open about our potential biases and experiences. First, it was essential to acknowledge that each researcher had international experience and previously served as an agriscience teacher. Further, two researchers were faculty at Louisiana State University and were responsible for designing and delivering the international

experience. The other two researchers were graduate students at LSU and helped facilitate the collection of data. Then, collectively, we negotiated findings and advanced our interpretations as a team. We attempted to mitigate our biases during each phase by bracketing our views and experiences to ensure they did not cloud our interpretations – a process advanced by Moustakas (1994).

Data Collection and Analysis

To gain a deep understanding of the phenomenon, we spent six months collecting and synthesizing the data (Tracy, 2010). The primary source of data collected was multiple semi-structured interviews with each participant, which occurred either in person or through a virtual meeting platform, i.e., Zoom or Microsoft Teams. The interviews probed participants' experiences regarding their role as an educator, their experience in Costa Rica, and the impact the experience had on their personal and professional lives. The interviews were audio-recorded and transcribed verbatim by the researchers. We triangulated the data with observations of participants' classroom teaching, written reflective statements on their international experience, and other artifacts collected during the international experience. These artifacts included daily audio reflections ($f = 35$) recorded during the agriscience teachers' international experience and a two-hour focus group interview that occurred on their final day in Costa Rica. Each data source was mobilized for analysis in this investigation.

After collecting the data, we employed Moustakas's (1994) phenomenological reduction approach. This process began by analyzing each source of data line-by-line to identify significant statements (Moustakas, 1994). Then, we organized the significant statements into preliminary categories based on the research questions of this investigation. Next, we engaged in Moustakas' (1994) notion of imaginative variation by using versus coding to view the data from a different perspective. This process allowed us to question the competing goals, conflicts, or patterns in the data. During this process, we negotiated various discrepancies that emerged during our analysis.

Thereafter, we engaged in Moustakas' (1994) final step, a synthesis of textural and structural descriptions. Specifically, this phase aimed to understand *how* and *what* the participants experienced regarding the phenomenon (Moustakas, 1994). Therefore, we began constructing structural descriptions using divergent perspectives, theoretical frameworks, and opposing explanations (Moustakas, 1994). We also began to make meaningful conceptual connections and identified how they were related, which emerged 22 categories. Then, we synthesized our emergent findings, which helped create unified statements of the agriscience teachers' experiences regarding the phenomenon (Moustakas, 1994). In this phase, we negotiated and developed a complete synthesis of the structural and textual descriptions, presented through four themes, which were narrated in the findings section.

Qualitative Quality

To ensure we achieved the highest standards of qualitative quality, we embedded Tracy's (2010) recommendations throughout all phases of this study. Those standards included (a) worthy topic, (b) rigor, (c) sincerity, (d) credibility, (e) resonance, (f) significant contributions, (g) ethics, and (h) meaningful coherence. First, we selected a study that was worthy of investigation because it was relevant to Louisiana due to the need to develop culturally competent teachers who desired to teach content from a globalized perspective. We emphasized rich rigor and credibility by collecting multiple forms of data to triangulate our findings and provide rich insight into the context and experiences of participants while also achieving sufficient data saturation. Meanwhile, we promoted sincerity by including self-reflexive statements from the researchers to reveal our relevant biases and experiences. The richness of our data sources also helped us achieve resonance by ensuring our findings could provide quality insight into the lived experiences of participants to encourage transferability to other contexts. Throughout all phases of the study, we emphasized ethics by first obtaining Institutional Review Board (IRB) approval and upholding cultural, procedural, and situational ethical decision-making throughout the life of the study. Because of the emphasis we placed on upholding standards of rigor and trustworthiness in this investigation, we perceive

this was able to make a significant contribution by meaningfully interconnecting theory, research, and practice to provide quality implications for the field of agricultural education.

Findings

Based on our analysis, four themes emerged – (1) personal growth, (2) intellectual growth, (3) professional growth, and (4) advocacy growth. By drawing on TLT, the themes demonstrated the phenomenon's essence – one year after an international experience in Costa Rica, the Louisiana agriscience teachers matured in their perspective regarding globally competent teaching, which inspired a transformation in their personal and professional lives.

Theme 1: Personal Growth

After the participants were immersed in Costa Rican culture and agriculture, it led them to reevaluate their personal assumptions and have a broadened understanding. In particular, the participants expressed how they were largely unaware of other countries' agricultural practices before their international experience. However, their interactions with professionals in Costa Rica exposed them to new customs and agricultural practices, i.e., low-intensity dissonance, that made them rethink their prior assumptions (Mezirow, 1991, 2000). For example, Participant #2 commented: "[This experience] makes you step back and think about things we are doing here and how I need to think of the bigger picture some." Meanwhile, Participant #1 shared: "[This experience] had a big impact on [me] personally seeing different cultures and agriculture, specifically how they approach food production differently that we do [in the U.S.]."

Such changes in the participants' perspectives also appeared to lead them to consider alternative approaches to address global challenges and problems in agriculture by drawing on their collective knowledge as well as different perspectives to grow personally one year after returning from Costa Rica. Case in point, we observed that all participants in this investigation made noticeable changes to their classroom environments to promote sustainability by reusing and recycling materials. When probed about making such changes, Participant #3 stated, "The [international] experience has made me think about how I use things...I have now started to recycle more at home [rather] than buying new. This has also obviously made me start promoting these ideas to my students as well." Similarly, Participant # 5 shared:

> I would say a that a year after returning from Costa Rica, I have just continued to reflect and grow on a personal level. In Costa Rica, my eyes were opened to the importance of recycling and sustainable waste management. Since coming home, I've realized that I can make an impact on the environment by incorporating recycling practices into my daily life and teaching my students to do the same. The impact may be small, but at least I am doing my part now, while I really wasn't before I went to Costa Rica.

The experience abroad also led the participants to become more culturally aware. On this point, Participant #4 revealed that she "tries to stay mindful of what is going on in Central and South America." During our observations, we noted that such sentiments were expressed by all the participants, who talked about how they had begun to keep up with global news to understand how various issues affected the agricultural industry. When promoted about this, Participant #1 explained: "I've just started reading a lot more since returning from Costa Rica about agriculture in other countries. Because my personal interest in global ag news has grown, I also bring this into my classes through various examples and discussions with students."

Theme 2: Intellectual Growth

All of the teachers expressed intellectual dissonance, or an inconsistency with previously held beliefs, after their international experience regarding knowledge they believed to be universal (Mezirow, 1991, 2000). However, their experience abroad helped them understand that their knowledge was

incomplete. For instance, many of the participants compared the cultural, environmental, and agricultural differences between Costa Rica and the U.S. Participant #1 explained: "[Costa Ricans] have a different mindset on utilization of resources…they are very land and water conscious… [the U.S.] just tries to maximize production and profitability while draining our resources." Because of this growth, Participant #1 explained "now that I better understand some differences in production practices among the different countries, I can also explain different agricultural systems to my students at a higher level since returning from Costa Rica." Meanwhile, Participant #3 revealed:

> The exposure we gained to different agricultural practices [in Costa Rica] was just mind-blowing. One year after witnessing their commitment to sustainable agricultural practices, I can say it has transformed the way I teach. Now, I am putting a lot more emphasis in my classes on conserving resources and adopting eco-friendly farming approaches. So, what I learned in Costa Rica is definitely being put into practice and impacting my students positively.

Some of the participants explained the experience abroad made them realize the U.S. could be doing more in terms of sustainable agriculture. For example, regarding land use, Participant #4 expressed: "[They] can have businesses right next to each other and grow bananas in the between them." He also explained: "We have the space, but the plants don't do anything other than make [the landscape] look pretty. This newfound knowledge has become a big part of my curriculum for horticulture now. It just made me rethink some things I've taught over the years." In a similar vein, Participant #2 shared: "Costa Rica's commitment to biodiversity preservation is inspiring. [Since my international experience], I've started integrating lessons on biodiversity conservation into my classes, which has helped my students understand the interconnectedness of agriculture and the environment."

Although Costa Rica is more food secure than most other Central American countries, the teachers still reported experiencing intellectual dissonance regarding food insecurity. For example, Participant # 4 explained: "As an ag teacher, I always teach about food insecurity, but I never really put a lot of thought into how we individually could contribute to this mission before I went to Costa Rica." She continued:

> Now, a year later, I preach to my students how food insecurity isn't just a local issue. It's a global concern. My experiences in Costa Rica just really emphasized the importance of teaching our students to grow nutritious food sustainably, which can ensure a brighter future for all people. I guess, I am just doing a lot more of that now.

Echoing this sentiment, Participant #2 recalled: "We were exposed to a lot of subsistence agriculture in Costa Rica. It taught me that even small spaces can yield enough food to support a family when managed effectively. I now encourage my urban students to explore different types of gardening approaches that can utilize every inch of available land." Participants also articulated the need to adopt some of Costa Rica's practices in terms of their eco-friendly mindset. Participant #5 explained: "We need to adopt some harvest methods Costa Rica uses…[and] better utilize our water structures. It is not just about growing crops; it's about creating a balanced ecosystem. This holistic approach now informs my teaching philosophy." Finally, Participant #3 argued:

> The lessons I learned from Costa Rica have shown me that agriculture shouldn't be this static, non-changing industry. Instead, we need to evolve with the times and new innovations, especially when teaching students about these types of practices. Since I got back from Costa Rica, I am definitely more committed to keeping my classroom curriculum up to date with the latest sustainable practices.

Theme 3: Professional Growth

The teachers were asked to process their experiences throughout their time in Costa Rica. To achieve this, they journaled as well as captured photographs and videos. The agriscience teachers reported drawing on these sources to help them share their experiences with others. Case in point, Participant #1 explained: "[I] discussed and showed pictures of my international experience with my classes…. science department…and foreign language department." This was echoed by Participant # 2, who stated: "[I] shared my written reflections with my principal" and "[I] also shared them with my classes." On the other hand, Participant #4 revealed: "Costa Rica taught me the value of working with people from different backgrounds. For example, I started collaborating with science and environmental studies teachers to provide a more comprehensive lesson that incorporated different perspectives." Meanwhile, Participant #5 explained:

> My international experience in Costa Rica helped me understand the power of storytelling in teaching agriculture. I have started weaving real-life anecdotes from my time there into my lessons. Now, I feel like I can make the subject matter more relatable and engaging for my students.

All the teachers in this investigation also reported implementing the knowledge they gained from their international experience in their classrooms. For example, Participant #1 revealed: "I am working on a hydroponics system [at school] and thinking about how to utilize space similar to what I saw in Costa Rica." Meanwhile, Participant #2 echoed a similar sentiment: "Costa Rica's sustainable farming practices inspired me to revamp my curriculum. I introduced modules on organic farming, agroforestry, and biodiversity conservation, giving my students a more holistic understanding of alternative approaches to agriculture."

The participants also created new resources to teach their students from a global perspective. In particular, the teachers shared that they had created case studies, laboratories, and research assignments with a global agriculture focus – experiences they had not integrated into their classes before traveling to Costa Rica (Participants #1, #3, and #4). On this point, Participant #3 explained:

> One of the most impactful changes I have made to my teaching since Costa Rica was the creation of new teaching resources. I revamped some of my presentations with images and videos from my Costa Rican journey, making some of the concepts we discuss in horticulture, agricultural mechanics, and animal science more thought-provoking for my students.

Each participant also reported creating new resources to use when teaching their students about concepts from a global perspective. In particular, the participants shared how they have utilized pictures, discussions, and case studies to teach their students global concepts more frequently. For example, one of the participants stated: "[I] have shared pictures, videos, and stories" (Participant #3). Participants #5 and #2 shared that they had implemented the case studies they created in Costa Rica into their curriculum. Participant #2 explained the value of using this resource over the past year: "Incorporating the case studies we developed in Costa Rica into my classroom allowed me to showcase real-world examples of agricultural challenges and solutions. It helped my students connect theory to practice and encouraged critical thinking." Finally, Participant #1 reported: "I started incorporating guest speakers [using video conferencing software] that I met in Costa Rica about their role in the agricultural industry. They were able to share experiences and insights that helped me add a missing global dimension to my classroom."

Theme 4: Advocacy Growth

The final theme reflected a growth in the agriscience teachers' *advocacy* behaviors. As an illustration, all participants expressed that after returning home, they began to advocate for their students,

themselves, and others to engage in international experiences. On this point, Participant #1 shared that engaging in globally competent teaching can be difficult unless you have already had an international experience; therefore, he encouraged other agriscience teachers to go abroad regularly after returning from Costa Rica. He continued: "Costa Rica helped me understand the immense potential of international experiences in agricultural education. Witnessing sustainable farming practices, diverse agricultural systems, and the importance of global perspectives ignited a passion within me to bring these insights back and share them with other ag teachers."

Similarly, Participant #5 explained: "Until you have been there and seen something like that, you can't really connect to those experiences." Multiple participants also reported discussing plans to organize an international trip for other agriscience teachers in Louisiana. Regarding this idea, Participant #3 reported: "By sharing about my experience in Costa Rica, I inspired some other ag teachers to consider joining me on similar experiences in the future. I think this could really broaden their horizons and deepen their appreciation for global agriculture as well." Participant #2 reiterated the importance of travel to experience new ideas, especially for teachers. She explained:

> Traveling is good…. it helps us to relate and reference how things are done in different places. After returning from Costa Rica, I felt a responsibility to advocate for international experiences to my fellow teachers. I firmly believe that exposing educators to different agricultural methods and cultures can enrich their teaching practices and ultimately benefit our students.

The impact of this international experience also made the participants feel a sense of responsibility to ensure their students were also becoming more globally aware. This notion was expressed by Participant #4, who stated: "Our job as teachers is to be able to share that global perspective, so I encourage all students to take the opportunity to travel abroad." Expanding on this notion, Participant #2 maintained: "involving our students in international agriculture can be really impactful. Through partnerships with organizations to promote international exchanges, I hope to expose my students to the world and try to create global agricultural leaders." Participant #5 maintained: "Over the past year, I have become more determined to equip my students with the skills and knowledge needed to become advocates for a more sustainable food system." Finally, Participant #1 revealed: "After my experience in Costa Rica, I firmly believe that by embracing international experiences and sharing my knowledge, I can help prepare the next generation of agriculturists to thrive in a globalized world."

Conclusions, Implications, and Recommendations

This study examined how agriscience teachers' *lived experiences* in Costa Rica influenced their perspective changes on globally competent teaching. To gain insight into this phenomenon, we grounded our study in Mezirow's (1991) TLT to gain an understanding of the participants' transformational learning. Consequently, we found that one year after the international experience, the agriscience teachers experienced vital growth. Despite this, we concluded that the teachers' global competence, knowledge, and skills remained emergent and not fully formed. As such, we recommend that future research explore strategies that could be used to continue to support agriscience teachers' global competence and pedagogical development after returning from an international experience. Nevertheless, the growth – personal, intellectual, professional, and advocacy – experienced by the teachers should be further considered.

Personal growth referred to how the participants reevaluated their assumptions and gained a more holistic understanding of global agriculture, specifically regarding cultural awareness. For example, the teachers reported watching more global news and trying to stay updated on issues after returning home. This finding supported previous literature by Ibezim and McCracken (1994), which concluded that when

preservice teachers actively participated in international experiences, they developed a heightened sense of cultural awareness and a broader worldview. Although the participants were actively teaching, this conclusion demonstrated the importance of teachers engaging in international experiences during multiple phases of their careers to become globally competent leaders. Moving forward, we suggest that teacher educators expand opportunities for preservice and in-service agriscience teachers to engage in international experiences to ensure they obtain key global competencies.

The agriscience teachers also reported *intellectual growth* after being exposed to concepts not supported by their previous knowledge. As an illustration, after returning home, the agriscience teachers began to challenge their assumptions and become more open-minded to alternative approaches of agricultural production. This conclusion was consistent with Mezirow (1991), who theorized that for adults to change their frames of reference, they must engage in reflective discourse to develop a broader perspective. Such a finding was also supported by evidence from O' Malley et al. (2019), who reported that international experiences focused on agriculture led to shifts in participants' intellectual growth and global competence development. When considering such through the lens of TLT, we recommend that practitioners seek to understand participants' assumptions and biases to determine the extent to which international experiences can help them mature in this regard.

In the third and fourth themes, *professional* and *advocacy growth*, the teachers began to draw on their international experience to inspire and champion the global competence development of others. In particular, the teachers began to share their experiences with their peers and their students. Further, the teachers reported using their experience abroad to discuss global issues while incorporating the curriculum materials they developed. Also, the teachers indicated an overwhelming desire to advocate for students and other teachers to engage in international experiences in the future. Such sentiments do not appear to have been previously reported in the literature on international experiences for agriscience teachers.

Our findings also suggested that the teachers were working to establish a globalized curriculum and held positive beliefs about incorporating these concepts into agriscience. This concept was supported by Mezirow's (1991) TLT, which postulated that perspective changes occur after individuals experience dissonance, i.e., the international experience in this investigation, which leads to actionable changes. In the current study, actionable changes were reported by the agriscience teachers one year after their international experience through their development and use of global curriculum resources, sharing their experiences abroad, and advocating for the global competence development of others. These behavior changes warrant further examination. However, future research should also be conducted to obtain evidence regarding the extent to which the teachers have integrated global concepts into their curriculum to develop an understanding of the breadth and depth of their perspective changes.

A critical implication emerging from this investigation was that the dissonance reported by the agriscience teachers in this investigation was primarily low-intensity rather than high-intensity (Mezirow, 2000). Previous research (Kiely, 2004, 2005) has indicated that high-intensity dissonance can initiate deeper, more impactful perspective transformations. Perhaps this is because Costa Rica is considered to be more developed than other countries in Central and South America. Therefore, we recommend that future investigations examine whether international experiences in less developed nations and for longer durations of time may expose agriscience teachers to higher-intensity dissonance that leads to more transformative growth in globally competent teaching practices. It should be noted that a limitation of this study was that the international experience was only one week. Perhaps a longer experience could have been more impactful and led the participants to develop greater global competence. Therefore, we recommend that future investigations explore the effect of short-term versus long-term international experiences on agriscience teachers' global competence development.

Discussion

In school-based agricultural education, global learning is not a distant concept. Instead, it is at the heart of what teachers do every day. Despite this, agriscience teachers have reportedly struggled to connect global concepts to agricultural content (Acker, 1999; Hurst et al., 2015). Data from this investigation suggested that high-quality international experiences for agriscience teachers can serve as a transformational learning experience that can inspire them to adopt globally competent teaching practices. However, financial barriers often discourage teachers from engaging in such opportunities (Hall & Hite, 2022; Mardi, 2023). Therefore, it is critical for leaders in agricultural education to act as advocates for global learning in multiple ways.

Such support could take on various forms. For instance, leaders in agricultural education can begin to advocate for various global initiatives, such as seeking funding for international experiences for teachers or acquiring classroom materials with a global focus. Equally impactful, however, could be dispositional support for global education. This type of support could be manifested through statewide missions that emphasize global agriculture. Perhaps leaders could also formally and informally recognize teachers' successful contributions to their students' global competence growth through feedback sessions during formal evaluations, positive remarks to local school administrators, or more formal celebrations and recognition programs.

Going forward, teacher preparation programs for agricultural education should also establish a range of coordinated efforts to support preservice teachers' global competence development, extending beyond teaching abroad opportunities. For example, teacher educators could infuse global education throughout their curriculum, including applying theories of cross-cultural learning, communication, and pedagogy in multiple courses. Without such support, agriscience teachers will likely continue to struggle to prepare their students to shape the globally connected world they inhabit.

References

Acker, D. G. (1999). Improving the quality of higher education in agriculture globally in the 21st Century: Constraints and opportunities. *Journal of International Agriculture and Extension Education, 6*(2), 47–53. https:/doi.org/10.5191.jiaee.1999.06206

Bletscher, C., Gould, M., & Qu, S. (2022). The exploration of undergraduate attitudes and knowledge about international agricultural issues and US agricultural policy. *Journal of International Agricultural and Extension Education, 29*(2), 7–23. https://doi.org/10.4148/2831-5960.1010

Brewer, E., & Cunningham, K. (2009). *Integrating study abroad into the undergraduate curriculum*. Stylus Publishing.

Brooks, L. W., & Williams, D. L. (2001). Impact of a professional development program for agricultural education teachers in Costa Rica. *Journal of Agricultural Education, 42*(3), 21–29. https://doi.org/10.5032/jae.2001.03021

Conner, N. W. & Butcher, K. (2016). Perceptions of Tennessee school-based agricultural education teachers' attitudes toward globalizing the agricultural curriculum. *Journal of Human Science and Extension 4*(2), 95–110. https://doi.org/10.54718/YECM8816

Conner, N. W., Gates, H., & Stripling, C. T. (2017). Identifying international agricultural concepts for secondary agricultural education curriculum. *Journal of Agricultural Education, 58*(1), 118–130. https://doi.org/10.5032/jae.2017.01118

Cranton, P. (1994). Self-directed and transformative instructional development. *The Journal of Higher Education*, *65*(6), 726–744. https://doi.org/10.1080/00221546.1994.11774748

Creswell, J. W., Poth, C. N. (2018). *Qualitative inquiry and research design* (4th ed.). Sage.

Fernandez, M. J., Goecker, Smith, E., Moran, E. R., & Wilson, C. A. (2020). Employment opportunities for college graduates in food, renewable energy, and the environment: United States, 2020-2025 [Technical report]. United States Department of Agriculture. https://www.purdue.edu/usda/employment/

Foster, D. D., Rice, L. L. S., Foster, M. J., & Barrick, R. K. (2014). Preparing agricultural educators for the world: Describing global competency in agricultural teacher candidates. *Journal of Agricultural Education*, *55*(1), 51–65. https://doi.org/10.5032/jae.2014.01051

Goecker, A. D., Smith, E., Fernandez, M. J., Ali, R., & Goetz, R. (2015). Employment opportunities for college graduates in food, renewable energy, and the environment: United States, 2015-2020 [Technical report]. United States Department of Agriculture. https://www.purdue.edu/usda/employment/wp-content/uploads/2015/04/2-Page-USDA-Employ.pdf

Gorter, E. K., Sorensen, T., Russell, J., Taylor, S., & Henderson, T. M. (2020). Perceived changes among second-stage agriculture teachers following a professional development experience in Ecuador. *Advancements in Agricultural Development*, *1*(3), 68–80. https://doi.org/10.37433/aad.v1i3.69

Hall, D. T., & Hite, R. L. (2022). School-level implementation of a state-wide professional development model for developing globally competent teachers. *Teacher Development*, *26*(5), 665–682. https://doi.org/10.1080/13664530.2022.2132281

Heinert, S. B., Conner, N. W., & Roberts, T. G. (2020). School-based agricultural education students' attitudes and beliefs toward international agricultural concepts. *Journal of Human Science and Extension, 8*(1), 88–103. https://doi.org/10.54718/KEWP8168

Hurst, S. D., Roberts, T. G., Harder, A. (2015). Beliefs and attitudes of secondary agriculture teachers about global agriculture issues. *Journal of Agricultural Education 56*(1), 188–202. https://doi.org/10.5032/jae.2015.01188

Ibezim, D. O. & McCracken, J. D. (1994). Factors associated with internationalization of secondary level agricultural education programs. *Journal of Agricultural Education, 35*(3), 44–49. https://doi.org/10.5032/jae.1994.03044

Kiely, R. (2004). A chameleon with a complex: Searching for transformation in international service-learning. *Michigan Journal of Community Service Learning*, *20*(1), 5–20. https://eric.ed.gov/?id=EJ852915

Kiely, R. (2005). A transformative learning model for service-learning: A longitudinal case study. *Michigan Journal of Community Service Learning*, *12*(1), 5–22. https://eric.ed.gov/?id=EJ848477

Longview Foundation (2008). *Teacher preparation for a global age: The imperative change*. Author. http://www.longviewfdn.org/122/teacher–preparation–for–the–global–age.html

Mardi, F. (2023). In-service teachers' views of a global and digital experience: A platform for fostering perspective-taking. In F. Mardi (Eds.)., *Handbook of research on advancing teaching and teacher education in the context of a virtual age* (pp. 335–353). IGI Global.

Mezirow, J. (1991). *Transformative dimensions of adult learning*. Jossey-Bass.

Mezirow, J. (1997). *Transformative learning: Theory to practice*. Jossey-Bass.

Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress.* Jossey-Bass.

Mikulec, E. (2014). Internationalization and teacher education: What dispositions do teachers need for global engagement? *Education in a Changing Society*, *8(*1), 5–13. https://core.ac.uk/download/pdf/233176082.pdf

Moustakas, C. (1994). *Phenomenological research methods*. Sage.

O'Malley, A. M., Roberts, R., Stair, K. S., Blackburn, J. J. (2019). The forms of dissonance experienced by U.S. university agriculture students during a study abroad to Nicaragua. *Journal of Agricultural Education*, *60*(3), 191–205. https://doi.org/10.5032/jae.2019.03191

Parkhouse, H., Glazier, J., Tichnor-Wagner, A., & Cain, J. M. (2015). From local to global: Making the leap in teacher education. *International Journal of Global Education (IJGE), 4*(2) 1–17. http://ijge.net/index.php/ijge/article/view/20/20

Parmigiani, D., Jones, S. L., Silvaggio, C., Nicchia, E., Ambrosini, A., Pario, M., & Sardi, I. (2022). Assessing global competence within teacher education programs. *SAGE Open*, *12*(4), 1–13. https://doi.org/10.1177/21582440221128794

Pigg, J., O' Malley, A., Roberts, R., & Stair, K. S. (2021). Transformative learning in Nicaragua: A retrospective analysis of university agriculture students' long-term changes in perspective after a study abroad course. *Journal of International Agricultural and Extension Education*, *28*(4), 63–78. https://doi.org/10.5191/jiaee.2021.28463

Pigg, J., Richardson, M. A., Roberts, R., & Stair, K. S. (2020). Awakening transformative learning: A comparison of the dissonance experienced by agriculture majors during study abroad courses to Costa Rica and Thailand. *Journal of International Agricultural and Extension Education*, *27*(3), 132–147. https://doi.org/10.5191/jiaee.2020.273132

Polkinghore, D. E. (1989). Phenomenological research methods. In R. S. Valee & S. Halling (Eds.), *Existential-phenomenological perspectives in psychology* (pp. 41–60). Plenum Press.

Radhakrishna, R. B., Leite, F. C., & Domer, S. L. (2003). An analysis of high school students' attitudes and beliefs toward international agricultural concepts. *Journal of International Agriculture and Extension Education*, *10*(2), 86. https://doi.org/10.5191/jiaee.2003.10121

Rampold, S. D., Coleman, B. M., Bunch, J. C., & Roberts, R. (2020). Exploring students' cultural competence development during a short-term international experience: A Q-sort study. *Advancements in Agricultural Development*, *1*(2), 65–78. http://agdevresearch.org/index.php/aad/article/view/45

Roberts, R., & Edwards, M. C. (2016). Transforming students' global knowledge and perspectives through international service-learning (ISL) in Uganda: How six U.S. university agriculture students made sense of their *lived experiences* over time. *Journal of International Agricultural and Extension Education, 23*(3), 7–23. https://doi.org/10.5191/jiaee.2016.23301

Roberts, R. (2024). Visual Q methodology: A methodological approach to empower marginalized populations in agriculture throughout the Global South. *Advancements in Agricultural Development*, *5*(2), 119–134. https://doi.org/10.37433/aad.v5i2.359

Roberts-Hill, L., Roberts, R., & Roberts, T. G. (2023). A journey to a global scholar identity: An autoethnography of agricultural and extension faculty's experiences. *Journal of International Agricultural and Extension Education*, *30*(2), 70–81. https://doi.org/10.4148/2831-5960.1135

Roberts, R., Rampold, S. D., Ramage, R., & Komunjeru, B. (2020). A typology of university agriculture students' projected motivations to study abroad: An application of Q methodology. *Journal of International Agricultural and Extension Education*, *27*(3), 59–74. https://doi.org/10.5191/jiaee.2020.27359

Roberts, R., Stair, K. S., Figland, W. F., Jayaratne, K. S. U. (2024). Teaching outside the margins: School-based agricultural education teachers' perspectives on globally competent teaching during an international experience. *Journal of Agricultural Education*, *65*(2), 145–159. https://jae-online.org/index.php/jae/article/view/2414

Strange, H., & Gibson, H. J. (2017). An investigation of experiential and transformative learning in study abroad programs. *Frontiers: The Interdisciplinary Journal of Study Abroad*, *29*(1), 85–100. https://frontiersjournal.org/wp content/uploads/2017/04/ XXIX-1- STRANGE-GIBSON-TransformativeLearningPotentialof-StudyAbroad.pdf

Tichnor-Wagner, A., Parkhouse, H., Glazier, J., & Cain, J. M. (2019). *Becoming a globally competent teacher*. ASCD.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative inquiry*, *16*(10), 837–851. https://doi.org/10.1177/1077800410383121

Weeks, K. J., Lawver, R. G., Sorenson, T. J., & Warnick, B. K. (2020). Do teachers have the skills: 21st Century skills in the agricultural classroom? *Journal of Agricultural Education 61*(4), 127–142. https://doi.org/10.5032/jae.2020.04127

Zhao, Y. (2010). Preparing globally competent teachers: A new imperative for teacher education. *Journal of Teacher Education*, *61*(5), 422–431. https://doi.org/10.1177/002248711037580

Zong, G. (2009). Global perspectives in teacher education research and practice. In T.F. Kirkwood-Tucker (Eds.)., *Visions in global education: The globalization of curriculum and pedagogy in teacher education and schools: Perspectives from Canada, Russia, and the United States* (pp. 71–89). Peter Lang Publishing.