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# An Examination of Pre-Service and In-Service School-Based Agricultural Educators International Professional Development Experience in Malaysia

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**Abstract**

*To ensure we have a globally competent workforce prepared to meet the needs of a diverse and growing society, globally competent educators are needed. To help address this need, six pre-service teacher candidates and six in-service school-based agricultural education (SBAE) teachers from the United States embarked on a four-week international professional development experience in Malaysia learning and interacting with Malaysian life skills pre-service educators. Participants explored agricultural education, production agriculture, policy, religion, and culture in Malaysia. United States pre-service and in-service teachers utilized the TIPS (Thing, Idea, People, and Self) reflective journaling method to gain insight into the theme of each day. Journal entries were coded, and themes analyzed. Participants identified growth in pedagogy, curriculum content, cultural awareness, self-awareness, and more because of the international professional development experience. While some discrepancies between pre-service and in-service SBAE teachers' reflections were discovered, findings revealed both groups focused on similar codes and themes as a result of their reflections using the TIPS reflection model. There is need for further research on the development of global competency, particularly with regards to pre-service and in-service SBAE teachers.*

## Introduction

The challenge to feed the world's growing population is more complicated than producing more food and putting it on tables around the world (World Food Prize [WFP], 2023). Both globally competent educators and learners are needed to develop a workforce appropriate for our ever-evolving globally interconnected society. Educating individuals about dynamic global issues can be challenging; however,

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the benefits of providing a global perspective to food systems begin to address some of the challenges creating pressures on humanity (Schroeder-Moreno et al., 2012). Understanding agricultural issues and feeding the world is a complex interconnected web of challenges involving climate volatility, spoilage and waste, water and sanitation, infectious diseases, conflict, human rights, education, politics, trade, and infrastructure around the globe (WFP, 2023).

To address the issues of hunger, malnutrition, global security, and trade barriers; think tanks, politicians, and agriculture advocates could look to the over 1,000,000 students participating in formal agricultural education across the United States and its territories for potential solutions (The Council, n.d.; United Nations, 2021). Educational experiences through school-based agricultural education (SBAE) provide potential opportunities to develop globally competent learners. Globally competent learners can investigate the world, recognize perspectives, communicate ideas, and take action (OECD/Asia Society, 2018). Specifically, globally competent learners develop: (a) attitudes, values, and skills that reflect an openness, interest, and positive disposition towards diverse cultures; (b) foreign language skills; and (c) academic knowledge in comparative fields i.e., comparative history, political science, trade, agriculture, etc. (Bunch et al., 2018; Conners & Roberts, 2013; Foster et al., 2024; Foster et al., 2014; Heinert & Roberts, 2016; Reimers, 2009; Sharp & Roberts, 2013). In a global economy, a workforce is needed that will be able to form effective working relationships with individuals, groups, and institutions from other cultural backgrounds (Lokkesmoe et al., 2016).

To educate and inspire students, SBAE teachers must have similar levels of global competence that include investigating global issues, understanding diverse perspectives, communicating effectively across cultures, and taking action for collective well-being (Foster et al., 2024). Teachers are primarily responsible for providing the education necessary to succeed in the global world (OECD/Asia Society, 2018; Zhao, 2010). SBAE teachers prove to be influential to students by serving as role models and demonstrating a positive attitude (Park & Rudd, 2005). Much has been reported regarding the impact and influence SBAE teachers have had and currently have on current and former students. Students crave personal connections with their teachers, and personal connections can often be found in educational experiences provided in SBAE settings versus core curriculum courses (De Lay & Swan, 2014). Students respect the time and effort SBAE teachers provide for their educational success as learners. According to De Lay and Swan (2014), students "understood their agriculture teachers are busy yet were able to track them down outside of class time for additional help" (p. 116). SBAE teachers have a strong ability to influence and impact SBAE students (De Lay & Swan, 2014), but it would be advantageous for them to be globally competent as instructors in order to be able to effectively pass along their skills and knowledge to help develop globally competent students (Zhao, 2010). SBAE teachers may become globally competent in a variety of ways. Conner and Roberts (2013) suggested interacting with people working in the international agricultural field, complete a training on how to use a globalized curriculum, take a virtual field trip, or study/travel abroad themselves. While global competency can be attained without international travel experiences, those who travel outside the country discover an increase in global competency that can be shared with students (Foster et al., 2014). There is increasing importance of engaging pre-service candidates early with in-service teachers to instill foundational educator knowledge, skills, and dispositions. A study by Willard-Holt (2001) involving North American pre-service teachers teaching in Mexico found that participants developed greater global awareness, flexibility, and reflectivity in teaching along with a heightened sense of professionalism in collaborating with in-service teachers and teaching students in other countries.

According to the Association of International Educators, 83% of the United States population agrees our nation is better off when more of our students are internationally educated and understand other cultures (NAFSA, 2017). Study abroad programs bring value-added engagement to participants' intercultural and global competencies that often meet or surpass outcomes of other international travel opportunities (Stebleton et al., 2013). Study abroad international experiences offer educators the opportunity to grow and expand their knowledge and skills by developing (a) global perspectives of

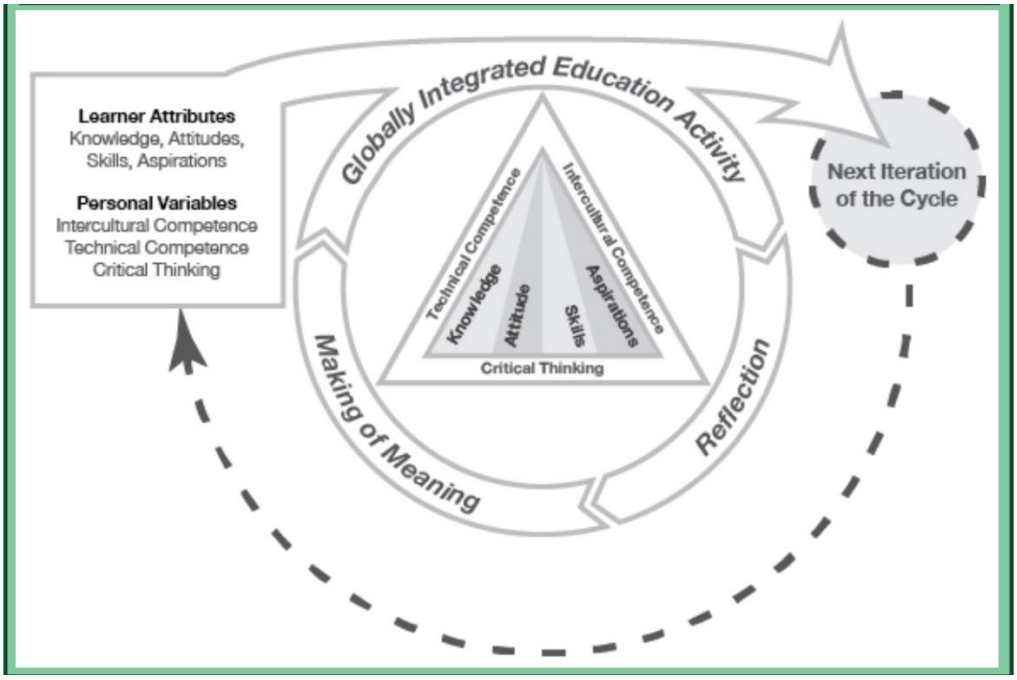
diversity and cultural differences; (b) cultural competencies such as open mindedness; (c) sense of importance of critically examining one's own culture; and (d) prepare teacher candidates to meet the increasing demands of a global society (Phillion & Malewski, 2011). Most of the research around global competency focuses on students and their global competency; however, there is still evolving research on pre-service and in-service teachers' (OECD/Asia Society, 2018; NAFSA, 2019; Szolosi, 2012). If educators are going to teach global competence to their students, they must first engage in activities that increase their own global competence (OECD/Asia Society, 2018; Bunch et al., 2018; Foster et al., 2024; Heinert & Roberts, 2016). To further examine the potential for professional development to impact global competence for educators, a group of pre-service agricultural teacher candidates and in-service school-based agricultural education teachers embarked on an international experience to Malaysia while engaging in purposefully structured daily reflections on their experience. To determine the impact of an international professional development experience, researchers implemented the *TIPS to Study Abroad* (Taranath, 2014) method of reflection to capture participants' experiences. Pre-service agriculture teacher candidates and in-service school-based agricultural education teachers from Indiana, Iowa, Michigan, Ohio, Pennsylvania, and Wisconsin embarked on a four-week international professional development experience in Malaysia funded by the United States Department of Education Fulbright Hayes program learning and interacting with Malaysian life skills pre-service educators.

## Conceptual Foundation

The implementation of this study was guided by the Conceptual Framework for Studying Globally Integrated Education Activities proposed by Roberts et al. (2013) illustrated in Figure 1.

**Figure 1**

*A conceptual framework for studying globally integrated education activities (Roberts et al., 2013)*




This model is based on an experiential learning approach (Kolb, 1984; Roberts, 2006). The model begins with recognizing that participants enter the globally integrated learning activity with prior experiences and attributes. The center of the model depicts the triadic outcomes for global education

activities of technical competence, intercultural competence, and critical thinking. Expression of these outcomes may be changes in knowledge, attitudes, skills, or aspirations. The study focused on how using a reflection technique, *TIPS to Study Abroad* (Taranath, 2014), challenges participants thinking that changes practices (Schuessler et al., 2012). Taranath guidance to help "travelers reflect on how moving from one context to another invites questions about identity, society, and the meaning of travel itself" (p. 3). When reflective thinking is combined with journaling individuals can develop self-analysis and an increased awareness of their environment (Schuessler et al., 2012).

## Theoretical Framework

Mezirow's theory of transformative learning (2000) provided the theoretical foundation for the study. Transformative learning is the process of critically reflecting upon previous assumptions or understanding in order to determine whether one still holds them to be true or challenges their claims (Mezirow et al., 2000). King (2009) contends that Mezirow's transformative learning theory provides an explanation of the adult learners' experiences of fundamental change in their perspective or frame of reference as they engage in educational or academic work. Learning is seen as an experience of critical questioning of beliefs and assumptions as the adult learner examines the framework from which he/she has been viewing the world. Key to the process of transformative learning is to recognize narrow frames-of-reference through a disorientating experience thus problematizing current attitudes, values and beliefs (Mezirow, 1981).

## Purpose and Research Objectives

The transformative learning theory emphasizes how individuals change their frames of reference through critical reflection, leading to significant shifts in perspective and behavior (King, 2009). The primary purpose of this study was to describe daily reflections of pre-service and in-service school-based agricultural education teachers from the United States participating in a four-week professional development experience in Malaysia. Three objectives guided the study:

1. Describe daily reflections utilizing the TIPS model of pre-service SBAE teachers collected during the Malaysian professional development experience.
2. Describe daily reflections utilizing the TIPS model of in-service SBAE teachers collected during the Malaysian professional development experience.
3. Compare daily reflections utilizing the TIPS model between pre-service and in-service SBAE teachers during the Malaysian professional development experience.

## Methods and Procedures

To examine the potential for professional development to impact global competence for educators, a group of pre-service and in-service SBAE teachers embarked on an international experience to Malaysia and purposefully reflected on their experience. Three institutions: The Pennsylvania State University, Universiti Teknologi Malaysia, and Hawkeye Community College (Iowa) engaged six pre-service and six in-service SBAE teachers from the United States with their counterparts in Malaysia. *#AgEd2Malaysia* participants were exposed to agricultural education, production agriculture, policy, religion, and culture during the four-week immersion experience in Malaysia. While experiences are important, reflection on those experiences is when true growth occurs. United States pre-service and in-service SBAE teachers utilized the TIPS (*Thing, Idea, People, and Self*) reflective journaling method to gain insight into the theme of each day. TIPS is a reflective journaling method that was first developed by Dr. Anu Taranath from the University of Washington (Taranath, 2014). As a research team, we adapted Dr. Taranath's TIPS method to meet the needs of daily reflection for this study. Each day of the international professional development experience participants were asked to reflect on a thing, idea, person, and themselves as a result of their experiences. Participants were encouraged to reflective journal at the end of each day. Participants provided

their completed TIPS reflections from the previous day to the experience leaders each morning. TIPS reflections were handwritten by participants. To help organize this reflective journaling activity students divided a piece of paper into four quadrants to address a *Thing, Idea, People*, and *Self*-reflection each day. Utilization of this template supported concise and direct reflections.

Content analysis was utilized to investigate pre-service and in-service SBAE teachers' daily reflections during the professional development experience in Malaysia (Ary et al., 2010). This study was carried out utilizing a qualitative nonexperimental inductive content analysis design as categories and coding were derived from the data (Ary et al., 2010; Elo & Kyngas, 2008). It is important to develop a method where results can be duplicated with different researchers (Leggette et al., 2012). Ary et al. (2010) suggest qualitative content analysis involves a set of six systematic steps to carry out the study: (1) Specifying the phenomenon; (2) Selecting the media from which the observations are to be made; (3) Formulating exhaustive and mutually exclusive coding categories; (4) Deciding on the sampling plan to be used; (5) Training the coders; and (6) Analyzing the data.

(1) ***Specifying the phenomenon:*** The daily codes/themes recorded by pre-service and in-service SBAE teachers from a professional development experience in Malaysia.
(2) ***Selecting the media from which the observations are to be made:*** All TIPS reflective journaling documents from pre-service and in-service SBAE teachers participating in *#AgEd2Malaysia* over a 26-day period. TIPS reflective journaling was completed daily by participants. There was a possibility of 312 entries for each construct (*Thing, Idea, People*, and *Self*).
(3) ***Formulating exhaustive and mutually exclusive coding categories:*** The coding categories were developed inductively after reading through all TIPS data. The principal researcher read through all 1,236 TIPS (309 per construct, i.e. *Thing, Idea, Person*, *Self*) journal reflections and identified preliminary codes for each construct separately. A codebook was created and shared with two experienced qualitative research coders.
(4) ***Deciding on the sampling plan to be used:*** All TIPS daily reflective journal entries from pre-service and in-service SBAE teachers who participated in *#AgEd2Malaysia* that completed 90% of TIPS reflective journaling sessions throughout the experience (at least 24 of the 26 total days when TIPS reflective journaling was conducted). All 12 participants of the population met this 90% requirement; therefore, the entire population participating in *#AgEd2Malaysia* was utilized. A total of 1,236 entries were coded (309 for each construct).
(5) ***Training the coders:*** The principal researcher in this study worked with two experienced coders to ensure inter-coder reliability. It is important that other coders can code the entries utilizing the codebook developed and obtain consistent results (Ary et al., 2010). To ensure inter-coder reliability a random sample of roughly 10% of records, from each construct (*Thing, Idea, Person*, and *Self*) were generated by means of a random number generator. The numbers were then matched with the record numbers on the spreadsheet by the principal researcher. All coders received the same TIPS text entries to code for each round and each construct. Once reliability of coding was confirmed (90% or greater) all entries for the specific construct were coded by the research team.
(6) ***Analyzing the data:*** Utilizing the codebook all TIPS data was coded by construct (*Thing, Idea, People*, and *Self*). The principal researcher coded the constructs of *Idea* and *Self*, while the two remaining members of the research team coded *Thing* and *People*. All data was compiled and analyzed utilizing common database software.

## Limitations

Relying on a single data source, the TIPS reflections presents limitations, including potential biases and a narrow perspective. This approach may fail to capture the full range of experiences and insights. Utilizing multiple data sources can help provide a more comprehensive and balanced view, enhancing the reliability and validity of the reflections.

**Trustworthiness**

To ensure the overall trustworthiness of our study, we adhered to established qualitative research criteria: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility was addressed through prolonged engagement with participants. Transferability was facilitated by providing rich, detailed descriptions of the research context and participants. Dependability was ensured through an audit trail and triangulation of data sources. Confirmability was achieved by maintaining reflexive journals and documenting our analytic decisions to demonstrate that our findings were grounded in the data.

**Reflexivity Statement**

As researchers, we are acutely aware of our own biases, perspectives, and potential influences on the research process. Throughout this study, we engaged in continuous self-reflection to examine how our backgrounds, experiences, and assumptions may shape our interpretations and interactions with participants. Research team meetings were held to discuss reflections and ensure that diverse viewpoints within the research team were considered, thus enhancing the objectivity and trustworthiness of our findings.

**Audit Trail**

Carcary (2009) proposed trustworthiness in qualitative inquiry could be established through developing a physical and intellectual research audit trail – a strategy that involves maintaining an audit of all key stages and theoretical, methodological, and analytical decisions, as well as documenting how a researcher's thinking evolves throughout a research project. An audit trail was maintained throughout the research process to document all methodological decisions, data collection procedures, and analytic steps. This included detailed records of interview protocols, coding schemes, and memos on data interpretation (Carcary, 2020).

**Results/Findings**

The primary purpose of this study was to describe daily experiences of pre-service and in-service SBAE teachers from the United States participating in a four-week professional development experience in Malaysia to emphasizes the process of making meaning from experiences and transforming one's worldview. Of the twelve United States participants 50% were pre-service SBAE teachers and 50% were in-service SBAE teachers. Regarding gender, nine participants were females (four pre-service SBAE teachers, five in-service SBAE teachers) and three males (two pre-service SBAE teacher, one in-service SBAE teacher). The following results are organized to provide examples of the extent to which both pre-service and in-service SBAE teacher participants reflected on each TIPS category.

***Thing Findings***

*Thing* was defined as a physical item or interaction with a physical item or concept. Each participant of *#AgEd2Malaysia* was asked to reflect daily on a thing they encountered or that impacted them. Each *Thing* entry was read, and fourteen codes were developed. One hundred and fifty-three *Thing* entries were coded for pre-service SBAE teachers as part of the *#AgEd2Malaysia* program. Agriculture was the most identified code with 39 entries, followed by Environment and Conservation (20 entries) and Education (15 entries). As a result of this international professional development event, pre-service SBAE teachers identified content and pedagogy themes for the top three codes in the *Thing* construct. These were experiences that can be incorporated into their curriculum based on their observations and activities in the codes Agriculture, Environment and Conservation, and Education. Pre-service SBAE teachers' *Thing* entries coming from the top Agriculture theme included:

- *Pineapples are multi-purpose. The leaves can be made into string, silage, pepper, etc. The amount of impacts pineapples have on the environment.*
- *Cows in Malaysia Sabah are Holsteins.*
- *Gene editing being classified as GMO.*

One hundred and fifty-five *Thing* entries were coded for in-service SBAE teachers as part of the *#AgEd2Malaysia* program. Agriculture was the code identified most frequently with 39 entries coded. Two codes (Education and Environment and Conservation) were found to be reported the next most frequent with 16 entries each respectively. Geography, Music and Arts, and Infrastructure and Transportation were found to have little focus in this study as reported by in-service SBAE teachers. Content and education-related topics were identified more frequently, while global competency items unrelated to agriculture and teaching were identified less frequently. In-service SBAE teachers' *Thing* entries identifying with the theme of Agriculture included:

- *Ornamental pineapple is very pretty - didn't know there were so many different varieties.*
- *Agritourism at DESA dairy Farm was a great example of diversified Ag production and involve customers.*
- *Over 3,000 species of herbs grown on the herb farm, but only 8 are commercially cultivated.*

Table 1 presents *Thing* codes, their frequencies, and percent of overall total for both the pre-service and in-service participants.

**Table 1**

*Summary of* **Thing** *Findings*

| Codes | Pre-Service Entries (n) | Percent of Total (%) Pre-Service | In-Service Entries (n) | Percent of Total (%) In-Service |
|---|---|---|---|---|
| Agriculture (AG) | 39 | 25% | 39 | 25% |
| Environment and Conservation (EC) | 20 | 13% | 16 | 10% |
| Education (ED) | 15 | 10% | 16 | 10% |
| Infrastructure and Transportation (IT) | 11 | 7% | 6 | 4% |
| Food and Beverage (FB) | 10 | 7% | 13 | 8% |
| Religion (RE) | 10 | 7% | 8 | 5% |
| Recreation and Relaxation (RR) | 9 | 6% | 13 | 8% |
| Music and Arts (MA) | 9 | 6% | 5 | 3% |
| Experience Design (EX) | 7 | 5% | 7 | 5% |
| Hospitality and Human Behavior (HO) | 6 | 4% | 9 | 6% |
| Clothing (CL) | 5 | 3% | 9 | 6% |
| Hygiene and Health (HH) | 4 | 3% | 7 | 5% |
| Geography (GE) | 4 | 3% | 4 | 3% |
| Unknown (UK) | 4 | 3% | 3 | 2% |
| Total | 153 | | 155 | |

*Note.* Due to rounding errors percentage totals do not always equal 100%

Both pre-service and in-service SBAE teachers had similar reflection focuses within the *Thing* construct. The top three codes that emerged for both groups were Agriculture, Environment and Conservation, and Education, while both had the codes of Unknown and Geography reflected on the least.

### *Idea Findings*

*Idea* was defined as an action item, "aha" moment, or thought. Each day, participants of *#AgEd2Malaysia*, were asked to reflect on an idea or thought. Each *Idea* entry was read and nine codes

were developed. One hundred and fifty-three *Idea* entries were coded for pre-service SBAE teachers as part of the *#AgEd2Malaysia* program. Teach Ag Best Practices was the code identified most frequently (64 entries), followed by Community and Culture (28 entries) and Agriculture (20 entries). When reflecting on an *Idea* as an action item, an "aha" moment, or thought, pre-service SBAE teachers turned to methods, procedures, and pedagogy to teach food, fiber, and natural resources across all contexts (formal, informal, etc.) and levels as defined in the codebook. Entries focusing on the codes of Health, Food and Beverage, and Religion were reported less frequently. The *Idea* construct showcased many Teach Ag Best Practices for pre-service SBAE teachers including:

- *Idea of having all students participate in some sort of cooking class.*
- *We preformed service learning in the national park, it would be a great tool to do the same thing with students at a park back in the US.*
- *Have a program for special needs students to give them hands on experience. Make curriculum about agriculture in other countries.*

One hundred and fifty-six *Idea* entries were coded for in-service SBAE teachers as part of the *#AgEd2Malaysia* program. In-service SBAE teachers identified Teach Ag Best Practices as the top code with 70 entries focused in this area, followed by Community and Culture (39 entries) and Agriculture (15 entries). The code Health had zero responses with Food and Beverage reflecting the second fewest entries identified. In-service SBAE top entries for *Idea* revolved around Teach Ag Best Practices including:

- *Hands on learning takes a lot of pre-preparation but is worth it in the end when students learn and have fun.*
- *Always remember to think "How will this experience help me as a teacher?" Continued importance of leading by example.*
- *I am so excited about the relay race for the nitrogen in aquaponics lesson. I cannot wait to do this in the US.*

Table 2 presents the *Idea* codes, their frequencies, and percent of overall total for both the pre-service and in-service participants.

**Table 2**

*Summary of* **Idea** *Findings*

| Codes | Pre-Service Entries (n) | Percent of Total (%) Pre-Service | In-Service Entries (n) | Percent of Total (%) In-Service |
|---|---|---|---|---|
| Teach Ag Best Practice (TA) | 64 | 42% | 70 | 45% |
| Community and Culture (CC) | 28 | 18% | 39 | 25% |
| Agriculture (AG) | 20 | 13% | 15 | 10% |
| Education Related (ED) | 14 | 9% | 13 | 8% |
| Host and Hospitality (HO) | 9 | 6% | 10 | 6% |
| Religion (RE) | 7 | 5% | 5 | 3% |
| Food and Beverage (FB) | 5 | 3% | 1 | 1% |
| Unknown (UK) | 4 | 3% | 3 | 2% |
| Health (HE) | 2 | 1% | 0 | 0% |
| Total | 153 | | 156 | |

*Note.* Due to rounding errors percentage totals do not always equal 100%

Pre-service and in-service SBAE teachers had an identical rank for most frequent codes for the *Idea* construct of Teach Ag Best Practices, Community and Culture, and Agriculture. While percentages of each theme differed in small increments, the overall rank was similar.

***People Findings***

*People* was defined as individuals or groups of people who have been encountered as part of *#AgEd2Malaysia*. Each participant of *#AgEd2Malaysia*, was asked to reflect daily on a person they encountered or that made an impact on them. Each *People* entry was reviewed, and fifteen codes were developed. It was deemed by the research team that codes be based on what category people who impacted participants fell within (e.g., Malaysian Life Skills Student, U.S. In-service Agricultural Educator, etc.). One hundred-and fifty-three-People entries were coded for pre-service SBAE teachers as part of the *#AgEd2Malaysia* program. When pre-service SBAE teachers were asked to reflect on people who impacted them each day of an international professional development experience in Malaysia their reflections focused on the host Malaysian Life Skills Students and UTM Personnel. Malaysian Life Skills Student was identified most frequently with 30 entries focusing on this code, followed by UTM Personnel (20 entries) and Agricultural Personnel (18 entries). Their U.S. colleagues (i.e., U.S. In-service Agricultural Educator, U.S. Pre-service Agricultural Educator, total U.S. Participants, and U.S. Leads) were reflected on less than their Malaysian hosts. Pre-service *People* entries showcased the impact the Malaysian hosts had on them and included the following comments:

- *The international coordinator. They invited us to join prayer in the morning if we'd like. I admire that they are willing to share that part of their life with us.*
- *UTM student commanded the classroom when necessary and really connected with students.*
- *UTM student has a positive outlook on coming to the place her brother passed away.*

One hundred-and fifty-six-People entries were coded for in-service SBAE teachers. In-service SBAE teachers' reflections featured the hosts from Malaysia more frequently when compared to other individuals or groups they encountered. The theme, Malaysian Life Skills Student, was identified the most with 45 entries focused on this code, followed by UTM Personnel (23 entries) and Host Families (13 entries). Participants from the United States were not reflected on often. The United States participants (i.e., U.S. Pre-service Educators, U.S. In-service Educators, Total U.S. Participants, and U.S. Leads) were not mentioned as often when compared to their counterpart hosts in Malaysia. In-service SBAE teachers shared how the Malaysian hosts influenced them through the following comments:

- *I appreciate that the UTM student tried communicating with us in regards to our collaborative lesson.*
- *UTM student was pushed outside of their comfort zone by flying and boating and they never complained once.*
- *UTM student really stepped up during our lesson planning session. I am excited to see them teach on Monday.*

Table 3 presents the *People* codes, their frequencies, and percent of overall total for the pre-service and in-service participants respectively.

**Table 3**

*Summary of* **People** *Findings*

| Codes | Pre-Service Entries (n) | Percent of Total (%) Pre-Service | In-Service Entries (n) | Percent of Total (%) In-Service |
|---|---|---|---|---|
| Malaysian Life Skills Student (UTM) | 30 | 20% | 45 | 29% |
| UTM Personnel (UT) | 20 | 13% | 23 | 15% |
| Agricultural Personnel (AG) | 18 | 12% | 11 | 7% |
| Auxiliary Actors (AA) | 16 | 10% | 8 | 5% |
| Host Families (HF) | 12 | 8% | 13 | 8% |
| Participant Group (PG) | 11 | 7% | 4 | 3% |
| Malaysian Student (Non-Life Skills ) (MS) | 9 | 6% | 9 | 6% |
| Unknown (UK) | 7 | 5% | 7 | 4% |
| Total U.S. Participants (TU) | 6 | 4% | 2 | 1% |
| U.S. In-service Agricultural Educator (UI) | 6 | 4% | 6 | 4% |
| U.S. Pre-service Agricultural Educator (UP) | 6 | 4% | 7 | 4% |
| Malaysian Education (ME) | 5 | 3% | 8 | 5% |
| Religious Figure (RE) | 5 | 3% | 6 | 4% |
| U.S. Leads (UL) | 2 | 1% | 4 | 3% |
| Total Malaysian Participants TM | 0 | 0% | 3 | 2% |
| Total | 153 | | 156 | |

*Note.* Due to rounding errors percentage totals do not always equal 100%

While there were many similarities reported in the *People* construct this was the construct that had the greatest difference between pre-service and in-service SBAE teachers. While both groups reported two codes, Malaysian Life Skills Student and UTM Personnel the most often, they differed in their third most popular group reflected on. Pre-service SBAE teachers were impacted by Agricultural Personnel the third most, while Host Families were the third focus of in-service SBAE teachers' reflections.

***Self Findings***

*Self* was defined as an explicit or implied "I statement" or first-person reference and was to represent the learning experience as part of *#AgEd2Malaysia*. A definition of reflection provided by Costa and Kallick (2008) was included in the codebook that was used to guide the research team. Each participant was asked to reflect daily on themselves. Each *Self* entry was analyzed, and the codes were developed. Due to the difficulty of coding another's self-reflection, a multiple step coding system was developed. First responses were read, and the coder determined if the response was a true self-reflection utilizing the process in the codebook. If it was determined the response was indeed a self-reflection the entry was then coded into one of the four codes within *Self*. One hundred and fifty-three *Self* entries were coded for pre-service SBAE teachers. One hundred and forty-seven of the one hundred and fifty-three entries were deemed self-

reflections (96%). Of the self-reflection responses coded, over half for pre-service SBAE teacher reflections were coded to the theme of Global Competency (75 entries) defined by the OECD/Asia Society's (2018) four domains of global competence which include: Investigate the World, Recognize Perspectives, Communicate Ideas, and Take Action. In addition, nearly one fourth of the responses reflected educational aspects (34 entries). Pre-service SBAE teachers' *Self* entries often reflected a theme of global competency. Some examples are shared below:

- *I need to become more involved in the news and what's going on in the world. I sat down and watched a video about a huge ship accident releasing mill/billions of plastic pellets into the ocean. It hit me because it affected people here and they have become my friends. Lastly, I have become so sensitive to this culture and care so much for them and did not fully realize it. I had posted a picture of my host family and I on snapchat and one of my friends had commented and said "Why are you with those towel heads?"...it made me tear up and I was very affected by it.*
- *There is a lot about religion around the world I didn't know. The Sikh temple is amazing in what they do for the community. The community also treats them great.*
- *After seeing how everyone meshes so well here, it will be hard going home to an out-of-sync community.*

One hundred and fifty-six *Self* entries were coded for in-service SBAE teachers. One hundred and forty-three of the one hundred and fifty-six entries were deemed self-reflections (92%). Of the entries deemed self-reflections (77 entries) the majority fell within the theme of Global Competency (Investigate the World, Recognize Perspectives, Communicate Ideas, and Take Action). In-service SBAE teachers' *Self* reflections turned to a theme of global competency the majority of the time. For example:

> I want to become more aware and knowledgeable about other religions. They tend to have the same theme of helping others and being a good person while having different beginnings and way of teaching that. I REALLY need to learn some praise statements in Malay. How dumb would it be if someone told me "nice job" in Russian? It needs to be authentic. The party last night was so humbling to me. The entire town came out to feed us and show us their culture. I am so glad that we took the time to share with them our dancing.

Table 4 present the *Self* codes, their frequencies, and percent of overall total for both the pre-service and in-service participants.

**Table 4**

*Summary of* **Self** *Findings*

| Codes | Pre-Service Entries (n) | Percent of Total (%) Pre-Service | In-Service Entries (n) | Percent of Total (%) In-Service |
|---|---|---|---|---|
| Global Competency (GC) | 75 | 51% | 77 | 54% |
| Educational Aspects (EA) | 34 | 23% | 35 | 24% |
| Other (OT) | 31 | 21% | 25 | 17% |
| Agricultural Aspects (AA) | 7 | 5% | 6 | 4% |
| Total | 147 | | 143 | |

*Note.* Due to rounding errors percentage totals do not always equal 100%

Pre-service and in-service SBAE teachers found similar results within the construct of *Self* as part of the TIPS reflective journaling process. Global competency topped both groups followed by Educational Aspects, Other, and Agricultural Aspects, respectively.

## Conclusions

Overall, data from six pre-service SBAE teachers (153 entries) and six in-service SBAE teachers (156 entries) were collected and analyzed for the four constructs of the TIPS model of reflection (i.e., *Thing, Idea, People*, and *Self*). While some discrepancies between pre-service and in-service SBAE teachers' reflections were discovered, findings revealed both groups focused on similar codes and themes as a result of their reflections using the TIPS reflection model.

For the construct of *Thing* both pre-service and in-service SBAE teachers had the same top themes emerge from their TIPS reflections. The code of Agriculture had the highest frequency for both pre-service and in-service SBAE teachers. The code of Agriculture was followed by Environment and Conservation and Education for both pre-service and in-service SBAE teachers.

The construct *Idea* featured the same themes emerging for both pre-service and in-service SBAE teachers. The code of Teach Ag Best Practices was identified most frequently for both pre-service and in-service SBAE teachers. Additionally, all participants identified Community and Culture followed by Agriculture in that order.

Regarding *People*, two common codes emerged for this construct. While both groups identified the same codes initially (i.e., Malaysian Life Skills Student and UTM Personnel), a different code was identified as the third most frequently identified code by each group. Pre-service SBAE teachers third highest coded reflection entries focused on Agricultural Personnel, while in-service SBAE teachers reported Host Families.

Similar results were identified for the construct *Self*. When analyzing data to determine if reflections where indeed self-reflections, 96% of pre-service SBAE teachers' entries were determined to be self-reflections while 92% of in-service SBAE teachers' reflections were deemed self-reflections. All entries determined to be self-reflections were coded into four codes with the same rank order for pre-service and in-service SBAE teachers. Global Competency was the top code identified followed by Educational Aspects, Other, and Agricultural Aspects.

## Discussion

International professional development experiences can provide development of global competence, pedagogy, and agriculture knowledge (Conner & Roberts, 2013; Foster et al., 2014; Rice et al., 2014). Per the experiences of U.S. pre-service and in-service SBAE teachers who participated in a four-week professional development experience in Malaysia, global competence began to develop. This study discovered through concrete experiences, thinking, reflecting, and action (Kolb & Kolb, 2005; Kolb & Kolb, 2009) pre-service and in-service SBAE teachers further developed their agriculture knowledge, pedagogy, and global competence while participating in an international professional development experience. It is important for pre-service and in-service SBAE teachers to participate in an international professional development experience to engage and challenge their current and future students to become globally competent learners. Through the transformational learning process and TIPS reflective journaling method, participants were challenged to experience, reflect, think, and act.

Pre-service and in-service SBAE teacher's growth in agriculture knowledge was evident in the *Thing* construct of TIPS reflective journaling. Along with agriculture knowledge being developed, pre-service and in-service SBAE teachers also gained teaching tools and grew professionally to improve their classrooms for their students and themselves. The *Idea* construct provided many examples of this with the code Teach Ag Best Practices. Global competence was a reoccurring theme throughout the experience that was strongly emphasized by both pre-service and in-service SBAE teachers. Global competence was emphasized in the *People* and *Self* construct of TIPS reflective journaling. Through the *People* construct it

was relationships with the hosts (i.e., students, faculty, staff, etc.) from Malaysia and in the *Self* construct it was highlighted in the self-reflections from the Malaysia experience.

Through the reflections shared in findings it is evident that both groups of pre-service and in-service SBAE teachers developed global competency according to the OECD/Asia Society (2018) by investigating the world, recognizing perspectives, taking action, and communicating ideas. Educators are primarily responsible for providing the education necessary to succeed in a global world (Zhao, 2010). Pre-service and in-service SBAE teachers participating in the Malaysian immersion experience found similar daily themes and benefits from their experiences. Whether they were an incoming freshman, or an experienced educator all grew professionally and personally through their four weeks in Malaysia. Through their TIPS reflective journaling it was evident they became more globally competent themselves by investigating and connecting with the world, which in turn, increased their global competence and encouraged them to "think globally" as an educator. Furthermore, they grew professionally by building content knowledge and pedagogy. While TIPS reflective journaling is an effective reflection model it was noted that around week three of the four-week international professional development experience TIPS became a platform for frustration. It could be concluded that a 26-day international experience does increase agriculture knowledge, pedagogy, and global competency. Both pre-service and in-service SBAE teachers found growth in these areas.

If educators are going to educate future leaders enrolled in agricultural education to feed, clothe, and fuel the expanding population (FAO, 2018) there is a need for globally competent SBAE teachers. Those who study abroad can increase in global competency (Foster et al., 2014). Due to the results of this study and others (Bunch et al., 2018; Foster et al., 2014; Rice et al., 2014; Roberts et al, 2016), providing pre-service and in-service SBAE teachers the opportunity for international professional development experiences to develop global competencies is vital. School based agricultural education teachers can impact some of the students that need it most. They have a connection to rural America that many others do not. School-based agricultural education teachers can have influences on their students that most others in education cannot achieve (De Lay & Swan, 2014). The transformative experiences of the teachers in Malaysia not only enhanced their individual competencies but also equipped them with the knowledge and skills necessary to contribute to solving global issues. By connecting these experiences to the broader themes of growing populations, food insecurity, and the need for a globally competent workforce, it becomes clear how such immersive learning opportunities are essential for preparing individuals to address and mitigate complex global challenges.

There is need for further research on the development of global competency, particularly with regards to pre-service and in-service SBAE teachers (OECD/Asia Society, 2018; NAFSA, 2019; Szolosi, 2012). This study was qualitative in nature (Ary et al., 2010); therefore, the results are not transferable and cannot be generalized to a larger population. It is suggested to further analyze reflective journaling methods and the daily themes that emerge to determine if objectives of the international professional development experience are achieved. Studies similar to this, but conducted with diverse groups (non SBAE teachers, international hosts, international visitors to the United States, community college students, farmers, etc.) are recommended. As themes emerge and the codebook is adjusted and refined (possibility of creating a universal code book for all international experiences and groups) it is recommended that a tool be created and utilized for quantitative research to measure the impact of an international professional development experience on global competency and other stated objectives. This could include a "then and now" Likert scoring tool.

A deeper dive into the background of the in-service SBAE teachers' demographics and teaching history is warranted. There is need to determine if SBAE teachers are impacted differently depending on their years of experience or geographical location (e.g., rural versus urban). Additional research could

include optimum length of experiences and/or number of experiences as related to the impact on participants.

We suggest that coding be developed and carried out for the theme (codes) of global competency. To further examine in what ways global competency is achieved, it is suggested utilizing the *Four Domains of Global Competence* from the OECD/Asia Society (2018). Each global competency code (theme) should be coded to the four domains of investigating the world, recognizing perspectives, taking action, and/or communicating ideas (OECD/Asia Society, 2018).

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