Experiential Learning in an International Teacher-to-Teacher Exchange Program

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Abstract

In the International Teacher-to-Teacher Exchange (ITTTE) program, teachers from the United States and Guatemala were paired together, travelled to each other's homes, worked in each other's schools, and engaged in experiences that were aimed at increasing culturally relevant teaching in mathematics. This study examined the learning styles observed in participants' narratives during the 2016-18 ITTTE program. David Kolb's Experiential Learning Cycle (2007) served as the theoretical frame for examining learning styles exhibited in the narratives. In addition, changed teaching practices, as noted in the narratives, were studied. Results from this study revealed that each participant engaged in more than one of Kolb's four learning styles and indicated changed teaching practices because of their participation in such an experiential learning process.

Keywords: Experiential learning, teacher exchange program, learning styles, teaching practices

Introduction

In 2012, the International Teacher-to-Teacher Exchange (ITTTE) program was first established. In this program, teachers from a school district in north Texas were paired with teachers from Guatemala. Throughout the two-year-long program, participants traveled to the host country and lived with their partner teachers, went to their schools, and participated in workshops focused on culturally relevant teaching in mathematics. The original purpose of this program was to provide teachers with a cultural experience and to study whether or not the teachers changed their instructional practices as a result of their participation.

During the third cohort of this program from 2016 to 2018, three teachers and one administrator from Texas were paired with three teachers and one administrator from Guatemala. The participants spent two weeks together in Guatemala and two weeks in Texas twice

throughout the program. In November 2016 and November 2017, participants from Guatemala traveled to Texas, and in July 2017 and July 2018, participants from Texas traveled to Guatemala. Over the course of the two-year exchange, the participants reflected upon their experiences in various ways, including through written narratives about their time in the program.

David Kolb (2007) asserts that people can learn through four different learning styles: accommodating, diverging, assimilating, and converging. He also claims that learners tend to gravitate toward one of the four learning styles based on their preferences. However, when people experience learning in all four learning styles, a greater amount of learning occurs (Kolb, 2007). This study examined the collected narratives from the 2016-2018 ITTTE to determine which learning styles, based on David Kolb's learning style inventory, participants in the program experienced and how the participants changed teaching practices due to their participation in the program.

Problem

Teachers, like other learners, tend to learn within a particular learning style (Kolb, 2007). Thus, in teaching, they may teach more heavily within their preferred learning style. This can lead to static teaching practices where students with differing preferences are not able to learn within their preferred learning style.

Purpose

The purpose of the study was to determine whether teachers experience more than a single preferred learning style as a result of participation in the ITTTE and whether that leads to changes in instructional practices.

Research Questions

1. Which learning styles identified by Kolb were evident in the narratives?
2. What changes in teachers' instructional practices were observed?

Related Literature

When a learner engages in an active experience, he or she is more motivated to learn (Dernova, 2015). Particularly, participating in an international learning experience results in greater personal growth and learning (Lu & Soares, 2012; Smith & Segbers, 2018). David Kolb's Experiential Learning Cycle structures experiences in a way that engages the learner throughout the entire process of the experience, resulting in more learning. Studies have verified that structuring a learning environment in this way leads to children being more engaged and motivated (Page & Margolis, 2017) and adult learners having greater learning outcomes (Abdulwahed & Nagy, 2009; Boggu & Sundarsingh, 2019). While studies have examined learner outcomes as a result of some experiential learning process, there are limited studies that focus on teachers and their changed teaching practices as a result.

Previous studies of the ITTTE verified the Kolb theory noting that multiple, extended international experiences result in learning and changed practices. The study of the 2013-14 cohort of ITTTE (González-Carriedo & Tunks, 2016) indicated that the experiences of the teacher exchange program directly led to changed teaching practices in almost all of the participants, particularly in their instruction of mathematics. A later study of the

ITTTE (Tunks, González-Carriedo, Anderson, & Felts, 2017) revealed similar findings that further indicated changed teaching practices as a result of an international teacher exchange program during the 2015-16 exchange. Teachers from this exchange particularly displayed changes in their practices by incorporating their experiences abroad into their instruction and creating a more multicultural classroom. The most recent study of the ITTTE (Tunks, González-Carriedo, Rainey, & Reynolds, 2019) analyzed the program through the lens of David Kolb's Experiential Learning Cycle, identifying aspects of the program that align with each stage of the learning cycle. This study showed that going through all four stages of the learning cycle did lead participants to change their teaching practices.

Kolb's Experiential Learning Theory

According to McLeod (2017), David Kolb's Experiential Theory asserts that experiences are where people truly learn. In the Experiential Learning Cycle, he describes four stages: (a) concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation. Concrete experience is the stage in which a learner is actively doing something and engaging in a new experience. In reflective observation, the learner reviews and reflects on the experience and how it corresponds with his or her prior knowledge (McLeod, 2017). In abstract conceptualization, the learner derives conclusions based on the reflections from the previous stage. Following abstract conceptualization, the learner participates in active experimentation, trying out what has been learned and applying the newly acquired ideas to the real world (McLeod, 2017). Kolb asserts that when a learner actively engages in all four stages of this cycle, experience leads to a greater amount of learning.

Based on the Experiential Learning Cycle, Kolb (2007) identifies four different learning styles. These learning styles are determined by how a learner takes in an experience (whether through a concrete experience or through abstract conceptualization) and how the learner processes the experience (whether through reflective observation or through active experimentation). When a learner focuses on concrete experience and active experimentation, Kolb (2007) identifies these learners in the accommodating learning style. A focus on concrete experience and reflective observation shows a diverging learning style. Learners who lean towards abstract con-

ceptualization and reflective observation emerge into an assimilating learning style. The last learning style, converging, shows a focus on abstract conceptualization and active experimentation (Kolb, 2007).

Additional characteristics align with each style. Learners who prefer the accommodating learning style tend to prefer learning through hands-on experiences (Kolb, 2007). They tend to take action in order to get things done and are more willing to take risks. Kolb (2007) explains that, based on these characteristics, teachers tend to identify with this learning style. In the diverging learning style, learners prefer to observe situations rather than to take action. They tend to spend time gathering information about a situation and examining it from multiple perspectives. Assimilators have a tendency to gather large amounts of information and organize it in order to consider the information in a logical and concise manner (Kolb, 2007). These learners are interested in abstract ideas and working through said ideas independently. Learners who demonstrate a converging learning style tend to work toward finding practical applications for the theories they have learned. This learning style focuses heavily on problem solving (Kolb, 2007). People tend to have a preferred learning style and feel most comfortable when learning in that context. Kolb (2007) asserts, however, that when in a learning environment in which all four learning styles are being experienced, a greater amount of learning occurs. Thus, the learner has a heightened potential for change, whether that change be internal or external.

Methodology

Setting

The ITTTE program and study took place in two settings, a North Texas school district and Sacatepequez, Guatemala. The schools in the United States were all Title I public schools. The teachers hailed from four different schools. The schools in Guatemala consisted of two public schools and one private school.

Participants

There were eight participants in this cohort of the ITTTE. One principal from Texas and one from Guatemala participated. Other participants from Texas included two kindergarten teachers and one second grade teacher. From Guatemala, one kindergarten teacher and two fifth grade teachers participated in the exchange. All participants from Texas worked at Title I public elementary schools. Of the participants from Guatemala, the teacher who taught kindergarten worked at a private school for grades PreK-12, and the remaining participants worked at public elementary schools.

Data

Throughout the course of the two-year exchange program, participants individually submitted eight different narratives. The narratives were collected in September and November of 2016, May, July, September, and November of 2017, and May and July of 2018. All narratives were submitted by the participants through Google Docs, excluding the July 2018 narrative. This narrative was submitted via email to the project coordinator.

In each narrative, participants reflected on their personal experiences throughout the exchange. Samples of the English translations of prompts are included in Appendix A. Prompts were also provided in Spanish. Prompts asked the participants about their teaching practices regarding culturally relevant teaching and mathematical instruction. In later prompts, participants were asked to discuss how their perceptions and teaching practices have changed throughout the program. Participants were invited to share their experiences in the narratives through words and pictures.

Data Coding and Analysis

After the narratives were collected, narratives in Spanish were translated into English, after which all narratives were read and analyzed. QDA Miner Lite (2004) was used to code the narratives for indications of Kolb's four learning styles (accommodating, diverging, assimilating, and converging). Each code contained sub-codes that described different characteristics of the learning style. Table 1 shows the codes and sub-codes. For analysis purposes, sub-codes that had seven or more references were then further analyzed for indications of trends and patterns across the four learning styles, as observed in all eight participants.

Table 1 Learning Styles and Characteristics Used for Coding				
Code	Accommodating	Diverging	Assimilating	Converging
Sub-Codes	Getting Things Done	Being Imaginative	Planning	Solving Problems
	Leading	Understanding People	Creating Models	Making Decisions
	Taking Risks	Recognizing Problems	Defining Problems	Reasoning
	Initiating	Brainstorming	Developing Theories	Defining Problems
	Being Adaptable	Being Open-Minded	Being Patient	Being Logical
	Being Practical			

The data were then coded for evidence of changed practices using a grounded approach. The grounded theory, as described by Scott (2009) is an exploratory method of research in which researchers study a core concept of the data, discovering patterns and trends as they emerge. When the narratives contained evidence that the participant implemented a new or changed teaching practice, the text was coded for *changed teaching practices* and given a sub-code describing what type of practice was changed. Sub-codes for changed teaching practices that had five or more entries were then further analyzed for trends among the participants.

Table 2 Frequencies of Learning Styles and Characteristics				
Code	Accommodating (41)	Diverging (48)	Assimilating (12)	Converging (7)
Sub-Codes	Getting Things Done (13*)	Being Imaginative (0)	Planning (7*)	Solving Problems (4)
	Leading (8*)	Understanding People (20*)	Creating Models (3)	Making Decisions (0)
	Taking Risks (6)	Recognizing Problems (13*)	Defining Problems (1)	Reasoning (1)
	Initiating (8*)	Brainstorming (5)	Developing Theories (1)	Defining Problems (1)
	Being Adaptable (6)	Being Open-Minded (10*)	Being Patient (0)	Being Logical (1)
	Being Practical (1)			

Note. The numbers in parentheses indicate the frequency of responses within each code and sub-code. Asterisks represent which sub-codes were further analyzed for trends.

Findings

Learning Styles Trends

Table 2 shows the number of occurrences for each code in the narratives, as noted by frequencies in parentheses. Sub-codes with seven or more occurrences were further analyzed for trends and patterns. What follows are descriptions of trends found in the sub-coded data with seven or more occurrences.

Getting things done - accommodating. All but one teacher displayed some evidence of getting things done. Overall, examples of this code showed teachers using skills that they learned in the ITTTE and implementing them into their own classrooms. Most notably, teachers from Guatemala implemented teaching practices that make learning more engaging and meaningful for the students.

Leading - accommodating. Three of the participants from Guatemala and one from Texas discussed leadership actions they took as a result of the exchange. In each of these cases, the participants discussed sharing what they had learned through the ITTTE with other teachers and colleagues. Most often, this act of leadership was displayed through the organization and implementation of professional development workshops. One participant from Guatemala, the director of a school, explained that she had arranged a workshop in which she would "work with [her] teachers on the strategies learned in Texas, to motivate them to use concrete materials in the teaching of mathematics."

Initiating - accommodating. All four participants from Guatemala and two from Texas showed evidence of some type of initiating. No strong trend was found within these codes. However, similar to the coding of *getting things done*, teachers from Guatemala discussed actions they took in order to initiate the implementation of various ideas from Texas classrooms into their own classrooms in Guatemala.

Understanding people - diverging. All eight participants in this study coded for *understanding people*. In each of these codes, participants expressed that, because of their experiences in this program, they have developed a better understanding of their students. Narratives highlighted teachers wanting to know more about their students' backgrounds, cultures, and interests. One teacher from the United States explained that, through the ITTTE, she understood how important it is to learn about her students. She wrote,

> I learned that it is the most important thing to *learn*. Learn about what the students like, learn about what they value, learn about where they come from - no matter if they are from the US or not, learn about their families, etc.

Participating in such a program helped the teachers better understand different cultures and children's different needs.

Recognizing problems - diverging. All four participants from the United States coded for *recognizing problems*. Within these codes, two different trends emerged. First, teachers recognized problems within themselves. The participants took time to reflect on their shortcomings as teachers in creating a culturally relevant classroom. One U.S. teacher expressed,

> I felt that prior to [the exchange] I was culturally aware and I felt like I was pretty good on the scale of being open and presenting different cultures in my class…[but] there is just a tremendous amount of things I could be doing more.

Second, teachers recognized problems that were specific to their students. They discussed problems they saw within their schools and communities that affect their students. Two of the teachers from Guatemala coded for *recognizing problems* as well; however, the trend between these codes differed from those of the teachers from Texas. Each of these codes showed the participants reflecting on problems within the Guatemalan school system, such as lack of support and resources.

Being open-minded - diverging. All participants, except for one, coded for *being open minded*. Throughout these codes, a slight trend showed teachers' willingness to learn and try out new teaching methods. A stronger trend also emerged, showing that the teachers were becoming more accepting of people from different cultures. Reflecting on being open-minded, one U.S. teacher wrote,

> This project and the multitude of experiences has made me realize that I thought I was very open-minded and that I knew about culture and teaching, but I know now I was incredibly wrong. It's not enough to say that you acknowledge culture and differences until you've been the one that's the 'outsider' or even in a place outside of your comfort zone.

Planning - assimilating. Two teachers from Texas and two from Guatemala coded for *planning*. While each code showed some different type of plan being for-

mulated, all plans related back to the teachers discussing what actions they wished to take once returning to their own schools.

Changed Teaching Practices

The emergent sub-codes for changed teaching practices were *empathy* (5 counts), *language learning strategies* (2 counts), *student-centered teaching* (6 counts), *connecting learning to real life* (13 counts), *family involvement* (1 count), *integration of diversity* (2 counts), *knowing your students and building connections* (5 counts), and *hands-on learning and manipulatives* (7 counts). Sub-codes with five or more counts were then further analyzed for trends and patterns.

Empathy. Further analysis of text coding for *empathy* revealed that teachers, as a result of participating in the ITTTE, felt more empathetic toward students who came from different language backgrounds. One participant wrote,

The ITTTE project has changed my perspective and broadened my knowledge; with respect to culture, it allowed me to understand students who come from other countries and do not know our mother tongue. This made me more in the place of him or her.

By living in a different country in which the participants did not speak the native language, the teachers experienced the same struggles and frustrations that many of their students face on a daily basis.

Student-centered teaching. While five of the eight participants incorporated more student-centered teaching practices in their classrooms, no specific trend was found among the five participants. Though each teacher accomplished this in the ways that were most fitting for them and their students, the teachers placed a greater emphasis on shifting their classroom from a teacher-centric environment to a student-centric environment.

Connecting learning to real life. Every participant exhibited teaching practices that highlighted connecting the content to students' personal lives. One of the key aspects of this teaching practice derived from the use of social action projects in which teachers developed projects that directly connected to the students' lives in the community and integrated core content area subject matter. Additionally, teachers from Guatemala explained that they began incorporating more examples in math that connected to real life situations rather than hypothetical scenarios. These teachers included photos in their narratives that showed what new materials were being used in their classes, including pretend money and recycled food containers. Another teacher described using measuring tape for the students to measure the area and perimeter of real spaces around them rather than solving these types of problems based on fictitious measurements.

Knowing your students/building connections. Half of the participants explained in their narratives connections they were able to build with their students as a result of participation in this exchange program. One U.S. teacher expressed that simply by participating in this exchange program, she learned that many of her students had family from Guatemala, information that she otherwise may not have discovered about her students. Teachers were more aware of their students' backgrounds and took the initiative to allow their students to share their cultures.

Hands-on learning/manipulatives. Three of the four teachers from Guatemala provided examples of using more hands-on materials in their classrooms. Based on the teaching practices they observed in the United States, the teachers brought in different materials that children can use to gain a more concrete understanding of otherwise abstract concepts. The teachers included pictures in their narratives of students using hands-on materials, such as foam numbers and counters for addition problems and Popsicle sticks to create roman numerals.

Discussion

The first research question in this study asked about the learning styles observed through the participants throughout the course of the exchange. All eight participants showed at least two of the four different learning styles, three participants demonstrated three learning styles, and two participants displayed all four of the learning styles over the course of the two-year program. All eight participants demonstrated_the diverging and accommodating learning styles. Seeing that all participants showed the accommodating learning styles verifies Kolb's theory that teachers often prefer this learning style. One of the key indicators of being an accommodator is a willingness to take risks. All participants in this program willingly signed up for the program, taking the initial risk of simply participating in an international teacher-to-teacher exchange.

All of the participants demonstrated more than one of the four learning styles, indicating that an experience such as the ITTTE encourages participants to learn outside of their preferred learning style. This experience of learning through the different learning styles, in theory, heightens the potential for greater learning, thus resulting in changed teaching practices. Whether or not participants actually exhibited changed teaching practices was the second research question of this study.

Through the narratives, all eight participants exhibited changed teaching practices of some type. Throughout the program, participants gained new tools and techniques to use in their classrooms and schools in order to put a greater emphasis on their students. One concrete example of this is the implementation of social action projects. During the second year of the program, participants developed projects that addressed a social issue affecting their students. These projects allowed teachers and students to work toward a common goal that benefited their community while integrating mathematics. By creating projects like these, the teachers were able to provide real-world examples of mathematics to their students in a way that was meaningful and impactful.

Conclusion

In order for a person to truly change practices, some sort of experience must occur. Without an experience, learning is less meaningful, and thus change is less likely to occur. Additionally, in a program like the ITTTE, when teachers learn through varied experiences, the experiences can lead to positive changes in how the teachers learn and, in turn, how they teach. Although changes in students' learning was not measured, changes in how students perceived teachers as allies in their learning was evident.

This study is different from other studies in that the International Teacher-to-Teacher Exchange provides a highly intentional experience for the participants. The participants live in each other's homes, spend time in their classrooms, and fully experience the culture of the country to which they travel. The program is intentionally structured to ensure that participants are working through all four stages of Kolb's Experiential Learning Cycle. With such a structure, the participants did exhibit signs of changed teaching practices as a result of participation in the program. Since there is not another teacher exchange program like the ITTTE, more programs might consider modeling exchange structures that are mutually beneficial to both sets of teachers. With more programs employing the methods described in this study, the potential for change increases.

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Appendix A

Narrative guidelines and Prompts (English Version)

Each participant will enter a narrative at the times designated below. The narratives will be delivered by the participants in an accessible, easy to use, electronic format: Google Docs. The narratives will be shared only with researchers. Other participants will not have access to other participants' entries. As the years progress, the narrative prompts may adjust to accommodate growth, development of the teachers and administrators, and events that emerge across the two years. As new prompts emerge, these will be sent to the committee if desired.

Narrative Prompts

May 2017.

Teachers. As the school year is coming to a close, consider the mathematics teaching practices you have changed since your last entry in the November Google Docs space. Write a narrative and/or include pictures that demonstrate some of the changes you have made. Think ahead to the upcoming trip to Guatemala in July and write a narrative about your expectations for learning more about culturally relevant teaching and student-centered practices. Also, if you have kept in touch with your Guatemalan partner over the school year, write what insights you have gained from this exchange that has contributed to change in your teaching practice and/or readied you for the trip in July. Enter a narrative in the Google Docs space designated for you by May 31, 2017. No specific word count is required or expected.

Administrators. As the school year is coming to a close, consider the support you have given to encourage changed mathematics teaching practices that have changed since your last entry in the November Google Docs space. Write a narrative and/or include pictures that demonstrate some of the changes you have made. Think ahead to the upcoming trip to Guatemala in July and write a narrative about your expectations for learning more about ways to administratively support culturally relevant teaching and student-centered practices. Also, if you have kept in touch with your Guatemalan partner over the school year, write what insights you have gained from this exchange that has contributed to change in your administrative practice and/or readied you for the trip in July. Enter a narrative in the Google Docs space designated for you by May 31, 2017. No specific word count is required or expected.

May 2018.

Teachers. As the school year is ending and the last trip to Guatemala is pending in July, consider what the ITTTE project has meant to you as a teacher with a multitude of experiences: in the classroom, in workshops and seminars you have presented with Guatemalan teachers, in seminars about cultural relevancy, in the home and school of your partner teacher, the partner teacher in your home and school, and countless other events that have contributed to your changed practices in culturally relevant practices and student-centered mathematics instruction. Enter a narrative in the Google Docs space designated for you by May 31, 2018. No specific word count is required or expected. Use words and/or pictures to tell the story.

Administrators. As the school year is ending and the last trip to Guatemala is pending in July, consider what the ITTTE project has meant to you as an administrator who has had a multitude of experiences: in the classroom, in workshops and seminars you have presented with Guatemalan teachers, in seminars about cultural relevance, in the home and school of your partner teacher, the partner teacher in your home and school, and countless other events that have contributed to your changed practices in culturally relevant practices and student-centered mathematics instruction. Enter a narrative in the Google Docs space designated for you by May 31, 2018. No specific word count is required or expected. Use words and/or pictures to tell the story.