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Fostering Graduate Education Majors' Dispositions toward Teaching Content Reading through a Transdisciplinary Approach

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"Few inquiries have investigated master's students in education as they learn about transdisciplinarity" (Richards, in press). Transdisciplinarity is descriptive of collaborative research and problem solving that crosses both disciplinary boundaries and sectors of society" (Repko, 2008, p. 15).

This is a true story about how I introduced the concept of transdisciplinarity to a group of graduate education majors. The graduate education majors tutored at a summer literacy camp as part of their field experience requirements for a capstone literacy course.

The term *transdisciplinary* has been used to describe a particular approach to teaching and learning (Kaufman, Moss, & Osborn, 2003; Klein, 2004; Nicolescu, 2010; Richards & Kroeger, 2012). Even though transdisciplinarity has been around for decades, interest in transdisciplinary teaching and research in education was minuscule. However, scholars have begun to realize that curriculum needs to become more integrated than it is now because that is how the world works (Prensky, 2011, n.p.). We are in the information age where we can find information to solve our problems online, quickly and efficiently. However, many of our troubles in today's society are complex and cannot be solved by relying on one discipline. Instead, it is necessary to consult a variety of disciplines in order to generate efficient resolutions to solve the problems we face today (Klein, 2004; Madni, 2010).

The notion of transdisciplinarity first emerged in the natural sciences during the Enlightenment Period (Ramadier, 2004). Since then, scientific activity and exploration have led to the overlap of many traditional sciences (Ramadier, 2004) such as Applied Physics, which bridges physics and engineering. Additionally, the term transdisciplinarity expanded into the public domain through journals and other publication outlets (Ramadier, 2004). This extension

then led to collaboration among disciplines (Madni, 2010).

As a doctoral student in a summer literacy camp, I decided, after consultation with my major professor, to adopt a transdisciplinary curriculum to enhance the content literacy of upper elementary students in her summer camp. A transdisciplinary perspective crosses disciplines; is driven by student inquiry, collaboration, and reflection; and emphasizes student choice. These conditions contribute to students' motivation to learn. Therefore, I thought a transdisciplinary approach had the potential to empower upper elementary students from minority families who attended the camp. Equally important, I wanted the graduate education majors to become aware of the power of transdisciplinarity and to become comfortable utilizing this approach in their own classrooms.

Scholars note there are six major canons associated with transdisciplinarity as it connects to teaching and learning (Kaufman, Moss, & Osborn, 2003). These principles are: a) holistic knowledge; b) authentic inquiry focused on an issue; c) collaboration among participants; d) social justice; e) constructivism; and f) reflection. Each of these principles were fulfilled during the literacy camp with the exception of authentic inquiry because of the limitation of time.

Objectives of My Inquiry

The following questions guided my inquiry, my choice of a phenomenological case study as my theoretical framework, and my data collection sources:

1. What understanding about transdisciplinarity did the graduate education majors have at the beginning of the inquiry?
2. What changes occurred over the course of the semester in the graduate education majors' dispositions toward transdisciplinary pedagogy?
3. In what ways did the graduate education majors' transdisciplinary lessons change over the course of the semester?

Conceptual Perspectives Informing the Inquiry

My inquiry was grounded in two conceptual perspectives: social constructivism and a transactional view of literacy.

Social Constructivism

The summer camp is a service-learning project connected to a capstone master's Practicum in Reading course. The focus of the camp is twofold: (1) to empower students from nonmainstream families in a literacy setting, where they experience literacy instruction in a non-testing, non-threatening environment and (2) allow graduate education majors to work with students in an out-of-school setting, where they can develop best practices in literacy instruction in a non-threatening, non-assessment driven atmosphere. The graduate education majors tutor small groups of children (grades K-6); each group works with the same group of students

throughout the duration of the camp.

The camp is grounded in the social constructivism perspective: a theory that views learning as a social process; knowledge is generated from interactions with others (Vygotsky, 1986). A constructivist teacher allows student inquiry to drive instruction by asking open-ended questions (Brooks & Brooks, 1999). Constructivism is also a tenant of transdisciplinary teaching.

A Transactional View of Literacy

Rosenblatt's theory of a transactional view of literacy guides the small group instruction at the camp. This perspective views reading as a cognitive process, which involves an interaction between the reader and text in order to make meaning (Gipe, 2006; Richards, 2006; Rosenblatt, 1994). This viewpoint also acknowledges and celebrates children's unique contributions to the learning process (Gardner, 1999; Lipson, & Wixson, 1991; Richards, 2006).

The Camp Context

The camp meets one morning a week for 6 weeks in a community center adjacent to a low-income urban housing area close to the university. After meeting on campus for four-three hour sessions, approximately 30 graduate education majors travel to the community center where, the professor of the course demonstrates lessons in best practices in reading and writing. Prior to each tutoring session, the graduate education majors meet in groups to plan instruction. Then, they serve as literacy tutors in the camp for two-hour sessions each week. In addition, the graduate education majors communicate via email, Blackboard Discussion Boards, and Google Docs throughout the week.

The graduate education majors choose the age group of the students they wish to teach. Approximately seventy-five students, aged 6-12, participate in the camp. Most have difficulties in literacy. Ninety percent receive free or subsidized breakfast and lunch in their respective elementary schools. Eighty percent of the students are African-American, 15 percent are Hispanic, and 5 percent are Caucasian. The majority score at or below the 20th percentile on annual reading and language arts standardized assessments (M. Dorvil, University Area Community Development Corporation Supervisor, personal communication, March 6, 2011).

The Graduate Education Majors

Four graduate education majors volunteered to teach using a transdisciplinary pedagogy in to grade 4-6 students. All four graduate education majors had teaching experience ranging from one to ten years and taught in low socioeconomic schools. Three taught elementary school and one graduate education major taught high school social studies.

Prior to the start of camp, these graduate education majors brainstormed what they knew about transdisciplinary teaching.¹

¹ All names are pseudonyms.

Hailey: *Transdisciplinary includes all aspects of the curriculum working together on a particular concept. This integration allows students to experience a concept providing for a more concrete understanding.*

Katie: *Transdisciplinary teaching is crucial to building students who are well rounded and able to connect information to multiple places. If students have curriculum reinforced and taught multiple ways they will be more likely to apply that information.”*

Kiesha: *Transdisciplinary teaching is making connections of a topic or theme in all academic areas including art, music, etc.;*

Lindsay: *To be honest, I didn't know much about transdisciplinarity before this class” Then, she quoted directly from one of the required readings. I learned transdisciplinary teaching always begins with an issue or problem, and uses knowledge from relevant disciplines to provide insights about the topic of interest or concern. It is similar to project-based learning.*

After talking to the graduate education majors it also became apparent that some of them had a distorted view of transdisciplinarity and equated transdisciplinary, multidisciplinary, and interdisciplinary as synonymous. Because the graduate education majors did not have a deep understanding of transdisciplinary teaching, we supplied relevant readings for the four education majors and also modeled content reading lessons prior to the beginning of the camp. Lessons included reading and writing strategies, using quality children's literature as well as journaling with the campers. Additionally, each week, the group met, brainstormed for camp, and talked about transdisciplinarity. The graduate education majors decided to use social studies content as a springboard for their transdisciplinary work. They chose to focus on the year 1776 and the American Revolution as the general topic.

Methodology

A phenomenological case study undergirded the inquiry; I wanted to understand the unique experiences of the graduate education majors (Stake, 1995). Case studies are valuable in refining theory and suggesting complexities for further investigation (Flyvbjerg, 2006). This approach allows researchers to investigate complex phenomena within study participants' contexts.

Data Sources

At the first camp session, the education majors and the grades 4-6 students brainstormed what they already knew about the topic. The four education majors e-mailed me weekly regarding their struggles, understandings, and achievements about teaching content reading through transdisciplinary methods. We also debriefed after every camp session. In addition, I mentored the four graduate education majors and co-taught lessons with them for the first two weeks of camp. From then on, I observed and documented the graduate education majors'

lessons. Data for the inquiry were the graduate education majors' e-mail messages, reflections (a tenant of transdisciplinary teaching), documentation of their planning, lesson plans, and observation field notes of their teaching.

Data Analysis

I employed global constant comparative analysis techniques to analyze and systematically characterize the e-mail correspondence and reflections over the semester. Researchers who use global constant comparative methods obtain an overview of the range of key ideas noted in text, and then code and categorize the ideas (Flick, 2002). These initiatives entail systematically comparing words, phrases, sentences, and longer discourse in an effort to develop conceptualizations about possible patterns, themes, and relationships in narrative data (Thorne, 2000).

Findings

The three emergent themes were: (a) a deeper understanding of transdisciplinary teaching, (b) the graduate education majors' receptiveness to transdisciplinary teaching and using it in their classrooms, (c) more time was needed to fully implement a true transdisciplinary model in summer camp.

A deeper understanding of transdisciplinary teaching

At the start of the camp, it appeared that the graduate education majors did not truly understand the concept of transdisciplinary teaching. Through email conversations, in class planning, and discussion prior to the start of camp, it appeared that the graduate education majors equated transdisciplinary teaching to bringing in a piece of children's literature on a topic and supplementing it with additional pieces of text (e.g. comics, poems, etc).

From My Notes:

I'm excited to be a doctoral research assistant again this summer at the camp. I love literacy camp; it by far was the best experience I had as a doctoral student in my master's program and I can't wait to get back there and work with the kids. I have to admit, I'm a bit nervous though. I've never taken on this much responsibility at the camp before. With my additional course work and teaching a class this summer, I hope I am able to still give 100% to the camp and help the graduate education majors. I don't want to let anyone down.

After working with the graduate education majors for the first few weeks at the University, I'm apprehensive of what is to come. In order to plan for camp, my group asked me to open up a discussion board thread in Blackboard so they can post resources and talk about planning for the camp. Nothing has been posted yet from my group. I guess that is okay

because I am taking the lead the first few weeks but still....it worries me. Two of the master's students do not respond to emails I send out as well. That is an additional worry. Will they respond as the semester continues or will I send emails out, asking for suggestions, advice, etc. and get no response? I feel like I'm emailing and its in vain because of the lack of response. With my personality of wanting to take charge and plan ahead, it stresses me out that I'm not getting a response from everyone. How hard is it to answer an email? Hopefully things will get better and I will be less stressed once we start camp.

Week One

From My Notes:

Whew, the first day of camp is over. What a day. Prior to the start of camp, we had a slight mishap with a camper who was the grandson of one of the master's students. He hurt his arm and had to leave the community center. What a way to start camp, eh? Luckily for us, no other mishaps happened today. Now I'm stressing over the fact that we had an injury and the possibility of legal action. Did I really just write that? I can't believe that I immediately jump to the idea of a student taking legal action against the community center, the professor of the course, and myself because her grandson got hurt because she was not watching him. Isn't it sad that this is the first thing I think about after camp is over? I don't think about how great it was to see the kids from last summer or how overall today went well, instead I dwell on the fact that we could get sued.

*Okay, Stephanie focus. Move onto another topic. The first week of camp went well considering we planned for 10 campers and had 13 show up and none of graduate education majors had experienced camp before. Today's focus was ninety-five percent classic literacy camp model and five percent transdisciplinary. The campers and graduate education majors created camp rules and modeled them after the Declaration of Independence. We listed each camper-devised rule and had everyone sign their "John Hancock" on the page once the rules were read and discussed. Hailey and Katie introduced our inquiry topic through the 'PreP strategy' (Langer, 1981), which allowed the campers to brainstorm about our inquiry topic. I read the text *John, Paul, George, and Ben* (Smith, 2006) and employed the 'What do I See? What do I Think? What do I Wonder' (Richards & Anderson, 2003) strategy as a during-reading strategy. Our after reading strategy was the Cloze passage (Taylor, 1953). Many of the campers are well-versed in the inquiry topic, since it is something they studied in social studies this year. Our only transdisciplinary component was devising new inquiry questions to use as a guide for the remaining five sessions. New inquiry questions focused on colonial life, Paul Revere and his midnight ride, and schooling during colonial times.*

They included:

1. *What games did kids play in the 1700s?*
2. *What chores did the kids do in the 1700s?*
3. *What type of clothing did the kids wear in the 1700s?*
4. *What type of food did they eat in the 1700s? What did they consider to be junk food back then?*
5. *Did the kids go to school five days a week like we do now? How many kids were in each class?*
6. *Did the kids eat in a cafeteria and eat school food like we do now?*
7. *How were they disciplined if they acted up in school?*
8. *Did they go to school all year or have a summer break?*
9. *Why did Paul Revere go on a midnight ride?*
10. *Where did Paul Revere go on his midnight ride?*
11. *How much tea was dumped into Boston Harbor?*
12. *Did George [Washington], Ben [Franklin], Paul [Revere], and John [Adams] participate in the Boston Tea Party?*

We have a few things we need to work on prior to next week—first of all allocating space to all of the groups tutoring students. Today it felt like we were on top of each other. We need more space. That is priority number one next week. Also, the graduate education majors need to jump in and contribute to the conversation more this next week. I felt like I was doing most of the talking today and I'm not taking the class!

Week Two

The following week, we addressed our inquiry question on Paul Revere using a transdisciplinary approach. We read the book *Paul Revere's Ride* by Henry Wadsworth Longfellow (1985) and used mapping skills as well as math skills to figure out his route and the distance he traveled. Using the text, we plotted his route on the map, connected the dots with rulers, and then used a ruler to measure the distance he rode to warn the colonists that the “British were coming”. Once the campers completed the mapping exercise, we examined various political slogans from the American Revolution (e.g. Don't Tread on Me; Join or Die) and talked about why the colonists would display such slogans. Using art supplies, the campers created their own updated political slogans modeled after the slogans displayed by colonists during the American Revolution. By the second week, it was apparent that the graduate education majors were starting to realize that we needed to incorporate different disciplines within each camp session each week to answer our students' inquiry questions.

From My Notes:

Ugh. Today was stressful and chaotic. I arrived at the community center

and began setting up in the snack room so my group could have more space to maneuver around since we were so crowded last week. Only one of my graduate education majors showed up. ONE. Two of the graduate education majors were at an in-service training at their school and the other was at a Job Fair. The graduate education major that showed up, bless her heart, tried but it was evident she was not pleased to be there. After we set up the room and went over the schedule for the day, we were told we were moving to a classroom for our session. Great, now we have desks and chairs to deal with. One of the best parts of camp is sitting on the floor with the kids. We are not supposed to sit in desks and chairs like school! During our session, the professor of the camp visited our room. Awkward. Camp today felt more like a school day than a summer camp experience. The graduate education major did not participate much today. I had to do most of the talking and introducing the strategies, the book, activities, etc. At the end of the day I was exhausted! If anything positive came out of today it was this: (1) I know I can teach the entire group basically on my own if needed and (2) I cannot wait for the other graduate education majors in my group to come back to camp next week. They were sorely missed!

Week Three and Four

The third and fourth week of camp focused on the Boston Tea Party. We had two goals to accomplish — answer the campers’ inquiry questions on the Boston Tea Party, and start on our camp book. We spent most of our time engaging in transformation—through a Reader’s Theater, creating our own “tea” artwork, and the camp book. After Hailey and Katie read a short story about the Boston Tea Party to the campers, we talked about postage stamp artwork and had the campers create their own artwork similar to the political slogan artwork from Week Two. After the campers created their postage stamp artwork, they used tea to create an illustration of the Boston Tea Party. The campers created their pages for our camp book; the book was modeled after *The Important Book* (Brown, 1990).

From My Notes:

The camp book is going to be great! It is obvious the campers enjoy creating their own personal page for the camp book. Many of the campers have picked one of the Founding Fathers or Revolutionary to highlight in the book. Other selected the Boston Tea Party. I am impressed with the amount of information the campers have retained since the first week of camp. They truly are excited about sharing their knowledge with others. The graduate education majors seem excited as well. Everyone is sitting on the floor and each graduate education major is working with three campers on their page.

Katie reflected, “The majority of the students were so engaged in our teachings and activities. Many of the students had background knowledge

and this seemed to help them be more engaged.”

From My Notes (Week Three—later in the day):

Katie and Hailey took over the planning duties for this week. What a relief for someone else to plan. And I was so impressed with their teaching. It is obvious they want to be here and really enjoy the kids. We actually had everyone here today which was a nice change after last week. However, I noticed while I was observing that the other two graduate education majors are not involved in the camp as much as the ones that planned are. I guess they feel like they did not plan the lesson for today so they don't have to be so involved? Lindsay was more involved than Kiesha though. She participated in the Reader's Theater and the artwork. I'm excited to continue the work we started this week next week since we ran out of time.

Katie and Hailey are planning for next week as well. They are stellar teachers who truly feel comfortable working with this age group. It's obvious. Lindsay is not currently teaching and it is obvious she has not been around many older kids before. The same thing for Kiesha—she is a high school teacher. She does not look comfortable working with younger kids; she is out of her element. That being said, I've been reflecting on my own experiences at camp as a student and how I related to the kids. I also taught high school and feel more comfortable with older kids. However, working at the camp put me out of my element—something I valued and enjoyed as a graduate student. I was forced to work with a group of students that I normally would not work with because I'm not an elementary teacher. I don't have the personality to teach elementary school. Even though we are both high school teachers, Kiesha and I are very different. Whereas I enjoyed my time here working with a different population than I am used to, it is obvious she is not getting much out of the experience.

Week Five

For week five, we invited masters' students from the Instructional Technology department at our local university to come in and test an interactive text and game. The graduate education majors wrote a story based off of Thomas Paine's *Common Sense* (Paine, 1776) pamphlet and created an inferring game to accompany the text. The graduate education majors sat with the campers at the laptop computers and assisted them with the text and game. In partners, the campers and graduate education majors created inferences from their reading.

Katie said, "I love the idea of integrating technology into the classroom. I prefer ebooks when I read, yet still prefer traditional texts for children. Yet, I believe we need to expose them to technology to survive the new generation."

From My Notes:

I am so glad the interactive book project is completed. The kids seemed to have a good time with it but it was obvious the book needed a lot of work prior to it ever being used in a large-scale study. Each graduate education major had some good suggestions, as well as the kids, and I emailed those off to Lucy today. This was a nice collaboration project with the Instructional Technology professor though. The kids also liked the idea of changing it up this week and using technology during camp. They were so excited about using the computers and headsets. It was a treat for many of them because they don't have computers at home and only use them during the school year at school or the community center.

Week Six

The last camp session focused on answering the campers' inquiry questions on colonial life and schooling in the colonies. "Kiesha" read two short stories aloud to the campers and they formulated inquiry questions from the reading. The campers answered the questions using a webquest and other sites on the Internet.

From My Notes:

Today was bittersweet. Camp is over for another year. The pizza party was fun as usual and the hugs I received from the kids made me happy. The kids were so excited about their lessons today—they got to use the computers again, which they loved. The kids do love having us here. I will miss them.

As I drove off to the university to turn in the supplies, I started to tear up a bit. Regardless of how stressful it was, I truly did have a wonderful time at the community center and can't wait for next year. I'm excited that I'm teaching one of my classes there this fall and working with some of the same elementary children in an after school program. I think each of the graduate education majors have a takeaway from this summer. This experience is something they will never repeat again. The same goes for me—each year, I have a different experience at the camp and each year it changes me for the better.

Over the six weeks, as evidenced in the graduate education majors' reflections, campers investigated answers to questions they posed ranging from historical individuals to life in colonial times. The campers made multiple text-to-self connections throughout each session, thereby fulfilling another tenant of transdisciplinary teaching—social justice. Further, the constructivism tenant was fulfilled each week.

The graduate education majors encouraged the campers to “draw their own conclusions by thinking, analyzing data-bases engaging in classroom discourse, and through their inquiry

sessions with classmates and adults inside and outside the school” (Lenin & Nevo, 2009, p. 446). They collaborated, another tenant of transdisciplinary teaching, with each other, and promoted collaboration among the campers, throughout the entire camp session. Through email correspondence, the graduate education majors planned lessons and identified resources. At camp, the graduate education majors encouraged the campers to work together to find answers to their inquiry questions.

Graduate education majors’ receptiveness to transdisciplinary teaching

As the semester progressed, the graduate education majors became more receptive to the concept of transdisciplinary teaching and began brainstorming ways to use transdisciplinary instruction in their own classrooms.

Hailey said, *“Transdisciplinary can easily be woven into language arts. I can easily envision a transdisciplinary unit on our first social studies theme USA today. This would work nicely with grappling, which is Big Idea 1 in our math curriculum.”*

Katie echoed Hailey’s thought process. *“I think transdisciplinary work can be infused to what I am required to teach by allowing students to create guiding questions to accompany the standards needed to be taught. I have a new principal and would like to talk to her on her view of transdisciplinary teaching and how I could make it work in my classroom with the state and district demands as well.”*

Additionally, Lindsay said, *“I am a first grade teacher and I am curious to see how I could use transdisciplinary teaching in my classroom. I believe students at this age could use inquiry in areas of literacy and numeracy to gain an understanding of numbers with the use of a variety of concrete materials. During investigations teachers could encourage their students to use mathematical and scientific language as they work together to discover answers to their inquiry questions.”*

At the last camp session, Katie noted that she believed students learn and retain more information when it is presented in a transdisciplinary format, especially when the students have some ownership over the topic and guiding questions.

Likewise, Kiesha commented, *“Having watched the students succeed from moving from independent writing, to group reading, to pair webquests, to group discussion made me want to incorporate more technology into my class at school. I think that spending a moderate amount of time on a variety of techniques to teach the same topic proved to be more successful at helping students retain information than having them sit and read the same style material.”*

During camp sessions, the graduate education majors utilized transmediation through

reading comprehension strategies, Readers' Theater, and book making. Reading comprehension strategies used by the graduate education majors included PreP (Langer, 1981), What do I See? What do I Think? What do I Wonder? (Richards & Anderson, 2003), It Reminds Me Of (Richards & Gipe, 1992), Facts and Feelings Foldable (Mullins, 2011), KWL Plus with "I Wonder" Sticky Notes (Bennett, 2011).

Campers, with the graduate education majors' guidance also created a camp book, modeled after *The Important Book* (Brown, 1990). The book topic was 1776 and the American Revolution. Campers wrote their own important book entry on either an event or person from the time period, essentially what they thought was the most important thing they learned during camp. The books were copied and distributed to the campers the last day of camp as a memento.

More Time was Needed to Fully Implement a True Transdisciplinary Model in Summer Camp

Six weeks into camp, everything started clicking. The graduate education majors planned lessons that required the campers to use a variety of sources of information to answer their questions and all of the questions were student-generated.

From My Notes:

Although today was hectic due to the afternoon field trip, the promise of pizza, and it was the last day of camp, today the graduate education majors took another step towards finally embracing the concept of transdisciplinary teaching in its entirety. Today, Kiesha reintroduced the strategy "I Wonder" to the campers and read the two short stories to the campers about colonial life and colonial schooling. As she read, the campers, guided by the graduate education majors, posed their "I Wonder" questions, which were recorded on chart paper by Katie.

Once the questions were recorded on chart paper with our original colonial life and school questions, the graduate education majors divided the campers up into pairs and the campers researched the questions that were of interest to them. Each pair of campers recorded down information from a webquest, videos, and articles from online sources that answered their inquiry questions on colonial life and colonial schooling. Once every pair completed their task, the campers and graduate education majors regrouped on the carpet, shared their findings, and recorded them down on chart paper. If they had another month at the community center, I believe the graduate education majors would produce wonderful transdisciplinary lessons. From my conversations with Hailey and Katie, it appears they are starting to realize that transdisciplinary teaching is not simply inquiry-based teaching but delves deeper than that; it is a mode of teaching where you cross disciplines in order to find the answers to your questions.

This observation reiterates Kaufman, Moss, and Osborn (2003) description of teaching content reading where it is not presented as “isolated discipline-specific areas in which the memorization of subjects takes precedence. Instead, the discipline is defined as a perspective—a way of looking at the world that contributes to a more complex understanding of it” (p. 7). These two graduate education majors were embracing another tenant of transdisciplinary teaching—holistic knowledge, the notion that knowledge is gleaned from several subjects and disciplines, not focusing on one sole discipline.

At the conclusion of the camp session, Hailey echoed the notes I had written down in my journal, *“I wish we had a couple more weeks to explore the clothing, home lives, and other topics covered in the webquest. The students were engaged in their research and I would have liked to have had time for groups to design a presentation to share with other campers what they discovered.”*

Limitations

As with all curricula and methods, there are limitations to transdisciplinary research. Time is a critical factor at the camp, since the graduate education majors only had one day a week, two hours a day, for six weeks to work with the campers. Six weeks was simply not adequate to thoroughly explore in depth all the questions the students had in regards to the “1776” topic. Because of the local school district calendar and the start of summer school at the local university, the length of camp cannot be extended. However, if the graduate education majors had a deeper understanding of transdisciplinary teaching before camp started, they might have been able to teach using the transdisciplinary model within the first two weeks.

Since they were unfamiliar with the method of teaching, it took time for the graduate education majors to become comfortable with inquiry-based teaching and learning as opposed to the compartmentalized approach frequently used in schools. As Hailey noted, *“If we had longer than six weeks, it would have been easier to build background knowledge and vocabulary in order to allow the students to engage in the inquiry process. Two hours [each week] was not enough time to build background, read literature, and complete an activity.”*

Another limitation dealt with the inquiry topic; in a true transdisciplinary model, the students speculate about a problem or issue and the teacher then helps devise questions students wish to investigate. In essence, the teacher and students create an authentic inquiry study, a tenant of transdisciplinary teaching. This was not the case during summer camp. For camp, the topic was pre-selected by the graduate education majors.

Conclusions and Implications for Educational Practice

Despite an apparent lack of time, as evidenced in my observations and via reflections from the graduate education majors, progress was made. Some of the graduate education majors brainstormed ways to incorporate transdisciplinary teaching into their own classrooms and others gained a deeper understanding of a positive learning environment. Regardless of how receptive all the graduate education majors were to the idea of transdisciplinary teaching, two equated it to “simply inquiry-based learning”; they struggled to grasp the concept that transdisciplinary goes

beyond disciplines. Perhaps if we (the professor of the class and I) had whole group discussions on the philosophy behind transdisciplinary teaching, all of the graduate education majors would have understood the difference between inquiry-based learning and transdisciplinary.

Kiesha reflected, “Overall the biggest lesson that I can take away from the community center is to take cues from the students. If the students are showing a disinterest in the activity, it doesn’t mean that the topic is boring, it only means that there needs to be a new way or multiple ways to present the information in a fun and exciting manner.”

Implications of the study apply to teacher educators who might wish to further pursue a transdisciplinary model in the classroom. In a true transdisciplinary model, the students would create the questions for their inquiry after identifying a problem or issue of interest. However, as we found at the UACC and in the classroom, in order to gather sufficient resources to answer questions posed by the students, resource gathering must occur before the inquiry starts. The teacher needs time to find individuals who can provide information as well as locate other resources such as books, movies, etc. to help further the inquiry. Thus, in a classroom context, the teacher must have pre-selected an issue or problem.

Additionally, as we (the graduate education majors and I) found in camp, time management is crucial in a transdisciplinary approach. For us, one day a week for six weeks was not enough time to fully implement a true transdisciplinary approach. Likewise, in a classroom setting, time is precious. Thus, a teacher needs to be creative in time management.

Hailey conceptualized transdisciplinarity in this way: “Transdisciplinarity allows for students to search for answers to real life questions by using a variety of sources and disciplines. Utilizing a variety of sources and disciplines allows students to solidify a more concrete understanding of the question at hand.”

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