



Mediated Language Immersion and Teacher Ideologies: Investigating Trauma Pedagogy within a “Physics in Spanish” Course Activity

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Introduction

Given the complex differences between preservice teachers and the children attending 21st century American classrooms, teacher educators are challenged to appropriately prepare future teachers. While we endorse calls to diversify the teaching force, the stark reality is that the preservice teacher population is persistently homogeneous and overwhelmingly White (Sleeter, 2001). Rather than wait for dramatic change in demographics, we are compelled to act within the existing realities. Toward that end, our ambitions include elevating the typically low expectations teacher candidates harbor toward culturally and linguistically diverse children. In particular, within our preservice teacher education courses we emphasize teaching English language learners (ELLs) because of their substantive

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and increasing presence in U.S. schools (Hollins & Torres-Guzman, 2005). We presume that all preservice teachers will be responsible for educating ELLs across a variety of settings and grade levels (NCELA, 2003; USDOE, 2006). In response to these conditions, as teacher educators we are investigating various interventions to prepare future teachers for the demographic inevitabilities they will face.

Central to efforts to prepare culturally and linguistically responsive teachers has been our struggle to reject deficit notions of difference. As is widely accepted within multicultural education, viewing ELLs as deficient due to ethnic heritage and native language puts them at considerable academic risk (Bennett, 2001; Gay, 2000). In contrast, an assets-based perspective about ELLs which relies upon children's funds of knowledge (Moll, 1991) is crucial for mitigating the ongoing achievement gaps (e.g., NCES, 2010). Curiously, teacher educators' views of preservice teachers are often couched in deficit-perspectives. Lowenstein (2009) documented a prevailing view by university faculty of mainstream preservice teachers as deficit-laden, an inconsistency that scholars such as Milner (2008) highlight. We contend that it is inappropriate to apply deficit thinking to those enrolled in our education courses—despite perceptions that they are privileged and, thus, indifferent. We accept the challenges of preparing teachers who lack experience with and exposure to multicultural and multilingual contexts. Rather than treat those inadequacies as deficits we endeavor to identify resources within our preservice teachers upon which more culturally and linguistically sustaining commitments can be developed.

If ELLs are to receive an education that is appropriately responsive (e.g., pedagogical accommodations, curriculum modifications), then we feel obligated to make these goals explicit to those who enroll in our teacher preparation courses. Further, we ought to approach this work by applying a non-deficit perspective toward preservice teachers. The site in which we locate our effort resides between extremes. At one end of the continuum of possible approaches are culturally neutral and colorblind orientations toward teacher preparation. In such a blissful state, professors treat differences as something to “celebrate” even as they distance themselves from discussions of race, class, and privilege as if those are distasteful topics or remote concerns. At the opposite extreme of a multicultural continuum would be an antagonistic approach wherein a professor intends to shock preservice teachers about their privilege and power. In such situations, the instructor presumably acts upon the premise that racial identity development requires inducing guilt, creating anxiety, and promoting discomfort (Helms, 1990). That the preservice teachers become agitated under such conditions validates, in the professor's mind, that progress is being made. Unfortunately, such harsh treatment is not always accompanied by efforts to assist students with sorting through their internal conflicts. As a result, guilt is provoked within preservice teachers but not subsequently reinterpreted—and this is counter-productive (Marx & Pennington, 2003). It is likely that such a misapprehension of racial identity development could further entrench preservice teachers' resistance to healthful examinations of the role of culture,

ethnicity, social class, and language within schools. We endorse the urgent need to prepare culturally and linguistically responsive teachers (de Jong & Harper, 2005; Ladson-Billings, 1995; Lucas, Villegas, & Freedson-Gonzalez, 2008) while accepting that emotional engagement is an essential feature within those efforts (Zembylas, 2007). What we have undertaken is an intermediate approach advanced by Rodriguez (1998) that is situated between the extremes. This study reports upon a mediated language immersion experience and our examination of its influence upon preservice teachers and their ideologies.

Theoretical Framework

This study is grounded in foundational work including critical race theory, culturally responsive pedagogy, and identity development (Bell, 1980; Gay, 2000; Gee, 2001; Solórzano, Ceja, & Yosso, 2000). Assisting preservice teachers to embrace the challenges of teaching ELLs has, in our experience, benefited from framing those efforts within cultural perspectives. Such efforts include supplanting beliefs about “culture” as static with an understanding that cultures are dynamic repertoires of practice (Gutierrez & Rogoff, 2003). In addition, subject matter (science in the particular case of this study) is regarded as one of many culturalized perspectives for interpreting and representing experiences (Brayboy & Maughan, 2009; Hodson, 2009). Furthermore, we relied upon self-reflexivity as a mechanism for supporting and promoting thoughtful re-examinations of the roles of culture and language within education (Asher, 2007). We draw upon a transformative learning framework in which new knowledge is gained by learners as a consequence of developing new conceptual structures through which they critically examine their core beliefs, assumptions, habits of mind, and values (Mezirow, 1991, 2000). Transformative learning begins with a disorienting dilemma brought upon by “experiences ... that fail to fit our expectations and consequently lack meaning for us, or ... an anomaly that cannot be given coherence either by learning within existing schemes or by learning new schemes” (Mezirow, 1991, p. 94). Perspective transformation takes place by first becoming aware and then critically contemplating previously unexamined views. Learning occurs as individuals take into consideration the beliefs of others through personal and direct experiences, a journey in which critical dialogue and deliberative practices are key.

Nelson Rodriguez (1998) advanced an approach to multicultural education called “trauma pedagogy” which intentionally unsettles individuals about their views and behaviors. We view trauma pedagogy as a type of transformative education that aligned with our goals of supporting general education preservice teachers as they approached the demographic realities of their future classrooms. The goals of trauma pedagogy are to:

... decenter students’ identities and ideologies so as to help them connect past injustices with how such injustices continue in the present; also to understand that

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changes in the present can be made based on knowledge of the past. In this sense, students gain a sense of hope that they can contribute to a better world by living their whiteness progressively. (Rodriguez, 1998, p. 34)

Trauma pedagogy occupies an intriguing space within the discourse about effective teaching of culturally and linguistically diverse students, particularly in relation to preservice teacher notions of power. One set of messages received by future teachers strongly advocates for asserting authority within the classroom by taking control via strict routines (e.g., Lemov, 2010). Procedures for requesting permissions, for moving within the classroom, for passing out papers and for sitting and listening are viewed as opportunities for misbehavior by children in metropolitan schools—and preservice teachers are placed on notice that their capacity to exert their power over the situation is pivotal. Lemov leaves no room for informed decision-making by teachers within the repertoire of techniques that he champions. Dilemmas others have documented among preservice teachers while in urban classrooms (e.g., Richert, 2012) are immaterial within Lemov's framework. Instead, asserting power is the necessary precursor to advancing student achievement. Lemov is not alone in the view of wielding power and controlling classrooms; he simply is among the better known and more widely publicized advocates of this stance toward teaching. Implicit in this perspective is that particular populations of hard to reach students will benefit from these tactics and that failures to exert power jeopardize teacher effectiveness.

In stark contrast, for Tan and Calabrese Barton (2012) power is not contested territory between teachers and students. Instead, the overlapping interests offer a hybrid space where power can be shared and distributed. In contrast to Lemov's characterizations, these authors proffer a philosophy of science classrooms as negotiable, empowering, and transformative spaces. A more practical complement is Larkin's (2013) description of science teachers simultaneously establishing equitable learning environments in concert with a drive to support learning for scientific understanding. Despite the logistical uncertainties inherent in these stances, there is a steadfast openness and optimism.

Within our efforts to prepare culturally and linguistically responsive teachers, we saw trauma pedagogy as a tool for disrupting preservice teachers' preconceptions about ELLs and to unsettle their perceptions about teaching in diverse settings. Given previous studies of similar populations (Settlage, 2011), we expected that preservice teachers would be unlikely to have examined their perspectives related to teaching to ELLs. What is distinctive about this effort is that we view our future teachers as capable and not deficient. While we provided experiences to disrupt their beliefs, this process moved beyond inducing guilt by providing teachers with instructional techniques as well as emotional resources to draw upon as they reconsidered their perspectives. Thus, our intent was to provide reasons for hope, endorse regard for difference, and embrace individual identity (especially ethnicity and language) as salient to the prospects of becoming a successful teacher. To this end, we investi-

gated how participation in a mediated language immersion experience influenced preservice teachers' views about culturally and linguistically diverse students.

We acknowledge potential skepticism about whether a single event is sufficient to promote a wholesale re-visioning of one's teaching self. The language immersion event took place within the context of an entire course focused upon teaching science in diverse settings; the prospects of teaching ELLs was a persistent theme throughout class discussions and course assignments. Because the language immersion activity had been used within the science methods course in previous semesters and there was anecdotal evidence that preservice teachers valued the experience in the past, this study was a deliberate effort to test whether Rodriguez's (1998) trauma pedagogy provided a reasonable explanation for the activity's apparent impact.

Method

In an effort to support perspective transformation within preservice teachers, a language immersion activity (aka *Física en español*) was implemented in a science teaching methods course. In this activity a colleague from the Physics Department comes to a class session, purportedly to model effective teaching and reinforce science content. Instead, the guest instructor, a proficient Spanish-English bilingual, conducts her lesson speaking exclusively in Spanish. The science concepts addressed were the basic laws of motion as students worked in groups of three on lab activities. The session was divided into three segments, each integrating progressively more appropriate and responsive language scaffolds. Specifically, during the first segment, no language supports were provided and students were prohibited from speaking in English. During the second segment, the instructor offered minor language supports that were deliberately insufficient. For example, a word wall displayed key vocabulary terms but only in the target language, Spanish. Also, a brief Spanish-English glossary was provided (copied from a middle school reading textbook)—but few science terms were in this resource. In more subtle ways, the instructor sheltered her instruction in ways that supported students' engagement with the content and materials during this phase: the handouts included diagrams and other textual supports and her speaking pace was much slower. The final third of the lesson modeled exemplary language scaffolds and sheltered instruction methods (Echevarria, Short, & Vogt, 2012), including a lift of the ban on speaking languages other than Spanish. In addition, the word wall was transformed to contain Spanish and English terms relevant to the science activity at hand. The handouts contained sentence starters prompting students to complete the statements without the burden of composing grammatically accurate sentences. This segment served as exemplary teaching consistent with a constructivist philosophy of science teaching and learning while also infusing appropriate language scaffolding strategies.

During interludes, between segments the regular instructor reshuffled group membership to redistribute the few Spanish-speaking participants. He also used

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these slight breaks in the science lesson to acknowledge that the participants were experiencing discomfort. This was also an occasion to encourage the participants to think deeply about their experiences and consider how it connected to what had been discussed throughout the course. Participants were prompted to record their thoughts in writing but without a whole group debriefing.

Participants

The participants were preservice teachers enrolled in a five-year teacher education program culminating with a Bachelors degree, a Masters degree, and a teaching credential. The course was an “advanced” science teaching methods offered as an elective. Students often indicate they enrolled in this course because their undergraduate science methods course was inadequate. During this particular semester, 18 students enrolled: three were practicing teachers fulfilling an additional credential and their data were not included in this study. The rest had completed a full semester of student teaching the previous spring and were in their first semester of their Masters year. Among the 10 for whom we had a full complement of data, seven were elementary education majors and three were secondary science majors. All were females and all but one self-identified as White.

Data Collection and Analysis

Data were collected at multiple points before, during, and following the language immersion activity. These data were compiled with each participant becoming a single case. One piece of data was a reflection sheet provided to all participants during a break one-third of the way through the activity. The reflection sheet included a list of twenty emotion terms and asked participants to indicate how accurately those terms described their state of mind. Participants were also asked two open-ended questions: “What strategies did you attempt in an effort to be successful during this activity?” and “In what ways have others, including the physics instructor, been helpful (or not) to you?” We also had non-participant observers on hand who sat near the groups as they worked through the physics activity. These observers were directed to note how participants attempted to communicate with each other, how they interacted with the physics instructor, and their level of engagement with the science equipment and activity in general. The inclusion of the observers was to capture the moment-to-moment tensions that arose as participants took part in the language immersion activity. Third, as was the routine for the course, each participant wrote a reflective essay as a homework assignment about the most recent class meeting. The 3R format provided a structure to guide their writing. The 3Rs consist of a *Review* section in which students summarized a reading or recounted an experience, a *Reflect* section in which they compared the artifact or event with prior experiences, and a *Response* section in which they described implications for their future teaching selves. Fourth, during the final class meeting (two weeks later), we returned the emotion checklists to the participants and asked for a retrospective

account of the language immersion activity. Another key piece of data was an audio recording of the post-immersion debriefing session. This was a discussion led by the course instructor and included interjections by the guest physics instructor. The researchers independently listened to this recording and key portions specifically related to the research question were extracted and transcribed verbatim.

Evidence was sought regarding shifts in participant ideologies, evidence that “trauma pedagogy” prompted these changes, comparisons by participants of this experience to other events (personal and historical), and the sense of hope, competence, persistence, and commitments associated with teaching diverse students. Using constant-comparison (Merriam, 1998), we independently analyzed the data sources with particular attention to participants’ verbal and written discourse and a focus on references to their frustrations and realizations. Other discourse data, including non-participant observation notes and transcription of the post-immersion debriefing session, supplemented participant reflections and narratives. Case data from individual participants (especially their writings along with observations) were read and reviewed, allowing us to support, extend, and refute emerging analyses. While we sought commonalities, we also examined data for outlier perspectives that could disconfirm patterns. In the presentation of findings that follows, we offer illustrative examples of the phenomena. In reporting, we juxtaposed quotations and summaries to capture patterns we detected as well as to illustrate revealing contrasts. Throughout, we attended to potential influences of the mediated language immersion activity on participants’ teaching ideologies.

Findings

In what follow are the cases of four individuals representing a range of responses to the language immersion activity and a cross-section of the entire group in that their reactions and responses were highly varied. Three were on track to graduate with an elementary school teaching credential whereas the fourth was a future high school biology teacher. Their field experiences varied with some having interned in more culturally- and linguistically-diverse school settings than others. Also, there was considerable variability in their exposure to languages other than English, ranging from study abroad experiences to never having been in a situation where another language dominated the conversation.

Eliza: “I Haven’t Experienced This and Don’t Know How to Deal”

Eliza was almost a stereotype of the preservice elementary teacher with field experiences predominantly in suburban settings and student teaching with exclusively English-speaking populations. She could not recall being in a social situation where English was not the dominant language of conversation and revealed that she had no fluency writing or speaking another language. Her work during this elective science teaching methods course was done with great conscientiousness and she

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appeared receptive to the value of learning how to teach science so children of all backgrounds could succeed.

Eliza's disposition during the *Física en español* activity was plainly negative and this was displayed in many ways. She told the others in her group that even though she had four years of Spanish in high school, she remembered none of it—and confessed to hating her Spanish classes. Her peers described more positive connections to Spanish: Jessica had studied Spanish in high school and Italian in college, and had aspired to become a Spanish teacher before refocusing on elementary education. Her teammate Angela had studied in Spain for a semester. Within this group, Eliza struggled the most with the activity. On the emotion checklist, those terms she marked as “very much so” included: uncomfortable, frustrated, embarrassed, bothered, confused and impatient. Strategies she implemented during the lesson were: “My partners attempted to speak Spanish to the teacher and we tried to figure things out ourselves.” Even though the lab was designed for students to evaluate the speed with which a cart sped down an incline, Eliza was observed sitting most of the time—disengaged from the activity. She was overheard saying about the physics instructor: “She’s trying to get the point across that physics is like a foreign language to some of us—like me!” Throughout the entire two-hour event, during which time Eliza was moved to two other groups, she never spoke to the instructor and was observed avoiding eye contact whenever the instructor stopped by. Even when the instructor lifted the “*¡No inglés!*” prohibition (and removed the poster that stated the same) Eliza never became engaged with the task.

Given her response to this activity, which was markedly different from her typical level of enthusiasm during previous class sessions, Eliza dissociated herself from the lesson—and might have been on her way to developing negative dispositions toward teaching culturally and linguistically diverse children. This would have been tragic given her propensity to engage with the challenges of teaching in diverse settings. Over the semester, Eliza had shown a willingness to explore her preconceived notions about diverse populations in her 3R essays. During the language immersion activity Eliza told her peers: “I could get a five-page 3R paper out of this” and she said this multiple times. Since most of her reflective essays were slightly over a page in length, this comment indicated that she was contemplative even though from the outside she was almost sullen. Asked to recollect her emotions about the activity during the next class meeting, Eliza wrote:

I hated being in a position where I had no idea what was going on. I have never been put in a situation like that before. I was almost getting mad at the teacher for being so nasty and not understanding that I was uncomfortable. ... It wasn't important to me to get the work done correctly, which is weird for me because I have always been the type of person who needed to get great grades. I had stopped trying to decode what the teacher was saying, and I didn't care about figuring out what I was supposed to do.

In a subsequent reflective essay, Eliza more expansively described the influence

of the language immersion. To her credit, Eliza reveals that the trauma pedagogy prompted her to reconsider what she had been previously told and what she had come to believe:

I really have never experienced anything like this before. I grew up in schools where I always spoke the dominant language, which was English. I never, ever had an ESL [English as a second language] student in one of my classes growing up, so my teacher was not in the position where she needed to adapt and change her lessons. Also, as a student teacher, I never worried about this because my classroom was a hundred percent English speaking. Although I was able to breathe a sigh of relief at the time, [looking back] I almost feel like that hurt me. I didn't have the opportunity to learn about English language learners and what types of adaptations need to be made for them. I was finally put in the experience of ESL students during this experiment, and I was scared, frustrated, and wanted to shut down completely.

After being put in this situation for the first time, I really got a sense of what these children are going through. In the School of Education, we have always talked about ESL students and some ways in which you can reach them, but that was just talk. Now that I have experienced trying to decode the language while at the same time learning the content, I have a whole new appreciation for these children. First and foremost, I will never tell my students not to speak their own language (as long as this isn't a rule like in some schools). If a student finds it easy to talk something out in their own language, then they should have that opportunity. Also, I feel that giving students a worksheet in their own language would be helpful for them, as it makes it easier to read. If something is required to be written in English, I think it is important to give them a packet of words and phrases that may be relevant to the topic at hand, to make things a little easier. Also, no matter how difficult I find it, and how hard it is to reach an ESL student, I am going to try my best to not show my frustration to the student, as that is being disrespectful, and will most likely cause them to shut down even more. Although it is going to be extremely difficult to teach my first ESL student, I feel this project was a good stepping stone.

It would be premature to claim that this single language immersion activity transformed Eliza's teaching practices. Nevertheless, Eliza identified a growing discontent with her preparation. She went so far as to complain that her university courses mentioned ELLs "but that was just talk." Whereas we might be tempted to view Eliza's upbringing and training as inadequate, we must be cautious about considering this to be an example of her inadequacies. Rather than regarding Eliza as operating at a deficit by virtue of her lack of exposure to diverse settings and the fact of her monolingualism, we could instead look for potential assets. She expressed empathy for those struggling to master content in a language in which they are not yet fluent. She also revealed a willingness to allow students to draw upon their own linguistic resources if that advances their learning. We are also encouraged by her willingness to make accommodations to increase children's access to academic content while their English fluency is still developing.

Chandra: “Having a Language Barrier Discouraged Me from Trying”

The guest instructor knew little about the students in this class and may have presumed that most of the White females were elementary education majors. Chandra was one of three course participants preparing to teach high school and she visibly had the greatest difficulties with this exercise. The observers noted from the outset that Chandra and another secondary science major spent a lot of time laughing. When the instructor stopped by, Chandra avoided eye contact and did not respond to the questions posed to the group. She increasingly disengaged from the activity and was heard saying: “I’m not doing this”—she even slipped out to use the restroom at one point (this has been an escape strategy students have used in previous iterations of this activity). As with Eliza, Chandra’s ratings of her emotions were highest for uncomfortable, frustrated, bothered, and impatient. She also reported feeling annoyed. Compared to Eliza, Chandra’s exposure to multicultural and multilingual settings would have presumably made her more comfortable during the session. Her field placements had been in relatively diverse schools, she reported that she could still draw upon the Spanish she learned in high school, and she had traveled to Spain, Mexico, and Morocco.

Considerable tension developed for Chandra and by the end of class she was tearful. In her midpoint report she wrote: “[The instructor] told us to leave the classroom if we talked in English any more.” In her written recollections the following week, she explained the reasons for her agitation:

We filled out [the rating sheets] right after my group got in trouble and almost got sent into the hallway. . . . The teacher really impacted my feeling of the overall lesson, and even though I like science I was not enthusiastic about this physics lesson because the Spanish immersion idea was frustrating with the inability to get help from peers or the teacher.

Given her comparatively rich experiential resources, we were initially puzzled about why the language immersion activity created such difficulties for Chandra. As a science major the content of the lesson was not a problem. Notwithstanding the challenges due to the language differences, we expected less frustration from the science majors whereas we predicted the elementary majors would struggle to navigate physics concepts along with language differences. We uncovered parallels between Eliza and Chandra, most notably the frustration of having their “good student” identities disrupted. What follows comes from Chandra’s reflective essay:

For myself, I believe the most frustrating part was that I knew the scientific information because I taught acceleration in my student teaching last semester. But I was unable to read the questions on the sheet or ask a peer or the teacher for help with any success. Also when we did have items correct on our work sheet in my first rotation group, we got no reassurance that we were doing it correctly as other groups said [the instructor] had encouraged them. Overall, I know I am a good student, so not being able to give the teacher my best, and also understanding the science content, but just having a language barrier in the middle of everything

discouraged me from trying at the end—which must be a fraction of what those students feel because they deal with that aggravation every day.

In retrospect, the guest instructor may have misread Chandra and was imposing a deficit perspective upon this determined future teacher. Perhaps the guest instructor perceived Chandra as among the more privileged and levied especially harsh treatment upon her (Galman, 2006). To her credit, Chandra was able to recover and demonstrated thoughtfulness following the activity. She recalled a previous language immersion situation and translated this more intensive experience into a deepened resolve as a teacher:

This activity is similar to one that I experienced at an ELL conference that I attended this fall. However, for that activity the instructor, who also only spoke Spanish at that time, only did so for a few minutes. This accomplished the same point and realization without making me completely frustrated when I left the session. I do now have a better understanding as to why the students that are under this sort of pressure to learn a new language may eventually create problems in the classroom, come across as disrespecting the teacher, and also withdraw from classroom activities. That was one of the most eye-opening experiences that I have had in a classroom and I do not think I will ever forget the feelings that I had for those two hours.

As with Eliza, Chandra disclosed empathy for ELLs as a consequence of the trauma experienced within this immersion activity. She was evidently moved by the experience. Furthermore, Chandra reported deepened commitments to provide access to students still developing English fluency. In addition, working within a safe learning environment, clearly not something she had during the language immersion activity, will be a central to her future classroom:

From this activity I hope to continually expand my knowledge of working with ELL students in my classroom in the future and differentiating for all the different abilities in my classroom to make all my students comfortable learning with me. I also learned a few strategies from this activity that were mostly successful for me when trying to communicate with others.

Finally, Chandra identified a host of strategies she will use in her classroom – several of which she extracted from the language immersion activity but others that had been presented within course readings. She expressed a desire to reduce sources of frustration for her ELL students but also to help them become stronger in their language abilities and content mastery:

All of these are ideas that I would use with future ELL students, in addition to [my] continuous education on teaching strategies for these students, hopefully they will not have as much frustration in my classroom, and will be able to expand on the knowledge they come into the classroom with and grow in their abilities with the language and the content.

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Betsy: “I Felt Very Angry and Frustrated”

At the first class meeting Betsy indicated that she had completed four classes of American sign language (ASL) and had been on “field trips” where she spent time with people who are deaf and communicated with them using ASL. Betsy also indicated that she had taken seven years of Spanish beginning in fifth grade; however, her language background was not a resource for her during the language immersion experience because those skills had faded from disuse. An elementary education major, Betsy had been a successful physics student in high school. Her aggravations grew from an inability to demonstrate her content knowledge:

I took physics before so I knew what to do but was very frustrated and annoyed that it was in Spanish. I was confused at what [the instructor] said to me since I do not remember any Spanish. I was very surprised that she did not allow us to speak our native language. At my internship teachers allow the students to speak their native language to other classmates for understanding. She wouldn't allow us to do that and that surprised me. I was not fascinated, excited, amused, or invigorated because I was too angry and closed off to it.

Betsy reiterated her irritability in her 3R essay since her expertise could not be demonstrated due to communication difficulties. Otherwise an enthused and gregarious participant in science activities, Betsy became withdrawn:

During the lesson I felt very angry and frustrated. I only knew what to do in the lesson because I took AP Physics in High School and I took a semester of Physics my sophomore year in college. If I did not take Physics for those two years I would not have known what was going on in the lesson. ... I used Marissa as a translator during the first grouping but at the other two groupings I just kept quiet when the teacher was around. I just wrote to my group members what I remembered from my Physics classes for the lesson.

Betsy capitalized on the resources available to her. For the content, she dipped into her background in Advanced Placement Physics; for language, she depended upon a classmate who was an adept Spanish speaker. Although confident with her science knowledge, Betsy revealed great consternation with the language immersion activity. Presumably, her science successful self was threatened. Betsy acknowledged the value in showing tolerance toward students who are uncomfortable speaking in English during science activities. She reported recognizing the benefits of such accommodations during clinical experiences and intends to be more accepting than the guest physics instructor had been toward her:

If I am teaching English language learners I will allow them to speak in their native language to the group members to make sure they understand what they are learning. In my internship there are a couple of English language learners in each class. The teachers will try to speak Spanish to their students after they explain the directions in English. Sometimes there is a bilingual student in the class that will explain the directions in Spanish after the instructions and directions were

told to the class. I will try to learn Spanish to help my English language learner students in order to help them understand it. If I do not know the language and there is another student that does I will ask them to translate so the student can understand it better.

Betsy was typically expressive in her writing and outspoken in class sessions. In contrast, her reflective essay about the *Física en español* activity was clipped and reserved. Unlike her classmates who identified multiple techniques for accommodating ELLs (e.g., word walls, sentence starters, formal presentation of cognates), Betsy did not offer strategies she would use. The departure from her typical enthusiasm toward class activities and assignments and her constrained reflective essay suggest that she underwent trauma pedagogy (Rodriguez, 1998). However, it is not entirely clear whether the experience benefited her development as a culturally and linguistically responsive teacher.

Cathy: “Students Did Not Know How to Communicate Why They Were Struggling”

When prompted on the first day of the semester Cathy listed several settings she had been where English was not the dominant language. Foremost were multiple Lithuanian cultural events attended with her boyfriend as well as a six-week study abroad experience in Florence and vacations in Mexico. She was also able to speak and read basic Spanish. Despite the richness of her multicultural and multilingual experiences, Cathy’s impressions during the language immersion activity were similar to those of her peers: frustrated, tired, confused, humbled, and impatient. Our observers noted that Cathy was exceptionally involved in the activities. When left to their own devices, Cathy did most of the writing and interpreting within her group; when the group was visited by the physics instructor, Cathy was attentive, posed brief clarifying questions, and acknowledged what the instructor said to her group with “*si*” and “*gracias*.” What was puzzling was the mismatch between her apparent engagement with the task and the instructor and her expressed impatience and frustration. Her written recollection submitted during the following class sheds some light on her circumstances:

We tried playing with the supplies and the measuring tool ... didn’t work. [The instructor’s] diagrams were helpful. She tried using gestures. However, the measuring instrument wouldn’t work and confused us more. I think as a group we would have been able to figure it out if everything worked properly.

The negative emotions expressed by Cathy grew from the difficulties she experienced with balky equipment. Unlike others who struggled with the prohibition on speaking in English, Cathy became exasperated because the electronic motion sensors were not accurately collecting and displaying data. Her capacity to decode the written lab sheets and to interact with the Spanish-speaking instructor made for a comfortable situation. Her determination to meet the expectations of the in-

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struction was not jeopardized by communication difficulties. She acknowledged the value of the language immersion activity for advancing her appreciation for teaching science to ELLs:

The experience was a really good example of how ELL students may feel in our future classrooms. The uncomfortable and frustrated feelings we experienced demonstrated exactly how ELL students would feel in an English classroom without any native language instruction or support. Experiencing a physics lesson in Spanish really helped me to understand how science in Spanish is ultimately two different languages, Spanish and physics. I believe experiencing learning in the exact scenario that our students may experience truly shows the importance of supporting ELL students using various strategies and techniques, the last intention of a teacher should be to turn students off from learning completely.

In this excerpt from her 3R essay, Cathy uniquely situated the challenges as an experience by the entire group rather than solely focus on personal impacts. While Cathy struggled with the activity, this struggle had little to do with language. She did, however, internalize the difficulties expressed by her classmates, presumably as a consequence of the post-activity whole group debriefing. Cathy saw the larger context and noted how communication difficulties impinged upon learning. In addition, she nominated several instructional strategies to support the science learning of ELLs, even offering rather straightforward modifications for a teacher:

Not only was the lesson given in Spanish a frustrating experience, but it also modeled good and bad techniques of teaching ELL students. ... One of the main problems was that students did not know how to ask the teacher questions or communicate why they were struggling. ... Along with scaffolding and modeling instruction, I believe the graphic organizer given with many visuals and various options for different types of responses allows students of varying ability to all participate in the written aspect of the lesson. Finally, I think it is very important to allow students to speak in their native language when assisting each other. I believe that all of these examples are simple enough that it would not take the teacher a long time to differentiate lessons and incorporate the various strategies in order to support learning for every student.

We have little evidence that Cathy struggled during the language immersion activity. For example, an observer noted that during the closing phase of the *Física en español* lesson Cathy was “working quickly and finishe[d] contentedly.” While the exercise was troubling because of the uncooperative equipment, Cathy recognized the importance of providing instructional adaptations to ELLs during science lessons. Unlike most of her peers, Cathy seemed to exert the least effort to persist because the barriers she faced were relatively minor. This was not because she was oblivious but instead suggests that she previously experienced the dilemmas of navigating a second language and undergoing the experiences of an outsider. Thus, Cathy might be the beneficiary of a non-school version of trauma pedagogy equivalent to informal or free-choice education (Falk & Dierking, 2010) wherein

key understandings about working with culturally and linguistically diverse students does not necessarily have to occur within a college course or on a university campus. If trauma pedagogy explains Cathy's teaching ideology then perhaps she passed through this in a non-academic setting.

Discussion and Conclusion

For the preservice teachers involved in the language immersion experience, the disorienting dilemma that challenged their teaching and learning paradigms was that they were prohibited from drawing on their linguistic (and in many cases, cognitive) resources while participating in a hands-on physics activity. Multiple pieces of evidence indicate that the future teachers underwent the trauma pedagogy promoted by Rodriguez (1998). The trauma often took the form of threats to their teacher-selves because the language immersion activity undermined their sense of being capable in school. The disequilibrium prompted reflection upon their knowledge, preconceptions, experiences, biases, and practices regarding ELLs. Having to manage the cognitive challenge of doing physics at the same time as negotiating the linguistic demands of communicating in Spanish induced a variety of frustrations among the participants. Not being able to communicate effectively their understandings and needs increased the complexity of an already complicated endeavor. This required expertise with engaging in the activity extending beyond the peculiarities of the subject matter.

In the past, we have been unable to predict how individual students will react to the language immersion activity. Sometimes, individuals become belligerent while others feign illness to escape the room. Specific to this iteration, the unexpected equipment malfunctions introduced new difficulties. This added challenge induced another source of trauma for many students. Our suspicion is that the unreliable technology at one station might have been what pushed some individuals beyond their breaking point. The fact that the instructor appeared disinterested about the equipment malfunctions elevated tensions among the students. Enduring two hours of language immersion contributed to participants' widespread disquietude. Chandra reported that she experienced a similar but much briefer language immersion experience at a conference; the increased duration of the event reported here produced demands prompting a deeper consideration of her ideologies. This suggests that living the language immersion rather than simply witnessing it (i.e., two hours versus a few minutes) prompted deeper reflection.

The language immersion activity was heavily mediated by the provision of opportunities for the participants to process the experience. Scaffolding the language immersion activity, and not simply the process of putting students ill at ease for a long period of time, helped make this a powerful learning event. Our interpretation of Rodriguez's (1998) trauma pedagogy was to push students to reconsider assumptions about the Other while trying to not alienate them along the way. Interrogating

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previously unrecognized privileges is widely known to cause emotional upheaval (Marx & Pennington, 2003); providing timely supports so that self-critique becomes transformative is not an easy feat.

We offer a few speculations about why the language immersion experience has been so powerful with our students. First, although these were preservice teachers, they enrolled in this course after completing their student teaching. We suspect that those direct experiences in the field supplied opportunities through which the preservice teachers could interpret the language immersion activity. Second, this event was scheduled late in the semester so participants would be capable of recognizing appropriate teaching techniques including experiential activities and scaffolding for language learners. An attendant benefit of the timing was the trust created among the students and with their course instructor and which may have contributed to the participants' persistence in this exercise (Coleman, 1988; Dika & Singh, 2002). Third, the guest instructor was an unknown outsider and that may produce a classroom dynamic that might not otherwise be productive. Rather than disturb the relationship between students and their regular professor, the students wrestled with their responses to someone in ways that induced them to reconsider how their students, past and future, might react should language differences complicate the challenges of learning science. While we cannot claim that the language immersion activity produces new approaches to teaching that will persist beyond this course, we are comfortable saying that we captured participants' ideologies as evidence of transformative learning.

The significance of the study extends beyond the influence upon this group of participants. Each semester for multiple years, students in this course consistently report how profoundly they were influenced by this experience. Students' responses to the language immersion activity was reminiscent of the newfound awareness many people display when they obtain conceptual tools to describe racism with terms such as White privilege or colorblindness (Goldenberg, in press; Laughter, 2011). We were profoundly influenced by Rodriguez (1998) for enriching our conceptualization of whiteness:

At the level of everyday discourse and thought, it is possible to support the notion of whiteness as norm, and it is also possible to (un)wittingly maintain the invisibility and naturalness of whiteness. But it is also possible to challenge the spaces and authority of whiteness. (p. 48)

Specifically, more than a race/ethnic/cultural designation, we find ourselves contemplating whether English monolingualism is another component of Whiteness. The unexamined invisibility of being monolingual in English is yet another presumption of our preservice teachers. We recognize this is an additional factor to be attended to within teacher education. Rodriguez advocates for a more progressive outlook toward the enactment of Whiteness by future teachers. Included within this transformation would be an increased hopefulness about contributing

to a more inclusive world. And yet Whiteness was not an explicit component of the preservice teachers' writings or comments. We contend that "Whiteness" is more nuanced than a racial designation. Frye (2001) depicts Whiteness as a club into which many of us have compulsory yet accidental membership—and yet few opt out of that club for fear of reprisals and exclusion. With others, we view Whiteness as an invisible suite of privileges and beliefs for those who carry them. We suggest that the natural, privileged, invisibility feature of Whiteness should expand to include language.

We would argue that the participants operated under an ideology of normalcy wherein they unknowingly judged the Other based upon their personal experiences. Beyond their middle class identities, these preservice teachers tend to operate under the presumption that English speaker status is a standard against which other languages are compared. By extension, individuals not fluent in English fall below the standard. When those assumptions of normalcy are applied in schools it is to the detriment of students (Nieto, 2005). We contend that unexamined English monolingualism is ensnared within the larger atrocity of unacknowledged privilege. Furthermore, we see a link to Frye (2001) who coined the term "Whiteliness" to capture one deeply engrained way of being in the world. Frye equated Whiteliness as akin to masculinity in that both are conditional features of an individual identity. To be Whately or to be masculine are characteristics that can be taken up by individuals who are not of light complexion or male. Likewise these characteristics can also be absent in those who are genetically White or biologically male. Frye describes how Whiteliness manifests itself in the myriad ways an individual thinks about and operates within his or her world:

Whately people generally consider themselves to be benevolent and good-willed, fair, honest and ethical. . . . S/he believes with perfect confidence that s/he is not prejudiced, not a bigot, not spiteful, jealous or rude, does not engage in favoritism or discrimination. . . . Whately people have a staggering faith in their own rightness and goodness, and that of other Whately people. (pp. 89–90)

The favoritism and discrimination mentioned by Frye referred, in that context, to race and gender. We are respectfully borrowing from her thesis within our investigations of attitudes toward ELLs. The "rightness and goodness" appellation fits neatly onto Whately educators regarding attitudes toward culturally and linguistically diverse children who are developing proficiency in English. In a similar fashion, we would append our advocacy for language to Applebaum's (2006) critiques of Whiteness and racism:

These sincere fictions are not individual constructions but rather culturally sanctioned myths that support a social system that reproduces inequality and white dominance while concurrently professing moral commitments to equality. Moreover, such myths are particularly dangerous because they prevent white people from interrogating their own assumptions about race and, thus, leave the

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normative assumptions about Whiteness unspoken and unaddressed. Ignoring race, especially when understood as a virtue, can lead people to presume that if overt manifestations of racism are absent, if everyone just seems “to get along,” then racism has been eliminated. (p. 347)

The data support our view that the *Física en español* activity disrupted the teacher candidates and their views about teaching ELLs. While the teaching techniques of the guest physics instructor were reform-based (i.e., hands-on, problem-solving, collaborative) and gradually more responsive to students’ needs (i.e., a number of supportive scaffolds to maximize student participation and learning were introduced in increments during the activity), the privileged instructional language continued to be prohibitive for most participants. The teacher candidates at our institution resemble the national teaching force at large—Euro-American, middle class, monolingual English-speaking, and female. We would suggest that in combination, these characteristics manifest as Whiteness. The language immersion activity, mediated by reflective discussion and writings, assisted the participants in shifting their ideologies about culturally and linguistically diverse students—not a small accomplishment for young adults. We remain hopeful that as a consequence of this experience that the preservice teachers will rely on asset-based views of culturally and linguistically diverse students (Goldenberg, in press) and find ways to view the students’ backgrounds as resources rather than impositions to effective science instruction.

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