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# **Becoming Socially Just Disciplinary Teachers through a Community Service Learning Project**

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This case study explores community service learning, disciplinary literacy, and social justice. Participants were seven Mexican American preservice secondary teachers in science, math, and language arts who tutored and gardened with children in a South Texas after-school tutorial agency as part of an ESL literacy methods course. Data gathering tools consisted of participant observations, written reflections, learning logs, visual metaphors, and a focus group discussion. Social justice themes were: respondents' realizations of structural inequalities and their actions to counteract hegemonic inequalities. Disciplinary literacy themes were: participants' learning more about their disciplines and disciplinary literacy, increased motivation and efficacy to teach their subjects, and the importance of the colonia, or unincorporated neighborhood, as an intersection between social justice and disciplinary literacy.

Keywords: community service learning, disciplinary literacy, social justice

Many have written about preservice teachers' social justice standpoints (Baldwin, Buchanan, & Rudisill, 2007; Boyle-Baise, 2002a), as well as viewing subject-matter teaching from disciplinary literacy lenses (Draper, Smith, Hall, & Siebert, 2005; Shanahan & Shanahan, 2008). Educators can fuse social justice and disciplinary literacy to help youths "access, interpret, critique, and produce" texts from school and their everyday lives (Moje, 2007, p.33). Youth literacies in diverse disciplines are important to access codes of power (Delpit, 2006), but unfortunately, students receive less instructor support to comprehend complex print as they progress in school (Guthrie & Davis, 2003; Shanahan & Shanahan, n.d.). Also, in terms of U.S. adolescent literacy "inoculating early in reading has not be so successful" (McConachie & Petrosky, 2010, p. 2). U.S. high school students performed lower in reading on the 2009 National Assessment of Educational Progress (NAEP) than in 1992 (National Center for Educational Statistics, 2010). In the Programme for International Student Assessment (PISA), 15-year-olds from 21 countries scored above U.S. peers in the interpreting and integrating reading subscale and those from 14 countries scored above U.S. teens in overall reading (OECD, 2010).

However, many educators have not made a connection between disciplinary literacy and social justice. Even fewer have examined preservice teachers' perceptions of this relationship. Also, several view literacy teaching as apolitical strategies from which to choose (Cadeiro-Kaplan & Smith, 2002). Others believe social justice is not an important teacher education outcome. However, Enterline, Cochran-Smith, Ludlow, and Mitescu (2008) compared an educator's responsibility to teach for justice to a doctor's Hippocratic Oath because some groups face structural inequalities, which hinder opportunities to receive a high-quality education.

Yet in their social studies textbook for future educators, Boyle-Baise and Zevin (2009) dared students to combine disciplinary literacy practices in social studies with civic engagement. Also, Alger (2007) invited future educators to explore connections between disciplinary literacy and social justice by choosing books about illiterate people. I take exception to the word, *illiterate*, because I perceive literacy to be on a continuum (Leu & Kinzer, 2000) and as socially situated practices (Gee, 2000). Nonetheless, Alger found that through discussing the books they read, preservice teachers expressed commitment to integrate content, literacy instruction, and social justice. This does not imply print literacy in English is a precursor to social justice because other ways of language learning and literacy events are valid and important (White-Kaulaity, 2007). Instead, the connection between disciplinary literacy and social justice is in social consciousness (White-Kaulaity) and access and production of texts (Moje, 2007); a text is anything made by humans (Fernandez, 2001).

Although Alger's research connected social justice and disciplinary literacy, teacher candidates' fieldwork was not her focus. Indeed, most disciplinary literacy research has been conducted solely in universities (Draper, 2008; Shanahan & Shanahan, 2008), or in K-12 schools (Damico, Baildon, Exter, & Guo, 2009/2010; Franco, 2010; McConachie & Petrosky, 2010). However, Moje (2000, 2007, 2008) has written about the everyday practices of Latino/a youth vis-à-vis disciplinary literacy and social justice and Lee (2007) has melded African American youths' vernacular English, hip-hop, and English literature. Also, community service learning (CSL) projects can help teacher candidates to better understand community strengths (Cooper, 2007), diversity (Cone, 2009), and civic commitment (Mitchell, 2007). When preservice teachers work

with children in community centers, as they did in the present study, they experience a full range of teaching, from helping with homework, to developing and implementing lessons and creating caring, productive relationships (Clark, 2002; Richards, 2006).

CSL involves productive student service in non-school sites (Ryan & Healy, 2009) and students' explicit connections to course content (Swick, 2000). Instead of cleaning a tutorial center classroom, for instance, preservice teachers might find ways to interact with attendees. Besides interactions with those being served, benefits are also more likely to happen with guided written reflections and class discussions (Kelley, Hart, & King, 2007). In a study by Bell, Horn, and Roxas (2007), future educators who worked with children and families outside of school learned far more about diversity than did those who tutored in schools.

This article includes theoretical perspectives, a description of the university, project, and research site, as well as explanations of methods, findings, and limitations. Data gathering tools were participant observations, written reflections, learning logs, visual metaphors, and a focus group discussion. Emerging social justice themes were: participants' realizations of, and actions to counter, structural inequalities. Disciplinary literacy themes related to: greater understandings of their disciplines, increased motivation and efficacy to teach their subjects, and the importance of the colonia as an intersection between social justice and disciplinary literacy.

# **Perspectives**

## Reconstructionism

Reconstructionism and disciplinary literacy were research lenses. During the Cold War, Brameld (2000/1965) wrote much about reconstructionism, which he perceived as a crisis philosophy: "Education has two major roles: to transmit culture and to modify culture. When American culture is in a state of crisis, the second of these roles—that of modifying and innovating—becomes more important" (p. 75). Brameld wanted education to be a force for cultural and social change and believed critical inquiry, action, and commitment to human dignity could help a democratic society (University of Vermont, 2005).

Although Freire did not appear to use the words *reconstructionism* or *reconstructivism* in his writing, he developed the theory of critical pedagogy. Freire is considered a reconstructionist or reconstructivist because he believed in consciousness-raising of structural resources available for culturally diverse people of poverty (Freire, 1970, 1998). Using a reconstructionist lens, I wanted to determine whether participants' constructions of poverty transcended from individual issues (e.g., bootstrap or deficit views), to broader systemic inequalities. Another objective was to determine whether participants could identify the broader causes resulting in the tutorial children's need for service (Hart, 2006). Furthermore, because this study took place in an unincorporated colonia, participants' connections between social justice and geographic space were important (Harvey, 2009). Social justice involves people's resistance to oppression, a yearning to make societal structures more equitable, and critical orientations to racial, ethnic, and economic inequalities (Boyle-Baise, 1998; Giroux, 1985).

Despite an interest in reconstructionism, I wanted respondents to feel comfortable in expressing disagreements so they could come to their own understandings (Butin, 2010). Freire (1998) also

believed in debate and disagreements, or dialectics, for education in a democratic society. Thus, on the first class day, we discussed the work of Bakhtin (1996), who believed Discourse "is entangled, shot through with shared thoughts, points of view, alien judgments and accents" (p. 276). Discourse, with a capital D, is socially-situated identities (Gee, 2008). Furthermore, my pedagogical focus was collaborative group work and discussions, and when students disagreed, which they did, I acknowledged and valued their opinions openly.

It is possible for preservice teachers involved in CSL to begin and end with perceptions of rescuing children from supposed doom (Butin, 2010). However, data from the past five years indicate most participants developed social justice stances. Indeed, CSL is not intended for white middle class students to "save" culturally diverse children who face economic difficulties (Hess, Lanig, & Vaughan, 2007). These types of programs are critiqued as self-serving and racist (Sperling, 2007) because developing empathy alone does little help people to become to multicultural teachers (Nieto & Bode, 2008). Also, focusing on what college students give is from a perspective of deficit; children and communities have much to offer in reciprocal CSL relationships (Kafai, Desai, Peppler, Chiu, & Moya, 2008).

Thus, teacher candidates can discover, affirm, and utilize the knowledge and gifts of children, families, and communities (González, Moll, & Amanti, 2005). Funds of knowledge, or community strengths, actions, and skills, counter deficit models of culturally diverse children of poverty (Gorski, 2008; Payne, 2005). Furthermore, social justice pedagogy includes incorporating and extending students' funds and Discourses into the curriculum and changing the curriculum based on students' funds (Moje, Ciechanowski, Kramer, Ellis, Carrillo, & Collazo, 2004).

# **Disciplinary Literacy**

Disciplinary literacy signifies opportunities to construct and deconstruct in- and out-of-school texts and Discourses in diverse subject areas (Moje, 2010/2011). Combining out-of-school and in-school literacies helps us to move from polarizing conceptualizations to realizing the "repertoires of language to draw from and use" (McConachie & Petrosky, 2010 p.3).

Furthermore, each discipline has unique literacy demands, genres, purposes, and audiences; creating, evaluating, and disseminating knowledge is discipline specific, also. While Shanahan and Shanahan (2008; n.d.) believe discipline specific strategies can be taught, Moje (2008) argued it is more important to teach disciplinary literacy instructional practices. Moje, Peek-Brown, Sutherland, Blumenfeld, and Krajcik (2004) discussed how middle school science teachers taught students to write organized, precise scientific explanations from phenomena, which is a practice of scientists.

Subject area teachers can blend students' funds of knowledge and their out-of-school literacy practices (Moje, Ciechanowski, et al., 2004) so youth can gain access to, and can critique, disciplinary knowledge and Discourses as "it builds an understanding of how knowledge is produced in the disciplines, rather than just building knowledge in the disciplines" (Moje, 2008, p.97). Also, deep subject area competence can help youth to become active, critical citizens because they become aware of how disciplinary experts construct and deconstruct knowledge

(Lee, 2007). According to Moje (2010): "Tools of knowledge production and critique, whether rooted in the disciplines or in everyday life, should be uncovered, taught, and practiced" (para. 3).

Yet to hook students into disciplinary literacy, teachers must help students to see its connections to out-of-school contexts (Moje, 2008). Moje, Overby, Tysvaer, and Morris (2008) found that youth have difficulty transferring their finesse with popular texts to disciplinary texts, for which they may not have authentic purposes, contexts, or knowledge. To subject area teachers who have not gained experience teaching disciplinary literacy to youth in communities, it may appear these youth cannot read printed texts. However, Alvermann (2001) discovered many are proficient readers and writers who lack personal connection to assigned school readings.

# **University and Project**

Located along the Mexican border, The University of Texas at Brownsville (UTB) serves mostly students of Mexican descent. UTB is a Carnegie community-engaged institution and is part of the Texas Campus Compact, a higher-education organization for SL and civic engagement. Community engagement is university and community collaboration for the "mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity" (Carnegie Foundation, 2010, para. 3) and civic engagement involves collective or individual actions to identify and address public concerns (American Psychological Association, 2009). The UTB Center for Civic Engagement and local businesses have funded the five-year project. The tutorial director asked if a walking path could be installed as a CSL project; before this, Esperanza had no sidewalks and the only place for safe outdoor exercise was on the colonia's outskirts. According to Moje (2007), disciplinary literacy should begin with youth or community concerns; the same is true for CSL (Boyle-Baise, 2002a, 2002b).

Teaching Reading to the English Language Learner (ELL) is a three credit hour methods class required for preservice mathematics, science, and English majors, who learn to help ELLs in subject areas; others may take the course as a substitution. Preservice teachers and their tutees planted, trimmed palm trees, painted over graffiti, and restriped walking path lines two hours daily. Under the supervision of the tutorial director and me, each teacher candidate tutored one to three children on school homework and designed and implemented gardening lessons related to their disciplines and to the children's funds of knowledge (González, Moll, & Amanti, 2005. Math majors developed lessons about estimating, comparing, and solving geometric problems; science students created experiments on ecology and botany; and a language arts major read and wrote with the children about different facets of gardening. Creating lessons helped the teacher candidates to move from the "preconstructive lenses" of school work (Clark, 2002, p. 296); also, the outdoor project facilitated common goals.

## Site

This study took place at an after-school tutoring center in Esperanza, a South Texas colonia, or unincorporated settlement a 15-minute drive from Mexico. Esperanza is within city limits, but city services are nonexistent (May, Bowman, Ramos, Rincones, Rebollar, Rosa, & Saldaña et al., 2003). With approximately 6,000 residents and 50 years of existence, Esperanza is the oldest and largest colonia (U.S. Department of Housing and Urban Development, 2005). Esperanza shares

similar socio-economic and environmental challenges with other Southwestern colonias (Anderson & Gerber, 2007). Based on per-capita income, it is the poorest U.S. neighborhood for its size; also, less than one in five Esperanza residents over 24 years of age graduated high school (U.S. Census, 2000).

However, residents have community strengths, such as entrepreneurism and shared culture and language (Díaz, García, & Smith, 2009; Richardson, 1996); 99% are Hispanic and 97% speak Spanish at home (U.S. Census, 2000). Although some may have accrued wealth since first settling there, they stay and improve their homes because of close relationships with neighbors.

Furthermore, most Esperanza children attend Texas Education Agency exemplary public schools; to have this state classification a campus must demonstrate above average attendance, retention rates, and state-mandated academic test scores (Long, 2010; Texas Education Agency, 2009). Moreover, the tutorial center's Mexican-American director has developed strong community relationships for over 10 years. This neighborhood site for the extracurriculum (Gere, 1994) can be a place for preservice teachers to move from reproducing the test-driven, essentialist curricula plaguing local schools of poverty (Bussert-Webb, 2009b) to creating contextualized, strength-based curricula (González, Moll, & Amanti, 2005).

#### Methods

Eleven students were enrolled and all signed human subject consents; they were invited to participate before the course started and again on the first class day. Although elementary education majors agreed to participate, I used only data from future secondary teachers because once students get to middle school, texts and course concepts become more subject specific and difficult (Shanahan & Shanahan, 2008); also demarcated subject area divisions exist in secondary schools (Moje, 2008). Participants were one male and six females. Five sought 4-8 grade certification and one 8-12 grade certification; only one had completed student teaching. Four math, two science, and one English major participated. Five were bilingual; even though all were Mexican-Americans, one grew up in Dallas, Texas, and did not hear much Spanish.

Respondents completed a pre-reflection, two process reflections, a final reflection, and daily learning logs; essay criteria were following directions and depth. Also, they created and presented visual metaphors and engaged in a tape-recorded, transcribed focus group discussion. I compiled hard copies of data, wrote key words, and used the Constant Comparative Method for data analysis (Glaser, 1965). I read all artifacts approved for the study and stuck post-it notes to anything related to disciplinary literacy and social justice. I read the data again and wrote key ideas on butcher block paper. Next, I began to draw lines between related ideas and then started writing themes. Initially eight social justice and 11 disciplinary literacy themes emerged; themes were collapsed when they represented the same topic. For example, these topics became the efficacy theme under disciplinary literacy: increased confidence, how tutee excitement and learning helped participants, and resourcefulness with limited agency resources. Colleagues researching in Esperanza and tutorial center staff and parent volunteers have shared insights, also. For member checking, I sent participants a draft. Two responded; they liked what I wrote and agreed with the findings. To present the data, I chose quotes that highlighted each theme.

## **Data Sources**

Participant observations, reflective essays and logs, visual metaphor group work, and a focus group discussion were data sources. Pre-reflections consisted of: participants' responses to demographic questions; hobbies; their disciplinary strengths; anticipated funds of knowledge of their tutees and the tutees' families; experiences with CSL, tutoring, gardening, and painting; impressions of the center, director, and children; knowledge of the neighborhood; tutoring skills needed to motivate tutees and to teach their disciplines; anticipated commonalities and differences with tutees; anticipated learning from tutees; and anxieties or questions.

Process reflections consisted of participants' connections of tutoring and gardening to course concepts. The final reflection focused on what they learned about: teaching, learning, CSL, tutees, the neighborhood, social justice, structural inequalities, and themselves; their funds of knowledge and those of their tutees and the tutees' families; what they learned about getting their tutees to enjoy their disciplines and to think like disciplinary experts; summer lending libraries in low-income areas; commonalities and differences with tutees; how their words or actions made a difference in tutees' lives; and CSL project ideas for their future classrooms.

The first learning log focused on tutoring and gardening and the second on course content. Questions were: What did you learn? What was said or done that impacted you? How do you feel about this? The visual metaphor heuristic involved pairs writing, drawing, and presenting metaphors to relate gardening and tutoring to teaching and learning. Respondents answered six focus group questions, beginning with, "Can you speak about ..." The topics were: the walking path, tutoring, participating in an off-campus course, SL, caring, and social justice.

# **Findings**

Findings were participants' realizations of, and actions to counter, systemic inequalities and increased disciplinary knowledge, motivation, and efficacy. Also, the colonia appeared to be an important intersection between disciplinary knowledge and social justice.

## **Realizations of Structural Inequalities**

Respondents commented on Payne's (2005) deficit theory after reading her book excerpts and poverty quiz, and Gorski's (2008) critique. Cariño wrote: "I'm glad we had the opportunity to go over Ruby Payne's way of viewing poverty because I don't agree with how she so strictly labels people in poverty." In response to Payne's work, Maestra wanted to counter stereotypes as a teacher: "I should always stand up for myself and be strong with my ethics and beliefs." Participants were shocked about Payne's workshops in many U.S. school districts, including local ones (Aha! Process, Inc., 2010). Indeed, school system support of Payne's ideas may be a structural inequality because schools are societal structures affecting students and families.

Respondents made striking social justice connections, perhaps because of the language and ethnic backgrounds most shared with tutees, or perhaps because of Esperanza's economic conditions. However, city residents' negative comments prevented most participants from visiting Esperanza previously. Emma wrote in her final reflection: "I was always told this neighborhood was bad. The people are, for the most part, just like everyone else. They just live in a place where poverty is the norm. Walking around this neighborhood opened my eyes to the

children and families [sic] living conditions." Harvey (2009) contended the formation and maintenance of ghettos are because of failures in capitalistic market economies, but the poor are blamed for the conditions in which they live. Although he did not discuss colonias per se, Harvey's analysis of ghettos could apply to colonias because of the geographical demarcation and marginalization of these unincorporated settlements. Most Esperanza residents either rent or own inexpensive homes built with substandard materials and by nonprofessional builders (Federal Reserve Bank of Dallas, n.d.).

Esperanza's context may have helped participants to understand social justice aspects more readily. Many wrote about the lack of maintenance of Esperanza's streets and the dearth of city police protection. Isolating residents by perpetuating rumors or not providing services causes them to become "the other" and creates a cycle of oppression (Delpit, 2006). Amigo and Maestra said Esperanza was not part of the city because officials perceived it as a tax drain. Cariño wrote: "There is no social justice in [colonia]. It is the city's responsibility to care for this community. I hate that they don't help, but they are the first to criticize that all [colonia] offers is trouble."

Furthermore, participants noticed residents' lack of summer access to bookstores, book mobiles, and libraries, and related this phenomenon to structural inequalities. Maestra said many tutees lacked transportation to public libraries over three miles away because no bus routes came close and many did not have cars; she also stated many families were afraid to get public library cards because they did not have documents to prove legal U.S. status. Emma proposed getting outsiders to come to Esperanza to check out books; this novel approach was a way to change the colonia's marginalization. Amigo related the lack of book access to an ability to fight injustices:

School libraries should be open in the summer and public libraries need to have some way students in low-income areas can access them. Part of the reason these students are still in their economic situation is because they are not given the opportunity to expand their literacy. If students are allowed to access books they can then begin to build their vocabulary and develop their own views on life. If they are allowed to do this they can then begin to fight against social injustices.

All believed Esperanza children needed summer book access to prevent school failure (Krashen, 2009). Summer reading loss represents the largest cumulative factor contributing to the achievement gap among low-income students (Downey, von Hippel, & Broh, 2004).

Several participants also commented on the *Sicko* segment we watched (Moore, 2007), which featured Esperanza's underinsured. Others discussed how our path provided residents with a free, safe place to exercise and socialize and how the gardening project provided tutees with access to holistic outdoor education and exercise (Louv, 2006), the antithesis of what many local children received in test-driven public schools (Bussert-Webb, 2009b). Respondents' realizations of structural inequalities may not be common, however. In her study of preservice teachers who engaged in CSL, Boyle-Baise (1998) expressed disappointment in participants' lack of critique of poverty as structural: "A significant 'non-finding' was the lack of a critical stance toward inequality" (p. 53). Boyle-Baise (1998; 2002b) held her multicultural education classes on campus and had students serve at various community centers; most were White middle class

students, apparently the norm in CSL research (Sperling, 2007). Most U.S. teachers are from White middle class backgrounds (National Center of Education Statistics, 2009; National Education Association, 2003), yet according to Boyle-Baise and Langford (2004), teachers of color are more likely to hold activist views than White teachers.

As in previous years, many participants noticed the children received few school assignments; the scant homework consisted mostly of worksheets and spelling test reviews (Bussert-Webb & Diaz, 2010). Providing either no homework or lower-order worksheets demonstrates not only low expectations (Haycock, 2001), but also structural inequalities because the children do not have the same learning opportunities (Enterline, Cochran-Smith, Ludlow, & Mitescu, 2008). However, participants turned this into a positive by teaching to the children's strengths and interests. Amiga wrote: "The tutees not bringing in homework requires me to help them in a general area in Math, and I get more experience working with students."

# **Actions to Counter Structural Inequalities**

More so than any other years of the research, participants demonstrated a movement from critique to action, perhaps because in 2010 they emailed administrators and politicians about any concerns and used literacy as a public tool for social change. Amigo and Emma wrote about the need for public libraries in Esperanza; they sent emails to the local school superintendent and to the director of the education section of the local paper. Maestra asked a bishop for the walking path to be better maintained because it was on church property. Cariño published an op-ed piece in the local newspaper about installing a soccer field and more parks for Esperanza children.

Alberta and Einsteina, science majors, wrote the tutorial director and attempted to arrange a beach clean-up with the children they tutored; Alberta and Einsteina organized and attended the entire event, and supplied volunteers with food and drinks from local businesses. However, the tutorial children did not participate because of a border checkpoint before the beach; the director believed some would not be allowed to pass or would be detained. Instead, children from another community partnership participated.

Amiga did not write a letter of concern about helping others; instead, she wrote our university's president regarding her registration difficulties for the upcoming session. Amiga appeared to gain the least from the CSL experience, perhaps because this was her first methods class, she was a sophomore (while the others were juniors and seniors), or because she tutored children the furthest from her grade level of certification, which was high school. Also, Amiga said her tutees were more attached to their tutors from the previous May session.

Nevertheless, other participants' desires to change inequalities were encouraging, as were the positive responses they received from their emails. In essence, they learned they could change their worlds, which is integral to social justice (Giroux, 1985). Moreover, their awareness and anger about Esperanza's inequalities appeared to motivate them to take action. According to Freire (1970), consciousness-raising is the first step to changing oppression; helping participants to witness and reflect upon systemic inequalities was an important goal. However, I was surprised they were so motivated to engage their future students in CSL. More so than other years, their SL plans with their future students were detailed and discipline specific.

Emma, a math major, described her CSL plans: "I really think I would use the gardening project. Math was everywhere, knowing how deep you have to dig, how much water needs to be put, and the distance between plants." Maestra planned to create a weather station at her future campus and wanted older math students to mentor younger ones. Amiga sought to have future math students tutor in an agency similar to Esperanza's, and Cariño planned to have her students send math materials to classrooms in need. Amigo said he would have future students write about social issues: "I could do this after field trips or social actions so students can see the difference they can make in the world. They can also form their opinions on these issues and come up with ways to deal with them as they get older." This intersection of disciplinary literacy and social justice can help youth become critical readers and thinkers (Moje, 2007). Also, Amigo saw the importance of students deciding for themselves about social justice (Butin, 2010).

When asked what they could do to make the world better, most, like Maestra, mentioned helping society to become more equitable: "I will always fight for justice and sound my voice to eradicate inequalities and injustice." Furthermore, Amigo wrote, "I can expose students to real-life situations in the classroom to help them realize how important literacy is and what role it can play in reshaping the world." Amigo, whose learning logs were usually just a few sentences, wrote much about the critical theory articles by Gorski (2008) and Rubinstein-Avila (2003).

Participants often discussed how one person could make a difference. Maestra, who was a member of the church where we conducted the tutorials, often recalled a former Esperanza minister at the center of several social justice movements. In her group's visual metaphor, they drew a picture of this priest saying, "Hi kids, remember me." To the right were dilapidated homes, roving dog packs, and the lack of city traffic enforcement. Yet in the forefront, children had developed deep community connections and ecological responsibility, as depicted in their green bodies and roots for feet. Additionally, a math group drew pictures of exponentials and children holding hands for collective action.

# **Learning More about Disciplines and Disciplinary Literacy**

To my knowledge, only one other professor in UTB's College of Education teaches preservice students from this lens, yet Stull (2007) found content literacy classes can have an important impact on preservice disciplinary literacy understandings. Just as gardening was new to participants, disciplinary literacy appeared novel to most, but they were able to apply disciplinary literacy concepts after we discussed them. For example, Alberta, a science major, wrote about her tutee: "He is well versed in the language of science" and Einsteina, also a science major, wrote: "I think they all found the scientist within themselves." Alberta also learned by re-teaching concepts: "I learned science all over again. My tutee had a test in science he failed so he had to find the correct answers and justify each choice."

Einsteina also learned from participating in Alberta's science lab: "I learned about rainbows. I learned that mixing food coloring with milk and soap causes a reaction and it allows the color to mix rather rapidly. We tried different variables to see the results." Similarly, preservice teachers in Kirtman's study (2008) understood math better when they taught it to urban elementary students as a SL project. Hart and King (2007) also discovered teacher candidates who tutored

children at a local community center with the instructor learned literacy methods better than did those enrolled in the same course, but who found children to tutor on their own; the researchers conclude the former saw the value the instructor placed on the service.

Alberta was interested in implementing Saturation Research (Olson, 2011) in her classes, versus traditional science research papers: "Students can research and write how an atom feels or a star or a tiny little jelly fish in the middle of the ocean." Emma and Amigo wanted to use trade books and authentic texts, versus worksheets and textbooks, in their math and English classrooms. At the beginning of the course, Amigo walked from the tutorial director's office with a testing workbook; I convinced him to use my copies of *Joyful Noise* (Fleishman, 1988) instead. He said the children enjoyed reading this poetry book about insects in alternative voices.

Our group gardening project, done after each tutoring session, appeared most closely connected to science in terms of entomology, botany, and ecology. Alberta approached me during gardening and she exclaimed that worms were on the transplant. I told her they were monarchs and the plant was a host for butterflies to lay eggs. A smile broke out across Alberta's face, and she wrote in her log that evening: "When we went outside we saw a plant we were planting have some cocoons, monarchs to be exact. The cocoons were awesome. Can't wait to see the butterflies emerge ... Maybe a lab on butterflies tomorrow." Every May session, few science majors seem to know much about native plants and their ecological importance. Thus, the project has helped to fill a curricular void.

It is true preservice teachers with no graduate studies or professional experiences in their fields may not be disciplinary experts (Heller, 2010/2011). For example, a preservice social studies teacher in Stull's study (2007) demonstrated only basic understandings of his discipline, disciplinary texts, and disciplinary literacy practices. He did not distinguish Political Science from History and planned to use the same general literacy strategies for all students. However, Stull's other respondents had well developed disciplinary literacy understandings, as did the teacher candidates in McArthur's study (2007), who perceived their disciplines to have specialized and unique Discourses. Furthermore, Moje (2010/2011) argued disciplinary and education professors should help future educators to be effective disciplinary teachers.

# **Motivation to Teach Their Disciplines**

Participants, such as Amigo, appeared interested in motivating the children to love their disciplines; intrinsic motivation is important to academic achievement (Kohn, 1999). Alberta expressed determination to show her tutees more to science than lectures and textbooks. Einsteina, also a science major, wanted to motivate her students to love science: "My tutees say they don't care much for science, but I feel as if I presented the material in a fun, easy way to understand, and their mentality has changed. I noticed they become eager for their new lab." At first, Einsteina's tutees perceived science was too hard; yet she was able to convince them otherwise through several labs she and Alberta implemented.

# **Efficacy to Teach Their Disciplines**

The previous finding focused on participants' enthusiasm for teaching their disciplines. However, self-efficacy is different from motivation; in teaching it relates to one's perceived

ability or confidence in influencing student learning (Nelson, Tice, & Olson, 2011). Bandura (2007) defined self-efficacy as "perceived operative capability. It is concerned not with what one has but with belief in what one can do with whatever resources one can muster" (p. 6). Teacher self-efficacy relates to teacher persistence and effective practices, and also to student achievement, motivation, and self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). Also, educators with self-efficacy are less concerned about surviving and are more effective in teaching diverse students (Cone, 2009; Ghaith & Shaaban, 1999).

One source of self-efficacy is through mastery experiences, which are practical, personal, and authentic (Bandura, 1997). These experiences can be gained through CSL projects, such as the one Cone (2009) developed for preservice elementary teachers in science; based on pre- and post-tests and questionnaires, CSL participants developed greater gains in a self-efficacy test than those who taught each other only. Although the former were mostly White middle class preservice teachers, they, like those in the present study, taught economically disadvantaged children science at a community center; also Cone participated with them. Indeed, CSL experiences have been found to help the self-efficacy of preservice educators in the teaching of social studies (Wade, 1995), math (Kirtman, 2008), and literacy (Hart & King, 2007). Also, Wasserman (2009) found SL experiences positively affected educators' self-efficacy in teaching reading later during student teaching.

In the present study, 71% expressed a lack of self-efficacy in their pre-reflections in terms of communicating their disciplines. Alberta wrote: "Will I be an effective tutor? Will they learn from me? I hope I know what I'm doing." Emma doubted that she could apply mathematics to the gardening project: "I am concerned about the two lesson plans we have to implement, about how to incorporate math with the group project and have the lessons still be fun." Also, Cariño wondered if she could teach math: "The anxiety I can think of is 'Am I helping my tutees as much as I can? Are my skills coming across to the children and are they learning?" Yet in their final reflections, all felt successful in disciplinary teaching; each provided specific examples.

The ESL and literacy strategies helped respondents, such as Amiga, to feel more confident in teaching their disciplines: "I have noticed using these strategies with both tutees has helped them very much; they know what they are doing in regards to solving a math problem." Amiga provided a visual metaphor for mathematics, also: "I feel I impacted the tutees ...when I told them Math is like a chain. It is all linked together and it goes back to its foundation. Math is linked because when you are dividing you have to multiply and subtract." Also, using manipulatives helped Cariño's tutees' to grasp disciplinary vocabulary: "The math terminology I was using was understood and that is important for their future academic language development. I only wish I could continue working with them so they develop stronger math skills."

Maestra was happy she helped her tutees to conquer math phobias: "I feel the children's perspective of math was changed in a way that they will no longer find it threatening. They showed me how much they enjoyed my lessons and how easy the material became when I taught it to them in a different way." Maestra found some tutees experienced difficulty with multiplication because they were not introduced to the concept of sorting and grouping. Thus, Maestra brought in empty egg cartons with 18 slots for tutees to plant pinto beans and to practice

multiplication. The beans and plants related to our project and community funds of knowledge and the egg cartons were everyday, reused objects.

Many participants were able to engage their tutees in the type of knowledge production that people involved in disciplinary communities enact on a regular basis (Moje, 2010/2011). Arousing the self-efficacy of the children she tutored was important to Einsteina: "Seeing them write about what they learned and having them fill in the charts showed not only me, but to themselves, how much they learned. They all found the scientist within themselves." Regarding an experiment conducted, Einsteina stated, "I felt very pleased the tutees were using their curiosity in order to see the 'what if.' They were thinking like scientists." In the focus group discussion Einsteina said her tutees started asking, "What if ..." constantly during experiments. Also, she helped them to realize they knew much more about science than they thought by creating a third space in which she valued and extended their funds of knowledge of the natural world (Moje, Ciechanowski, et al., 2004). According to Einsteina, "I don't think they give themselves credit for what they know." Although most SL- and CSL-related efficacy research has been conducted with mostly White students, a SL project in another country helped Latino/a college students to develop self-efficacy and awareness of systemic inequalities (Teranishi, 2007). Knowing their tutees well helped participants to write disciplinary lessons according to the children's strengths, needs, and experiences. According to Emma:

Since I was able to do lessons on mathematics with my tutees, I was able to see into the future. I'm not going to have students who learn all the same. 'Scott' would finish quickly so I knew I had to challenge him in the second lesson. 'Josie,' however, needed to have my guidance when she was stuck."

# The Community as an Intersection of Disciplinary Literacy and Social Justice

It is not by accident most studies of teacher self-efficacy and diversity relate to experiential education and SL projects. Indeed, learning to teach from disciplinary literacy and social justice lenses does not happen without context. The next theme relates to how the CSL experience and site were important intersections for disciplinary literacy and social justice. Cariño commented on how the out-of-school learning environment helped her tutees to learn: "Perhaps it was the change of scene that they were open to learn and even use the skills they have already acquired to help them solve the challenges they faced here with me." The children liked Cariño's contextualized lessons more than the transmission method they experienced in school and they saw her as a co-learner: "They said they like this hands-on approach more than the classroom setting, and who wouldn't? The techniques are absorbed even better. Bringing them outside not only widened their perspective, but also encouraged them to learn with me."

Participants, such as Emma, said many tutees did not enjoy school, so she used the out-of-school context to engage them: "I would ask my tutees what they did in school and every day it was the same thing. They would express that school was boring. So every afternoon I was with them, I tried to do things that were fun, but still focused on the Mathematics content area." Emma said the gardening project helped her to "be involved with students in a more intimate way." The project enabled Cariño to teach more effectively: "I have had the opportunity to use the skills I have learned in some classes, but I have learned more in these few weeks than in a lot of my

other classes combined." Most preservice teachers have required field experiences in schools before student teaching, but sometimes they only observe and do not get any hands-on experience with disciplinary literacy; alternatively, they might have limited interactions with children in school-based placements (Boz & Boz, 2006). Also, field experiences in schools can range from excellent exemplars of disciplinary literacy instruction to watching movies solely, having students read aloud from the textbook, or answering end-of-chapter textbook questions (Stull, 2007).

Thus, participants said they got more disciplinary teaching experience with diverse learners in CSL projects than in public school field placements. This has been a recurring theme of focus group discussions and reflections of over 60 preservice teachers during the five-year project (Bussert-Webb, 2008, 2009a). Perhaps teacher candidates have learned more through the CSL experience because in many local schools, educators have focused on high-stakes, statemandated tests. Indeed, the most common themes from interviews with children at a local elementary school, rated exemplary by the Texas Education Agency, were: lack of curriculum integration, escape from the classroom, testing, time, and work (Bussert-Webb, 2009b).

Indeed, Bell, Horn, and Roxas (2007) found preservice teachers have learned much more when they mentored children in out-of-school settings. Others have discovered a positive impact to preservice teachers' abilities to teach their disciplines and to relate to diverse children when they serve in communities (Cone, 2009; Haverback & Parault, 2008; Mitchell, 2007). Similarly, teacher candidates who engaged in CSL as tutors were compared to those with no service learning experience; the CSL group had significantly higher scores on tests of literacy content knowledge and also self-assessments of assessment and literacy skills (Hart & King, 2007).

One heuristic, the 24-hour Content Log (Bussert-Webb, 2009c), helped participants to realize the importance of contextualizing lesson plans; they had to work hard to demonstrate out-of-school disciplinary literacy applications. All said their tutees had difficulty completing the log; the children connected the tutors' disciplines only to school – and within school – only to worksheets, textbooks, and test preparation. Even with participants' examples, the children still struggled to relate math, science, and language arts to their everyday lives. According to Emma, "Getting them to think like experts in mathematics was the most difficult task for me. I had to tell my tutees math is everywhere. It's all around us, but sometimes we don't even know we are using it." Cariño agreed: "Learning does not have to be from a textbook. The best learning takes place when students have access to a real-life application, such as manipulatives."

Participants also learned to be resourceful with inadequate tutorial agency supplies and technology, as well as limited money as college students. Alberta wrote: "I believe a master teacher will get the concept across no matter what the circumstances or conditions are." Her comment rang true for Einsteina, who had to improvise with materials: "I had forgotten to bring measuring cup [sic]; doing the conversion from ML to OZ was not too fun, but we managed." It was difficult to conduct labs with limited resources and to be successful, so Einsteina had to provide lab resources. "I didn't want this to turn into an impossible and I wanted my tutees to see science all around them and to become more inquisitive."

The preservice teachers took advantage of the outdoor context, also; Cariño wrote, "Who needs technology to build background knowledge? I used nature as my PowerPoint presentation. I used Total Physical Response and manipulated the outdoors to be my learning center." Next, Emma modified her math attributes lesson by having tutees select leaves and flowers with different characteristics. "When we got back inside to fill out the attribute train and attribute characteristics (data board), they really didn't need much help. They knew exactly how they were going to arrange everything." Emma's tutees were "learning on the diagonal" (McConachie & Petrosky, 2010, p. 22); she supplied them with a difficult math concept and used a hands-on collaborative approach. They experienced growth in content knowledge, mathematics, and habits of thinking, strategies and representations (McConachie & Petrosky). Emma also taught tutees about measurement by incorporating the garden project:

I opened my hand. I told them from the tip of the thumb to the tip of the pinky is called a hand span. I had them trace their hand spans and handed them a ruler to get an estimated measure. We went outside so "Josie" and "Scott" could pick the items to measure ... They can see how using their hand span can help measure certain items and/or objects when they don't have a ruler present.

Emma applied an article she read for the course (Rios, 2006), in which a participant used only finger and arm lengths to measure and estimate because no formal tools were available. Participants in the present study circumvented a lack of funds through design, or the "production of texts that use multiple sign systems" (Janks, 2010, p. 18). Janks developed this concept in South Africa, where many have resisted oppression through resourcefulness and imagination.

Cariño related a person's knowledge of mathematics to being literate (Jacobsen Spielman, 2008) and perceived educated people as change agents (Giroux, 1985): "To influence my tutees in mathematics is priceless. An educated child can impact their town and change the world." Indeed, mathematics instruction can relate to social justice. Gutstein (2006, 2007) and his middle students studied racism in mortgages and housing data; he perceived mathematics as a "tool to identify and rectify injustices across the globe" (Jacobsen Spielman, p. 653). Similarly, Alberta combined disciplinary literacy and social justice through a lesson on water pollution:

We were to identify how pollution can spread up a stalk of celery. As we completed the experiment, we went on to discuss how this very thing can happen to the plants we planted if people are not careful ... He began to ask questions as to how this could be prevented. When I saw the seriousness in his face, I realized he understood what was at hand and that there were ways of him making a difference. I felt as if I had inspired something positive in him. I felt he now knew something he would be able to utilize in the future and even make a difference with. I felt proud of him for taking an interest in something most people are oblivious to.

The resaca, or thin, meandering lake alongside Esperanza, was polluted and litter was strewn alongside it. Esperanza, like many colonias, has many environmental health problems, such as water pollution, because of inadequate water and sewage systems (Federal Reserve Bank of

Dallas, n.d.). Alberta was able to create a third space by integrating science vis-à-vis our outdoor project (Moje, Ciechanowski, et al., 2004).

## Limitations

Participants were my students, so they may have said or written things to please me or to enhance their grades; because most course requirements were also data sources, the findings may be overwhelmingly positive. Second, some tutees were not in the preservice teachers' secondary levels of certification; this was difficult to control because high school students did not arrive from school until 4:30 p.m., when tutoring was almost over. Third, I have not determined if the CSL helped to develop preservice candidates as change agents and as disciplinary educators once they had their own classrooms. Further study must be done to determine if they are able to develop or maintain a social justice agenda and a disciplinary literacy framework, given the current test-preparation pressures in local schools (Bussert-Webb, 2009b). Additionally, because this study focuses on one CSL project with only seven preservice teachers in South Texas, I cannot generalize results to other participants or contexts.

## **Conclusions**

May 2010 represented year five of teaching, service, and research in Esperanza; long-term relationships between teacher educators and community members are vital for CSL projects (Hess, Lanig, & Vaughan, 2007). Also, it is important for professors to work alongside preservice teachers in communities to demonstrate their priorities and to better understand the research context (Boyle-Baise & Langford, 2004; Clark, 2002; Cone, 2009; Hart & King, 2007).

This on-going CSL project helped participants to realize and fight for social justice issues, and to use community resources to teach from disciplinary literacy lenses. In terms of the latter, preservice teachers were able to use walking path as the basis for all lessons; when the children they tutored responded favorably, participants could see the benefits of foregrounding instruction in Esperanza's context. Social justice has been a consistent theme, but disciplinary literacy is a recent lens. More data analysis from other years of the study must be done to determine whether disciplinary literacy is a consistent finding.

The site was an important intersection between social justice and disciplinary literacy because the CSL project and university course took place at a tutorial center closely connected to community life; parent volunteers came on a daily basis and many attended a college information session we held. Also, the children, parents, and tutorial staff welcomed the preservice teachers warmly; this embracement helped participants to care more deeply. As Lin (2001) tells us, "When people sincerely care about others, they find ways to treat them justly, fairly, and equitably" (p. 110). Moreover, when they care about others, they tend to recognize more quickly if the cared-for are being treated unjustly. Indeed, it is difficult to change one's consciousness if no positive relationship exists. An assumption of this project was relationship building and serving "people's well-being;" thus, research to benefit the community was a moral and ethical stance (Hostetler, 2005, p. 21). This does not mean I viewed university tutors as saviors. Instead, I approached CSL from the perspective that the children were in reciprocal partnerships (Kafai, Desai, Peppler, Chiu, & Moya, 2008). Last, I found social justice and disciplinary literacy can be fused through CSL projects to incorporate the funds of knowledge of those being served.

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