

How Asynchronous Discussion Boards Mediate Learning Literacy Methods Courses to Enrich Alternative-Licensed Teachers' Learning Experiences

Lasisi Ajayi

San Diego State University

Abstract

This study explores alternative-licensed teachers' views of how an asynchronous discussion board mediated their preparation to teach literacy through methods courses. Forty-four alternative-licensed teachers were taught literacy teaching methods using the asynchronous discussion board as a tool of extending learning. Each participant responded to a survey and wrote a six-page reflection to summarize his/her views of the role of the asynchronous discussion board in learning to teach literacy. The findings indicated that the asynchronous discussion board is a potentially useful means for structuring and supporting certain effective teaching/learning practices. The rubric/structure set up for discussion board interactions allowed participants to use the technology to refine, appropriate, and extend learning and mediate intertextual and hypertextual links to disparate texts. In addition, the complement of discussion in the courses motivated the participants to use the technology as a social space for adaptation of multiple voices, consideration of alternative perspectives, and facilitation of dialogical interactions that resulted in dynamic social knowledge constructions. This article includes a discussion of the implications of the findings. (Keywords: alternative-licensed teachers, asynchronous discussion board, dialogic teaching, social constructivist, intertextuality, hybridity)

Literacy teaching in K–12 classrooms is taking place in technologically and socially changing, dynamic, and challenging times. These shifting times have serious consequences on how new teachers are prepared to teach in elementary and high schools. One of the challenges facing teacher educators is how to integrate technology into their instructional practices in a way that prepares new teachers to meet their students' diverse literacy needs and provides the kind of knowledge construction they require for learning in this information age (Black, 2005; Courtney & King, 2009).

For example, Leu, Kinzer, Coiro, and Cammack (2004) suggest that the cumulative effect of the existing literacy teacher preparation practices is that new teachers are ill prepared to integrate technologies into their lessons in ways that are responsive to the literacy learning needs of K–12 students. Similarly, Coiro,

Knobel, Lankshear, and Leu (2008) raise questions about how new teachers are prepared to use new communications technologies for meaningful reading instruction in K–12 classrooms. Also, Baker and Labbo (2007) argue that “teacher educators are challenged with how to integrate technology instruction into their literacy methods courses” (p. 37). Black (2005) argues that the “increasing shift from the traditional classroom to an online format poses enormous challenges to both instructors and learners” (p. 13). Furthermore, Leu and Kinzer (2000) contend that literacy-technology integration poses a great challenge to the current conceptions of literacy teacher preparation.

These comments suggest there is an urgent need to create a new direction for literacy teacher education that takes into account skills, knowledge, discourses, habituated practices, values, and dispositions that would be required of new teachers to prepare K–12 students beyond the current focus on print-based literacy skills and mechanical responses to multiple-choice tests (Ajayi, in press, 2009). Courtney and King (2009) and Ryan and Scott (2008) suggest the need for teacher educators to adapt innovative technology that provides greater possibilities for equipping new literacy teachers with the skills and knowledge they need to be effective in the classroom. Black (2005) and Beeghly (2005) further argue that the asynchronous discussion board affords teacher educators an opportunity to enhance new teachers’ professional literacy teacher preparation.

A new understanding of the role of technology in teacher education is crucial if teacher educators are to better understand the potential of the asynchronous discussion board in preparing alternative-licensed teachers (ALTs). The asynchronous discussion board, though an “old” technology, has the possibility of engaging ALTs in border communities in a dialogical process that leads to appropriation of socially constructed knowledge of literacy content and pedagogy (Black, 2005; Courtney & King, 2009). In particular, in some cases ALTs, who are in most cases ELLs and may not freely participate in classroom discussions because of language constraints, can develop better dispositions for using the technology and leverage more knowledge from their peers in the online space. Furthermore, the technology has the potential to provide ALTs a space to engage in discussion/dialogue, practice reflection, extend learning, integrate knowledge from diverse sources, explore complex literacy teaching issues from multiple perspectives, and make intertextual connections between diverse texts (Cope & Kalantzis, 2000; Ferdig, Roehler, & Pearson, 2002; Kayler & Weller, 2007; Morson & Emerson, 1990; Varelas & Pappas, 2006).

Purpose of the Study

The research objective of this study is to explore the ALTs’ perceptions of the asynchronous discussion board as a tool of mediating learning literacy methods courses. The research purpose is framed around the following research questions:

- In what ways will the ALTs use the asynchronous discussion board to mediate intertextual connections in their literacy methods courses?
- In what ways will the participants use the technology to facilitate exploration of alternative perspectives?
- What will be the participants' attitude to their peers' contributions to learning?

Justification for the Study

A confluence of factors makes this study compelling. First, I conducted an extensive search of databases for literature on the asynchronous discussion board and ALTs in rural border communities that showed a profound lack of research in the field. Available studies focus almost exclusively on preservice and inservice teachers. This paper, therefore, makes significant contributions to the field that has been profoundly underrepresented in the research. Second, because of the critical shortage of literacy teachers, school districts in this community hire individuals with emergency credentials to teach while the individuals are still studying for their certification. In many cases, the asynchronous discussion board is used as an important means of extending what is taught in classrooms. Yet little is known about ALTs' views regarding how the asynchronous discussion board shapes their learning, as evidenced by the dearth of any substantive research on the topic. Therefore, this study is important, as it broadens the conception of teacher preparation to include ALTs. In addition, it contributes to literature on the importance of the asynchronous discussion board in the literacy teacher education in the diverse set of communities that are often labeled border communities. The assumption here is that how ALTs perceive the role of the discussion board in their teacher education programs and how they conceptualize their roles in the teaching-learning complex (from their own perspectives) are important factors in their learning and teaching of K–12 students.

Asynchronous Discussion Board and Literacy Teacher Education

The asynchronous discussion board is a Web application for holding discussions and user-generated content. Discussions are grouped in threads that contain a main posting and all related replies. For example, when a student posts a comment, it appears in the main thread, and subsequent responses will be indented under the thread. Typically, each posting may have multiple indented threads as responses to the original question. Users can post questions and responses at any time. There is, therefore, no time constraint on users (Black 2005). Also, users can navigate the postings in nonlinear order (Ajayi, 2009). In this way, the technology allows users to deliberate, reflect, and simultaneously make intertextual connections between what they learn in literacy lectures and other texts, such as textbooks, journal articles, educational videos, class discussions, and websites (Doering & Beach, 2002; Varelas & Pappas, 2006).

Furthermore, the asynchronous discussion board facilitates new methods of literacy teaching and learning where knowledge is networked in the affordances of people, tools, and technologies (Ajayi, in press; Gee, 2003). Ajayi (2009), Black (2005), and Doering and Beach (2002) argue that, rather than teacher-authority, teacher-domination, and knowledge-transmission models that characterize lecture-based approaches to literacy instruction, the asynchronous discussion board facilitates inquiry, discovery, and creativity. For example, students' postings can move discussions from mere knowledge sharing to reflection and critical thinking (Black, 2005). Lang (2000) argues that online discussions facilitate students' engagement in a "dialogical process that produces increasingly sound, well-grounded, and valid understanding of topics or issue" (p. 24).

In addition, Courtney and King (2009), Black (2005) and Ferdig, Roehler, and Pearson (2002) suggest that the asynchronous discussion board allows learners to develop a sense of virtual community because the technology allows for collaboration and interaction. In essence, the technology opens new opportunities for ALTs to participate in learning processes in innovative ways. In particular, learning in the asynchronous discussion board requires learners to actively participate, deploy multiple ways of learning, situate meanings in their own embodied experiences, and make choices based on interests, style of learning, and potential (Ajayi, 2009; Black, 2003; Doering & Beach, 2002; Gee, 2003). Courtney and King (2009) and Gee (2003) suggest that the technology facilitates a social construction of knowledge and the creation of communities of practice where participants are bonded primarily by shared goals, endeavors, values, and practices.

A Social Constructivist Perspective

Constructivism is a psychological theory of knowledge that posits that individuals' construction of knowledge and meaning is mediated by social interactions, experiences, and prior knowledge in relation to the environment. Hull and Saxon (2009), Richards (2008), Wenger (2005), Black (2005), and Lave and Wenger (1991) contend that learners construct knowledge through active participation in social activities where learning is socially mediated. Following this description, constructivism is used in this study to refer to the situated practice of ALTs in the social context of the asynchronous discussion board.

Constructivism is appropriate for learning in the asynchronous discussion board as learning to teach results from "personal interactions in social contexts and the appropriation of socially constructed knowledge" (Black, 2005, p. 9). A social constructivist view suggests that humans learn by reflecting on their prior embodied experiences within social settings (Gee, 2003, 1999; Richards, 2008). Gee (2003) argues that humans deploy the resources of other people, tools, and technologies to learn, think, and solve problems. A social constructivist view of learning emphasizes that knowledge is dispersed, social,

interactive, situated, discursive, and technology mediated. An application of a social constructivist view to how ALTs learn in asynchronous discussion board provides a new conceptual framework that:

... attempts to capture and recognize the multiple forms, the multiple sites, and the multiple purposes of communication, to show them in their social/cultural environments, ... and to show them as the effects of the agentive, creative, transformative, designing action of individuals ... (Kress, 2000, p. 142)

Underlying this view of literacy teacher preparation is the notion that learning to teach is “fully embedded in (situated within) a material, social, and cultural world” (Gee, 2003, p. 8). This view of social mediation of learning—the social process of knowledge construction—is crucial to this study. Some of the social constructivist practices as applied to learning to teach in the asynchronous discussion board include:

- Knowledge is situated in social and cultural practices of ALTs and is distributed across their peers, contexts, and tools.
- Knowledge growth is mediated by socially constructed knowledge as well as social interactions (Black, 2005; Lave & Wenger, 1991; Richards, 2008).
- Knowledge construction is hybrid, as people make intertextual connections to different text types and combine and relate diverse experiences, differing discursive practices, and multiple genres to construct an understanding of texts (Byrne, 2008; Cope & Kalantzis, 2000; Ondrejka, 2008; Varelas & Pappas, 2006).
- Knowledge is a site of negotiation, interpretation, and re-configuration of relationships of alternative frameworks and mindsets (Byrne, 2008; Ondrejka, 2008).
- Knowledge is co-constructed and negotiated in socially, technologically mediated, and collaborative learning environment (Gee, 2003; Hull & Saxon, 2009; Richards, 2008).
- Knowledge construction widens when learners adopt multiple voices and perspectives (Black, 2005; Courtney & King, 2009; Lave & Wenger, 2008).

The next section provides the context for ALTs learning of literacy methods courses in asynchronous discussion board in a border, rural university. It shed lights on the context and culture for learning to teach in the community.

Context of the Study

The site of the study is Southern California, along the U.S.–Mexican border. The county has a population of 142,361 people, with about 25% of residents living below the poverty line, as compared to 13.4% statewide (U.S. Census Report, 2000). Approximately 30% of the people in the county under age 18 also live below the poverty line. In 2006, the unemployment rate was about 26%, and the median income for a household in the county was \$31,870.

More than 81% of the county's population is Hispanic or Latino, whereas White and African-American account for 12.37% and 3.95%, respectively. Of the student population, 84.6% is identified as Hispanic or Latino origin, whereas White and African-American ethnic groups account for 10.7% and 1.7%. Moreover, 16,154 students (46%) of the total school enrolment of 35,115 are classified as English language learners (ELLs). Demographic data about student population showed that 81% come from economically disadvantaged homes, compared to the statewide average of 53%. Also, about 30% of the parents of the students are farmhands and construction workers and tend to be migrant workers (Imperial County Educational Report, 2004).

The English language is the medium of instruction in all schools across the county. But outside the school, Spanish is the *de facto* language of social interaction. For example, on public materials, such as billboards, advertisements, bulletin boards, signposts, and posters are in English and Spanish side by side. There are as many TV and radio channels in Spanish as there are in English. Spanish is widely spoken in social settings, such as restaurants, shopping malls, churches, and even local government offices.

The rural, agricultural, and transnational setting of schools has brought about a myriad of social, cultural, and academic challenges in schools (Soto, 2007). Rodríguez (2008) and Soto (2007) contend that border schools have serious problems including chronic underfunding, lack of access to computer technologies, overcrowded classrooms, poverty, high turnover of teachers, poor salaries, high dropout rates, high number of at-risk students, high rates of ELLs, etc. Soto (2007) argues that these issues are exacerbated by parents' economic difficulties, high rate of unemployment, and lower education levels. Also, in the community, teachers and their students are predominantly Hispanic. Gutiérrez (2008, 2006), Gutiérrez and Rogoff (2003), Gee (2004, 2003) and Weiner (2000) argue that cultural and linguistic minorities have cultural models of schooling that often differ and conflict with the dominant cultural model. The picture of the community painted here is different from that of many urban and suburban communities in the United States. This suggests a need for studies that examine how teachers are prepared to better understand what skills, knowledge, competencies, and dispositions they need to become effective teachers, particularly as they learn to integrate technologies into their teaching practices.

Methodology

Participants

Forty-four ALTs were enrolled in the two courses. There were 30 female (68.18%) and 14 (31.82%) male participants. In addition, there were 37 (84.10%) Hispanics, 6 (13.63%) Caucasians, and 1 (2.27%) biracial. The age of the participants ranged from 20 to 47. Fourteen (31.82%) participants were full-time teachers, and 12 (27.27%) were intern teachers. Also, 15

(34.09%) participants indicated they were substitute teachers and 3 (6.82%) were teacher assistants. Full-time teachers had first and/or master's degrees and had been hired to teach while completing their credentials. Intern teachers are those participating in the university program that allows teacher candidates to teach in schools while completing their credential programs. Both full-time and intern teachers have their own classrooms and are paid by their school districts.

Courses Used for the Study

Fifteen participants (34.1%) were enrolled in Skills in Teaching Reading in Secondary School (TE 933). The course focused on content literacy, reading process, language, diversity, and culture. The remaining 29 participants (65.9%) were enrolled in Teaching and Learning in the Content Area (PLC 915A), a course for elementary school teachers. This course focused on teaching strategies, differentiated instruction, cultural diversity, and content area instruction using Specially Designed Academic Instruction in English (SDAIE) strategies. SDAIE allows teachers to teach “content to students learning English language through a developmental language approach” (Echevarria, Vogt, & Short, 2008, p. 13). This approach allows teachers to provide ELLs some support as they learn content materials. Specifically, SDAIE addresses important issues such as helping students learn (a) grade-level content, (b) English language vocabulary and structure, and (c) academic English. The approach emphasizes the use of diverse strategies to make content concepts easily accessible to learners, including: target vocabulary development, cooperative learning, connecting lessons to student experiences, grade-level vocabulary, use of multimedia (the Internet, television, VHS, DVDs, radios, and CD-ROMs), graphic organizers, visuals, and designed opportunities for student interaction (Ajayi, 2007; Echevarria, Vogt, & Short, 2008).

Skills in Teaching Reading in Secondary School Teaching and Learning in the Content Area share the same broad philosophical assumptions that (a) literacy teacher education programs should provide richer and more complex learning experiences that go beyond the traditional print-based materials for ALTs, and (b) the new blends of knowledge afforded by digital/new literacies and hybrid textual forms are indispensable to literacy teaching/learning (Ajayi, in press; Leu, et al., 2004). Knobel and Lankshear (2006) and Davies (2006) define digital literacy as diverse literacy practices associated with new multimedia technologies, such as computers, the Internet, the World Wide Web, video games, e-mail, mobile phones, file-sharing technology, search engines, etc. Digital texts are often hypertextual, include hypermedia (incorporating images, videos, movements, auditory, special effects, and other nontextual features), and are hyperlinked to other websites. Jewitt (2005) argues that the affordances of digital literacies have brought about a new configuration of language as one part of the multimodal ensemble of

image, speech, color, texture, shape, and moving elements for mediation of communication on the screen.

Instructional Procedure

The integration of the discussion board into the two courses was designed to facilitate an out-of-classroom engagement with course content. The asynchronous discussion board is a course website designed and managed by university for instructors' and students' use for teaching and learning. In both courses, 100% of teaching was done in lecture rooms during university assigned time. The study ran for 16 weeks. Each class session lasted two hours, 40 minutes (4:10–6:50 p.m.). I was the course professor as well as the researcher. I spent the first class session explaining the syllabus, including course requirements and guidelines for assignments. In addition, I provided an overview of the course. During the second week, I invited the university information technology consultant to teach the participants how to use the asynchronous discussion board. The consultant introduced the students to the technology, its capabilities, and its range of functions. The consultant modeled how to log on to the asynchronous discussion board; compose, save, and submit assignments; open existing threads and develop new threads; upload documents, images, or videos; provide hyperlinks to and access links to other websites. During subsequent weeks, participants logged on to the asynchronous discussion board and posted their assignments. However, the participants did not post their work in the 16th week because of the final examination. In addition, there were no postings for two other weeks due to public holidays.

I delivered instruction through a combination of different strategies, including hands-on activities, in-class discussions, PowerPoint presentations, students' presentations, students videotaping and reflecting upon their own teaching, and discussion of assigned readings from assigned course-books, journal articles, educational videos, the Internet, and websites. The topics I selected for teaching, classroom instruction/discussion, textbook/electronic reading assignments, and postings that were geared toward proving a broader understanding of the functionality of literacy—that is, literacy in functional terms of providing access to the burgeoning text types that students “read” and “write.” Literacy is used in this study to refer to the ability to read different textual forms, including print-bound materials, spoken words, visual images, graphics, audios, sounds, spatiality, movements, gestures, videogames, CD-ROMs, computers, the Internet, and websites. For example, the participants' assignments required them to upload documents (e.g., music, visual images and essays), interpret graphics (e.g., graphs, tables, charts, etc.), provide hypertextual links, locate and integrate information in multimedia, read and compose in asynchronous discussion board, select and evaluate literacy teaching/learning-related materials from file-sharing social spaces (e.g., YouTube, Facebook, MySpace, Bebe, etc.) and share their

work with the class. The goal of instruction in the two courses was to help the participants acquire new skills, knowledge, competencies, and dispositions that prepare them to (a) make intertextual connections to additional sources of literacy learning through the Internet, participants' own resources and embodied experiences, textbooks and supplementary reading materials, class discussion, postings on the asynchronous discussion board, websites, file-sharing social spaces, and videos; (b) understand the affordances of the asynchronous discussion board to facilitate exploration of alternative ideas, voices, and perspectives; (c) view the asynchronous discussion board as a social space where learning is interactive and socially mediated and where learners' contributions are valued; and (d) develop effective pedagogical strategies to integrate new literacies with the traditional.

Instruction for Posting Entries

The instructor posted two questions per week based on the topic(s) covered in class. For the semester, the instructor posted 20 questions. The participants were asked to read course textbooks, journal articles, peers' postings, and websites before posting their responses. They also could upload relevant documents and provide hyperlinks to additional materials they considered important to their postings. This was a required assignment that accounted for 30% of the course grade.

Rubric for Postings

The rubric for grading the postings also was posted on the asynchronous discussion board. Its goal was to help focus the participants' responses. The rubric emphasized that (a) each participant must post a response per week and a total of 10 postings per semester, (b) responses must be posted a day before the class meeting to allow all the participants to read them, (c) each posting must be substantive—that is, extensive and directly answer the question of the week in 10 or more sentences, and (d) each posting must show evidence that the author evaluates and integrates knowledge from different sources (course texts, video clips, journal articles, websites, etc.) and make connections with his or her own classroom practices.

Sources of Data

I used mixed methods to collect data for this study. This approach was appropriate, as it afforded a better understanding of the participants' views of using the asynchronous discussion board to mediate learning. For example, it allowed a synthesis of findings from the participants' final reflection essays and their responses to the questionnaire (Mackey & Gass, 2005; Moran-Ellis, Alexander, Cronin, Dickinson, Fielding, Sleney, & Thomas, 2006). The foundation for the research survey was based on the theoretical framework that emphasizes: (a) new ways of learning literacy methods courses require a socially constructed knowledge; (b) skills in using intertextual references and

multimedia formats associated with the computer are crucial for learning literacy methods courses; and (c) knowledge of learning methods courses is dispersed and distributed among peers, texts, and technologies. Davies (2006) argues that technologies mediate learning and that they are a “product and process of socially dynamic relations” (p. 219) that facilitate shared practices, interaction, and collaboration. The survey instruments include:

Questionnaire. I developed a 19-item 4-point Likert-type attitudinal scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) to investigate the participants’ perceptions of how the asynchronous discussion board influences learning to teach literacy. To collect data for the study in an objective manner, I used a modified version of Delphi Technique to collect input for designing a survey. Hsu and Sandford (2007) define Delphi Technique as a method based on a structured process of data collection and knowledge integration from different experts through a series of questionnaires. To assess the content validity and usability of the survey instrument I created, I asked two professors of literacy education and a class of ALTs on another campus, respectively, to respond to some open-ended questions. The initial survey defined the study, its goal, and general parameters. The respondents suggested many ideas such as how they used the asynchronous discussion board for mediating teaching/learning, its advantages, disadvantages, areas needing improvement, and approaches for better using the technology. I integrated the ideas into the second draft of the survey, printed it, and later personally administered it. I later collected the survey with feedback, including comments, clarifications, areas of ambiguities, vagueness, grammatical problems, what to add or delete, and how to arrange the questions in clusters. I then used the feedback to revise the survey. I designed a final copy and later administered it to the participants.

The survey was divided into three parts. Part I (1–6) dealt with the participants’ biographical data, including information about gender, age, years of teaching, and ethnic background. Statements in Part II were organized in clusters. In #7–10, the participants responded to statements about their perceptions of using the asynchronous discussion board to make intertextual connections to different textual forms such as class discussions, lecture notes, textbooks, supplementary reading materials, other students’ postings, websites, and the Internet. In questions 11–14, the participants responded to statements on their perceptions of how the technology allowed them to consider alternative ideas, perspectives, and voices; carefully reflect on questions before posting their responses; freely share their own ideas, experiences, and perspectives; and integrate their peers’ ideas and views into their own postings. Also, in items 15–19, the participants responded to statements on how the technology mediated their views of their peers’ postings, including whether learning was enriching and fun, whether they appreciated their peers’ contributions and found their peers’ postings relevant to learning, and

whether they socially connected with their peers. I administered the survey on the last day of class.

Final reflection essay. The participants wrote and uploaded a six-page essay on how the asynchronous discussion board mediated learning of literacy methods courses during the 16th week of the semester. Specifically, they responded to the following questions posted on the asynchronous discussion board:

- How does the asynchronous discussion board help you learn literacy teaching methods from different sources?
- How does the technology help you consider alternative perspectives and voices other than your own?
- How does the technology contribute to your understanding of literacy teaching theories and research?
- How does the technology help you learn different teaching strategies in this course?
- How does the technology help you value and appreciate your peers' contributions?
- How does it help you make connections between learning to teach in this course and teaching in your own classroom?
- In what ways, other than the ones listed here, does the asynchronous discussion board help you learn in this course?

From past experiences of teaching the two courses for five years, I had observed that ALTs tended to provide broad (and sometimes unrelated and/or unsubstantiated) answers when given open-ended questions. I therefore developed the above structured survey questions to narrow the scope of the participants' responses. This approach allowed the participants to provide more focused, deep-level, and meaningful postings. The survey helped the students think critically and make connections between what they learned in this course and their own classroom practices. Furthermore, because the participants responded to structured survey questions, they considered diverse perspectives (e.g., their peers' postings, lecture notes, class discussions), and this resulted in a deeper understanding of the literacy concepts, topics, ideas, and issues they reflected on. Courtney and King (2009) note that when students are not given structured questions, their responses usually indicate they do not read assigned texts or fully understand the practical and theoretical implications of what they read. Mackey and Gass (2005) also observe that if research questions are to be interesting and address specific issues, "they need to be sufficiently narrow and constrained so that they can be answered" (p. 16).

Data Analysis

I analyzed quantitative data (questionnaire) using the SPSSPC + statistical software for a factor analysis and inter-rater reliability. I set a probability

Table 1. Reliability Coefficients for Item Cluster

Research Questions	Items in Clusters	Standardized Item Alpha
Part I	7–10	.8208
Part II	11–14	.8913
Part III	15–19	.8415

Table 2. Inter-Rater Reliability of Categorizations

Categorizations	%	Remark
a. Using discussion board to mediate intertextual connections	98.13	Excellent
b. Using the technology to facilitate exploration of alternative views	95.38	Excellent
c. Participants' views of their peers' contributions to learning	90.71	Excellent
d. Making connections between the course and classroom practice	88.42	Good

level of $p < .05$ for all tests of statistical significance. Responses to the survey items were subjected to a factor analysis to verify the goodness-of-fit of the data in each cluster. Table 1 shows that items 7–10, 11–14, and 15–19 had reliability coefficients of .8208, .8913, and .8415, respectively. Also, I used the Cronbach's alpha to verify the reliability of the survey instrument. It was reliable at .8324.

In addition, I analyzed the final reflection essays based on the framework of discursive practice (Pavlenko, 2003). This refers to how people use language to organize, characterize, and evaluate knowledge, actions, and events from a particular perspective. I segmented the participants' utterances based on semantic features, such as ideas, concepts, and topics of discussion. I then coded their responses and developed them into a categorization scheme with the following categories: (a) using the asynchronous discussion board to mediate the use of intertextual connections, (b) using the technology to facilitate an exploration of alternative views, (c) the participants' views of their peers' contributions to learning, and (d) making connections between coursework and classroom practices.

The qualitative data (final reflection essay) was subjected to an inter-rater reliability test to establish the reliability of the coding system. One master's student, whom I trained, and I independently scored and categorized the participants' final reflection essays using the developed categorization scheme. The categorizations were then subjected to a two-raters'-reliability-of-categorization test to determine the level of similarity between raters' classification (Mackey & Gass, 2005). The inter-rater reliability was then calculated using a simple percentage of agreement. The inter-rater reliability ranges from 0 to 100%, where 100% indicates a case of complete agreement between raters. Table 2 showed that each categorization had a high percentage reliability rate at 98.13, 95.38, 90.71, and 88.42, respectively.

Furthermore, I triangulated the data from both qualitative and quantitative sources to reflect the complexity of the issue in this study and to compare and contrast the data from the final-reflection essays and questionnaire.

Table 3. The Participants' Views on Discussion Board and Intertextual Connections

Questions	S/A (%)	A (%)	D (%)	SD (%)
7. Made intertextual connections	20 (45.45)	22 (50.00)	2 (4.55)	0 (0.0)
8. Connections between class discussions and readings	19 (43.18)	23 (52.27)	2 (4.55)	0 (0.0)
9. Use/imitate the language/style from textbook	12 (27.27)	30 (68.18)	2 (4.55)	0 (0.0)
10. Intertextual links to future events and experiences	19 (43.18)	23 (52.27)	2 (4.55)	0 (0.0)

Key: S/A = Strongly Agree, A = Agree, D = Disagree, S/D = Strongly Disagree

Also, because of space constraints, I chose two or three responses to exemplify each finding so that the samples represented a generalization of the participants. In addition, I provided a brief biographical profile of selected participants whose responses were representative. I assigned the participants pseudonyms for anonymity. For space constraints, I shortened the questions (see Appendix, pp. 27–28, for the original version).

Findings and Discussion

The research objective of this study was to explore how ALTs used the asynchronous discussion board to mediate learning in two literacy methods courses. The findings are discussed next according to the questions raised at the beginning of the study.

Asynchronous Discussion Board Mediated the Use of Intertextual Connections for Alternative-Licensed Teachers

The asynchronous discussion board helped the ALTs make intertextual connections between different text types. The participants indicated in the quantitative data that they juxtaposed assigned readings with prior experiences, textbooks, peers' postings, and website readings.

Table 3 indicated that 20 (45.45%) and 22 (50.00%) of the ALTs strongly agreed and agreed, respectively, that the asynchronous discussion board allowed them to make intertextual connections between their notes, textbooks, peers' postings, and websites as they prepared their postings. Also, 19 (43.18%) and 23 (52.27%) of the participants strongly agreed and agreed, respectively, that the technology afforded the opportunity to make connections between class discussions and assigned readings. Furthermore, 12 (27.27%) and 30 (68.18%) of the ALTs strongly agreed and agreed, respectively, that it allowed them to use or imitate the language or style from the textbook prescribed for this course.

The participants' reflection essays also indicated that the asynchronous discussion board mediated the deployment of intertextual connections. For example, Monica (28 years, female, full-time teacher, high school credential candidate) wrote:

By using discussion board I was able to make intertextual connections. Answering questions in the classroom requires you to use only your brain. However, answering questions on discussion board allowed me to

use various texts: notes, textbooks, and peers. It is possible to call classmates and get their input. Looking at others' postings helped me get ideas as well.... I could also do research online and look at images. Reading online articles from reliable literacy sources is a great way to get ideas that are not in textbooks or arise during class discussions.... I learned that using various texts, notes, and other sources for one answer is a possibility when using discussion board.

Similarly, Maria (30, high school intern teacher for two years) wrote:

Having the discussion board sessions benefited me greatly in this class. I was able to watch video clips posted by my classmates. I also accessed websites with links provided by my classmates and learned about interesting teaching activities for literacy lessons in high schools. In fact, I downloaded many activities and used them with my students. My students enjoyed the video clip with activities on How the Body Works.... Through [discussion board] I connected with different types of texts in order to lead me to a richer understanding of a given topic.

The qualitative and quantitative data from the participants suggested that the asynchronous discussion board functioned to mediate learning to teach literacy. The technology afforded the participants the opportunity to read different textual forms: class discussions, lecture notes, textbooks, and other life experiences. In turn, this helped them to construct their understanding of assigned readings as they struggled to prepare their own postings. It is in this sense that Varelas & Pappas (2006) suggest that intertextuality helps ALTs construct meanings of texts from other contexts that instructors and course mates bring to lectures as they juxtapose these meanings with the meanings from texts they read in class.

More important, the nature of learning and knowledge acquisition through the asynchronous discussion board is highly hybridized. The concept of hybridity means that individual learners have multiple identities, cultures, and varied life experiences and perspectives that are constantly combined and integrated to construct and interpret different texts. For example, as the participants made intertextual links with different texts such as class discussions, textbooks, and past experiences, they combined and related multiple layers of experiences, diverse discursive practices, multiple genres, and multiple modes of meaning making to construct an understanding of assigned readings (Cope & Kalantzis, 2000). Cope and Kalantzis (2000) argue that intertextuality contributes to hybridity. Morson and Emerson (1990) contend that individuals "come to mix existing discourses they know and encounter with each other in order to come to terms with changing daily experiences" (p. 342).

ALTs rarely learn this kind of learning to teach literacy in the traditional literacy education program, where emphasis is usually on "understanding or producing unified, coherent texts based on a definitive, single perspective"

Table 4. The Participants' Views of How an Asynchronous Discussion Board Helped Them Consider Alternative Perspectives

Questions	S/A (%)	A (%)	D (%)	SD (%)
11. Alternative perspectives and literacy teaching method	21 (47.73)	18 (40.91)	5 (11.36)	0 (0.0)
12. Reflection on questions before posting responses	22 (50.00)	18 (40.91)	4 (9.09)	0 (0.0)
13. Opportunity to share perspectives about literacy	17 (38.63)	25 (56.82)	2 (4.55)	0 (0.0)
14. Integrated peers' ideas and views into my postings	21 (47.73)	18 (40.91)	5 (11.36)	0 (0.0)

Key: S/A = Strongly Agree, A = Agree, D = Disagree, S/D = Strongly Disagree

(Doering & Beach, 2000, p. 130). This finding suggests a need for literacy education curricula that prepare the participants to use alternative ways of processing texts—how to construct knowledge using intertextual and hypertext links between a range of different text types or genres. It is in this regard that the asynchronous discussion board becomes an effective tool of mediating the use of multigenre intertextual connections and production of hybridized texts.

Asynchronous Discussion Board Facilitated Exploration of Alternative Perspectives

An important finding is that the asynchronous discussion board encouraged the ALTs to consider perspectives different from their own. The quantitative data in Table 3 showed that the discussion board mediated learning and encouraged the participants to consider multiple perspectives.

Table 4 showed that 21 (47.73%) and 18 (40.91) of the participants strongly agreed and agreed, respectively, that the asynchronous discussion board allowed them to consider alternative ideas and perspectives from their peers, instructor, textbooks, and websites about literacy teaching methods. Similarly, 22 (50.00%) and 18 (40.91) participants strongly agreed and agreed, respectively, that the technology provided them the opportunity to freely share their own ideas and perspectives with their peers about different literacy topics covered during lectures. Also, 17 (38.63%) and 25 (56.82%) strongly agreed and agreed, respectively, that it afforded them the time to carefully reflect on questions before they posted their responses.

The participants' essays also suggested that they considered multiple perspectives and voices as they posted their responses. For example, John (32 years, male, intern teacher, high school credential student) responded to the question: "How does the asynchronous discussion board help you consider alternative perspectives and voices other than your own?" in the following way:

By reading what our classmates have posted on discussion board, we are exposed to other perspectives that we may not have even considered. There were many weeks in which I had what I believed to be the "right" answers to the weekly discussion questions. After posting my answers, I would read some other students' answers, and realized that

I had approached the questions from only one perspective; I hadn't really thought of the questions from others' perspectives. Once I read what others had to say, I learned not only that there were different ways of approaching the same "problem/challenge," but on many occasions I have had to modify my original postings.

Similarly, Fernando (28 years, full-time teacher, and high school credential student) wrote:

The discussion board gives us the opportunity to gain insights on how our classmates relate the text to their own lives. It's very interesting when students are given the same question, but an abundance of different perspectives and ideas occur. Each individual is different and discussion board allows us to see that.... It allows students to voice their opinions even if they are not supported by others.

Marlin (34 years, full-time and elementary credential student) pointed out:

Having access to my classmates' responses helped me to understand literacy theories and strategies we discussed in class rather than just reading the textbook. They elaborated on practical applications of strategies like story impression, word splash, anticipatory guide and discussion webs that they had successfully used in their classrooms. For me, reading and responding to the threads containing practical applications in real-life classrooms were a very enriching didactic interaction since I could read and reflect on how to apply them in my own classroom.

Both the qualitative and quantitative data indicated that the asynchronous discussion board provided the participants a space to consider alternative perspectives through reading their peers' postings. For example, although some participants noted that they changed their minds on the effectiveness of specific strategies after reading their peers' postings, others pointed out that they modified their views on some issues. The participants brought into their discussions diverse backgrounds and voices as intern teachers, substitute teachers, full-time teachers, English-only speakers, bilinguals, and bilingual educators and created a learning context that reflected their own views, conceptions, and knowledge of learning literacy methods courses. John framed his postings in an exploratory and tentative way—awaiting clarifications, agreements, or disagreements from his peers' postings. Marlin integrated her peers' postings, textbooks, and her learning to better understand literacy teaching strategies.

Unlike the traditional literacy teacher education, learning to teach literacy through the asynchronous discussion board is a social construction situated in specific contexts of learning. In the technology, the participants' learning involves the interactions of their peers, contexts, technologies, and appropriation of socially constructed knowledge (Ajayi, 2009; Black,

2005; Courtney & King, 2009). This is possible in asynchronous discussion board mediated learning because contexts are hybrid and polycontextual, participants are multivoiced, discussions are multithreaded, and texts are multiscripted and multisourced (Ajayi, 2009; Black, 2005; Hall & Saxon, 2009; Varelas & Pappas, 2006). These affordances of the technology provided the participants the opportunity to engage in deep-level analyses of texts through simultaneous activities of analyzing, synthesizing, and evaluations to make decisions about how different text types provide differing perspectives on the same topic (Black, 2005; Doering & Beach, 2000). Black argues that when students analyze, evaluate, explain, and defend their ideas, they are forced to engage in knowledge construction in ways that facilitate higher-order learning.

Consequently, the participants' postings on the asynchronous discussion board were polymorphous reconstructions, in which they integrated what they understood with what they learned from other sources (peers, websites, textbooks, etc.) with different perspectives on the same topics to produce unique and hybrid responses (Cope & Kalantzis, 2000). This situated learning is particularly important in this rural border community, where a majority of ALTs are ELLs and sometimes lack the linguistic resources to participate actively in class discussions. Doering and Beach (2002) argue, "The more open students are to experimenting with alternative ways of being and knowing, the more open they are to entertaining alternative values, as opposed to a rigid, monologic, perspective on the world" (p. 132). This is particularly true in this study, as ALTs, through the asynchronous discussion board, are afforded multiple ways of learning literacy methods courses and therefore are able to "make choices, rely on their own strengths and styles of learning and problem solving, while also exploring alternative styles" (Gee, 2003, p. 209). Gee (2003) argues that learning is a situated practice in which learners actively (a) immerse in experiences and lifeworlds, (b) reflect on situations and domains of learning, and (c) situate their understandings through embodied experiences of specific domains.

However, this kind of active, critical learning—in which ALTs actively engage in the construction and use of knowledge in methods courses—is hardly made available in the traditional literacy teacher education. Teacher education programs need to reconceptualize literacy teacher preparation in terms of what ALTs' can think and do with their peers, how they can leverage more knowledge from other people through the asynchronous discussion board, and how their learning is richly interconnected with other people's ideas, perspectives, agreements, and disagreements (Gee, 2003).

Participants Had Positive Views of Their Peers' Contributions to Learning

An important finding in this study was that the participants had positive views of their peers' contributions to learning literacy methods courses

Table 5. Participants' Views of Their Peers' Contribution to the Learning Process

Questions	S/A (%)	A (%)	D (%)	S/D (%)
15. Learning from my peers is enriching and fun.	14 (31.82)	21 (47.73)	9 (20.45)	0 (0.0)
16. I freely shared and contributed my own ideas.	15 (34.09)	29 (65.91)	0 (0.0)	0 (0.0)
17. I valued and appreciated others' contributions.	14 (31.82)	25 (56.82)	5 (11.36)	0 (0.0)
18. My peers posted relevant materials.	11 (25.00)	26 (59.09)	7 (15.91)	0 (0.0)
19. I connected socially with my students.	16 (36.36)	24 (54.55)	4 (9.09)	0 (0.0)

Key: S/A = Strongly Agree, A = Agree, D = Disagree, S/D = Strongly Disagree

using the asynchronous discussion board. The data from the participants suggested that the combination of the technology and peers' postings facilitated (a) interactive learning process with course mates, (b) multiple ways of engaging with their peers, and (c) learning methods courses as social and fun. These are reflected in their responses to the survey questions.

Table 5 indicates that 14 (31.82%) and 21 (47.73) of the participants strongly agreed and agreed, respectively, that learning from their peers was enriching and fun. Similarly, 15 (34.09) and 29 (65.91) of the participants strongly agreed and agreed, respectively, that the asynchronous discussion board allowed them to freely share their ideas and perspectives with their peers. Also, 14 (31.82%) and 25 (56.82%) of the participants indicated that they strongly agreed and agreed, respectively, with the statement that they appreciated and valued the contributions of their peers as they learned to teach literacy. Furthermore, 16 (36.36%) and 24 (54.55) of the participants strongly agreed and agreed, respectively, that they socially connected through the asynchronous discussion board with their peers.

The participants' essays indicated similar positive attitudes to their peers' postings. For example, Martha (28 years, substitute and elementary credential teacher) wrote:

My course mates provided interesting, educative answers. They are not talking theories; they are talking about real classroom experiences. You know, we are all teachers. There was one particular posting that showed me how to implement discussion web to activate students' prior knowledge. It goes like this: the teacher will first post a controversial question. Students would read the text to develop their arguments and within the text they would need to cite evidence that support their viewpoints. Once students have developed their supportive arguments, consensus will follow through discussion. I practiced this strategy the following day. The topic was "Should students be required to wear a uniform or not?" Suddenly, my students came alive; everybody had an opinion and ready to share it. I now use that strategy in my class almost on a daily basis.

Furthermore, Juan (48 years, high school full-time teacher and credential student) noted:

I appreciate other' contributions as such helped me to understand their knowledge about a given subject. For example, I learned how to use the double entry journal logs through the discussion board. I learned that students had to write a quotation from their reading, reflect on it and then use their personal background knowledge to interpret the quotation. When I applied this concept to students of mine, I saw they were more involved and engaged in the lesson as it gave them the chance to freely express their own experiences.

In addition, Cecilia (48 years, a substitute teacher and elementary school credential student) wrote:

My peers' postings gave me the opportunity to learn how students' existing knowledge, experiences, and viewpoints are part of the backgrounds they bring to classrooms. As I learned, students have so much to contribute to literacy lessons just by speaking about their experiences: families, traditions, and everyday experiences—all making up their backgrounds and prior experiences, which in turn get the students motivated and engaged in the learning process.

The participants' written reflections and responses to survey questions showed that they created a learning community built on mutual trust and respect. Also, they valued and appreciated each others' contributions. This positive attitude might be due to (a) the structure setup for discussion board interactions that provided a space for scaffolding the participants' knowledge, and/or (b) the complement of discussions among the participants on specific topics that motivated learning and created learning contexts in which their postings became crucial for knowledge construction and reconstruction in the online space. For example, all the participants seemed to be eager to learn how their peers used specific literacy strategies in their classrooms and how they too could integrate such strategies into their own teaching practices. Here, the participants sought to learn how to transfer theory into practice from their peers. More important, unlike the traditional literacy teacher education classes, the discussion board allowed the participants to appropriate knowledge from one another without the fear they were "stealing" from their peers.

Embedded in this kind of social constructivist view is the assumption that learning of literacy methods courses and knowledge growth is a result of social mediation through personal interactions and appropriation of socially mediated knowledge (Black, 2005; Courtney & King, 2009). Davies (2006) and Gee (2003) argue that literacy knowledge in technology-mediated space is a process of socially dynamic relations between learners, others, tools, and technologies. The notion of distributed principle (Gee, 2003), where knowledge is distributed across peers and technologies, is particularly relevant to ALTs grappling with the complexities of learning to teach in an underserved,

rural border community. The fluidity of the border community challenged the participants to recognize that there were many types of knowledge (social, individual, dispersed, distributed, intuitive, etc.) and to rethink how these diverse knowledge forms extended learning and social connections (Davies, 2006; Gee, 2003).

Data analysis here suggested that the participants' perceptions of the kinds of social interactions surrounding the use of the asynchronous discussion board have the potential to shape the principles by which knowledge, values, practices, skills, and teaching strategies are negotiated, learned, and applied to literacy teaching/learning (Ajayi, 2009). Kayler and Weller (2007) put it aptly: "The social construction of knowledge embedded in dialogue creates new opportunities for self-reflection, growth, and intrinsic motivation for belonging ..." (p. 141). More important, such dialogues and interactions happened in a "free" online social space where the participants could afford risk taking without being subjected to ridicule as they shared ideas, perspectives, agreements, and disagreements (Gee, 2003).

Summary of Findings

This study explored ALTs' view of how the asynchronous discussion board mediated their learning of literacy methods courses. The findings suggest that the technology has the potential to transform literacy teacher preparation from teacher- to student-centered; generate positive structure and support for learning; shift learning from an isolated activity to social, collaborative work; and move learning from passive to active processes. The findings indicated that the rubric used in the study set clear expectations for the participants. Also, the structure setup of discussion board interaction facilitated positive learning outcomes. These factors provided the participants opportunities to use the technology as a social, interactive space to adapt, refine, appropriate, and extend their own—and each other's—learning, skills, knowledge, and dispositions. Courtney and King (2009) argue that this type of "collective knowledge building in a community of learners acts synergistically as a scaffold enabling the participants to develop a more concrete and deeper level of literacy [teaching] understanding" (p. 31).

In addition, I mandated that participants integrate materials from multiple sources into their postings. This mandate encouraged the participants to use the technology to mediate intertextual connections with other texts. Intertextual connections helped the participants combine and relate multiple sources of information to construct and refine content and pedagogical knowledge needed to be effective literacy teachers. I further prompted the participants to complement their responses with class discussions. The prompt encouraged the participants to adopt multiple voices and perspectives as they considered diverse ideas and viewpoints that were different from theirs and made their own voices heard. In this way, the technology becomes a useful means of prompting the participants to construct new

shared knowledge of literacy instructional strategies. Furthermore, the participants had positive views of their peers' contributions to their learning to teach. The technology supported the creation of a learning community in which participants freely express themselves without the fear of critical judgments from their peers. This point is important in this border community, where most ALTs are themselves ELLs and may not have adequate language resources to participate fully in classroom face-to-face discussions.

Implications

Black (2005) contends that an online environment provides the most suitable human interactions that are crucial to learning and that it should be further explored as a social space for learning and critical thinking. The questions then are: (a) What do the findings in this study mean for teacher education candidates, including ALTs, in terms of their own learning in teacher education programs? (b) How can change at the university level affect change at elementary and high schools? For change to be beneficial to ALTs and K–12 student learning, teacher education programs, politicians, and school districts, particularly in rural areas, need to recognize the shift in literacy practices and the ways students learn. Such a new view of literacy teacher education has enormous implications, as discussed next.

Recommendations for Implementation in Teacher Education Programs

At the philosophical level, teacher education programs need to reconceptualize literacy teacher preparation to emphasize a constructivist view of learning as social, distributed, dispersed, and networked in the affordances of people, texts, materials, and technologies (Gee, 2003). In view of the pervasive connectivity and social networks in people's lives, this study suggests the need for literacy teacher education programs to use social network sites as important resources for exploring and understanding how online interaction impacts ALTs' pedagogical practices. For example, teacher educators can use social network sites to bring ALTs together to create knowledge and reflective practices in a more collaborative way (Byrne, 2008; Ondrejka, 2008). Researchers can analyze the social network sites such as MySpace, Facebook, YouTube, Tagged, Bebo, Twitter, Ning, Meetup, ResearchGATE, LinkedIn, and many others to determine the ways ALTs communicate in their groups. This will provide literacy education researchers the opportunity to explore the kind of content ALTs create, how they acquire new literacy teaching knowledge and skills, their situated practices (learning by doing), how their shared interests foster mutual support for learning, and how they leverage knowledge to build skills they can use in real-life classrooms (Gee, 2003).

The dialogue and interaction in the sites will potentially provide researchers a space to examine how ALTs reflect, theorize, reproduce and renovate literacy teaching knowledge, and how learning to teach literacy is shaped

within the different social network sites. For example, researchers can study how ALTs view and discuss issues relating to their students' cross-cultural experiences, what counts as literacy knowledge, how it should be taught, valued, assessed and applied in classroom contexts, and how teachers' socio-cultural identities mediate their practices. Such studies will allow researchers to better understand the ways in which literacy teachers in social network sites build communities of practice, how they pass along knowledge, skills, practices, and dispositions about literacy teaching (Byrne, 2008; Lave & Wenger, 1991). Byrne (2008) argues that as "online discursive interactions are also sites of social interaction, they must be understood as reflections of a "knowledge base" that reveals larger offline social structures, situations, and norms" (p. 24) about literacy teaching.

The affordances of social network sites suggest that researchers need to pay a particular attention to how ALTs use non-textual, multimodal resources to communicate and share their views of literacy instruction. Community members of social network sites use the synergy of different modes and media of communications such as language, symbols, music, gesture, sound, font, colors, maps, concept maps, illustrations, graphs, photos, visual images, diagrams, graphics, video clips, and spatiality for representation and communication. Social networks also can be hypertextual, hypermultimodal (incorporating images, language, audio, etc.), and hyperlinked to multimedia texts associated with the Internet, Websites, Web logs (blogs), videogames, etc. Such connective capabilities can allow ALTs to share in and negotiate knowledge construction in literacy instruction. In particular, with ALTs' diverse backgrounds, the resources of social sites can foster multiple opportunities for discussion, diverse interpretations of literacy texts and pedagogy. The affordances of social network sites can allow ALTs to move beyond the traditional narrow focus on content knowledge to view literacy teaching as interpretative activity involving discovery and inquiry as they reflect on, chat, talk, contest, and negotiate literacy teaching methods in their social communities (Byrne, 2008).

Furthermore, since there is the potential that the knowledge of literacy teaching can be produced and taught in social networks, there is a need to theorize about skills, practices, views, issues and concerns that ALTs may experience in the informal learning sites, and for developing effective strategies for helping them engage with reflective practices in more critical ways. Byrne (2008) argues that those who join social networks are not only learning the rules of initiation, structure and participation in group discussions with people of diverse views, they are also "constantly learning and teaching each other about the overall effect that the individualized act of voicing opinion has on collective thinking and action" (p. 31). In sharing diverse views and perspectives about literacy instruction, ALTs can forge a deep-level understanding of the connection between literacy instruction and reflection on practice as they learn from community members the different strategies for teaching literacy and differing reflective practices.

In addition, many teacher educators may need to redesign their syllabi to integrate more effective learning activities. For instance, they may need to use rubrics to set clear expectations, design structure setup for discussion board interaction, prompt students to complement their responses with class discussions and peers' postings and mandate students integrate materials from multiple sources into their responses. Such learning activities have the potential to help ALTs develop collaborative knowledge of literacy pedagogy, share experiences, and engage in deep-level reading of texts and promote intertextuality. Intertextual and hypertextual connections in the asynchronous technology produce new ways of integrating and constructing knowledge from related texts. Gee (2003) and Leu, et al., (2004) argue that knowledge is additive, shifting, multiple, interpretative, and interdependent in hypermedia.

Recommendation for Implementation in K–12 Classrooms

In a border community such as the site of this study, policymakers, school districts, and school administrators need to provide funds for the necessary infrastructural facilities, such as the computer, computer labs, access to the Internet, and technical support for ALTs. For example, schools should provide appropriate professional development when ALTs begin full-time teaching so that learning to use technologies in classrooms can be a lifelong practice. Also, literacy coaches should be hired to provide help and mentor ALTs and others in the use of information and communication technologies (ICTs). Equally important, each school site needs a technology specialist to guide and troubleshoot technical issues, which may present barriers to ALTs. In addition, school districts need to consider additional “training” for teachers who may need it. For example, school districts can develop partnerships with teacher education departments and arrange workshops for new and old teachers.

Furthermore, schools can encourage dialogic teaching (Richards, 2008), a practice where new teachers engage in collaborative conversations focusing on how to use technology for instruction. For example, teachers can be encouraged to engage in group conversations as they reflect on how they use technology to support student learning and jointly discuss issues relating to application of technologies as well as instructional planning and strategies. In this way, schools can truly become powerful agents; that is, institutions that create teaching/learning environments where ALTs can leverage more knowledge from their peers and technology and where teaching is social, networked, co-constructed, and shared in socially and technologically mediated spaces (Baker & Labbo, 2007; Gee, 2003).

Limitation of the Study

In this study, the course professor (this researcher) mandated the learning activities, provided clear expectations, and facilitated class and online discussions. It seemed logical to argue that my role contributed to the findings.

Therefore, there is a need for further studies that use different approaches to engage ALTs in learning and participation in social network sites. Different approaches may help researchers determine specific approaches that open more options and possibilities and increase ALTs' capacity for interactions and learning in social network sites.

Recommendation for Further Research

Finally, there is a need for additional studies with larger population of participants to further investigate the effect of the asynchronous discussion board and other ICTs in mediating ALT learning in border communities. The need for more studies is urgent, as rural border communities are profoundly under-represented in the research. Such studies should address the realities and complexities of teacher education and technology in rural border communities, where ALTs and their students have historically faced many challenges, including poverty; lack of access to institutional resources; inadequate technologies; and multiple cultural identities, experiences, and languages. The studies need to broaden teacher education's conception of literacy education beyond the current monolithic view and theorize on complex issues relating to schooling and specific border-community issues. The studies need to ask complex questions about steps to prepare literacy teachers to integrate technologies into their practices in border communities and suggest practical ways to support their professional development. The issue of technology in literacy teacher education needs to be framed within the context of the broader context of border communities. Gee (1999) succinctly observes that technologies generate positive or negative learning outcomes "only in, and in relationship to, specific social and cultural contexts as they recruit different forms of cognition, and they have different effects in different contexts" (Gee, 1999, p. 361).

Author Note

Lasisi Ajayi teaches language/literacy education to teacher candidates at San Diego State University. He has written numerous journal articles in the area of multiliteracies/multimodality. His book on teaching multimodal literacies in elementary schools is forthcoming. Correspondence regarding this article should be addressed to Lasisi Ajayi, Language/Literacy Education, Division of Education, San Diego State University—Imperial Valley, Heber Avenue, Calexico, CA 92231. E-mail: lajayi@mail.sdsu.edu

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Appendix

Questionnaire

This survey is designed to better understand the effectiveness of the discussion board as a tool of preparing preservice teachers to teach literacy in K–12 classrooms. Therefore, your participation in this study will be highly appreciated.

This is an anonymous study with no verifiable personal information. The data collected will be used only for summative and analytical purposes. It is important that you respond to all questions in the survey. There is no right or wrong answer. If you have questions about how to complete this survey, please, ask me for assistance.

Part 1: Biographical Information (please circle 1 option in 1 to 6 below)

1. Your number: _____
2. What is your gender? (a) Female (b) Male
3. What is your age? _____ Years
4. What is your present occupation?
(a) Full-time Teacher (b) Full-time Student (c) Intern Teacher (d) Teacher Assistant
(e) Others _____ (please, specify)
5. How many years have you been on this job? (For interns and full-time teachers only)
(a) Less than One Year (b) One Year (c) Two Years (d) Three Years (e) Four & Above
6. What is your ethnic background?
(a) African-American (b) Asian (c) Hispanic/Latino (d) White/Caucasian
(f) Others (please, name them): _____

Part 2 (Bubble your response to the following statements.)

- | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 7. Discussion Board allowed me to make intertextual links, e.g. read my notes, textbooks, other students' postings, the Internet, websites as I worked on my own postings. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Discussion Board affords me the opportunity to make intertextual connections between what we discussed in lectures and prescribed chapters for readings. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Discussion Board allowed me to use or imitate the language or style from the textbook prescribed for this course. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. I used intertextual connections to make references to future teaching events and experiences that may potentially happen in my future classroom. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. Discussion Board allowed me to consider alternative ideas and perspectives (from my course mates) about literacy teaching methods. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. I believe that Discussion Board gave me time to carefully reflect on questions before I posted my own responses. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. Discussion Board provided me an opportunity to freely share my own ideas, experiences and perspectives with peers about different literacy topics we covered during lectures. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. Discussion board allowed me to integrate my peers' ideas and views into my own postings. | Strongly Agree | Agree | Disagree | Strongly Disagree |
| | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. Learning from my peers through discussion board was enriching and fun.	Strongly Agree <input type="radio"/>	Agree <input type="radio"/>	Disagree <input type="radio"/>	Strongly Disagree <input type="radio"/>
16. The discussion board gave me the opportunity to freely contribute and shared my own ideas and perspectives about literacy instruction.	Strongly Agree <input type="radio"/>	Agree <input type="radio"/>	Disagree <input type="radio"/>	Strongly Disagree <input type="radio"/>
17. I learned to appreciate my course mates' views and beliefs about literacy instruction even when they differ from mine.	Strongly Agree <input type="radio"/>	Agree <input type="radio"/>	Disagree <input type="radio"/>	Strongly Disagree <input type="radio"/>
18. My course mates posted materials that were relevant to learning-to-teach literacy all the time.	Strongly Agree <input type="radio"/>	Agree <input type="radio"/>	Disagree <input type="radio"/>	Strongly Disagree <input type="radio"/>
19. The discussion board allowed me to connect socially with my peers.	Strongly Agree <input type="radio"/>	Agree <input type="radio"/>	Disagree <input type="radio"/>	Strongly Disagree <input type="radio"/>
