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Research in Brief

From the Editor's Desk:

This is the last issue of the Journal of Research in Education that I serve as editor. Beginning January 1, 2012, Dr. Abbot Packard assumes the duties of editor, and I have tremendous faith and respect for his abilities. As for the former EERA president, Abbot has an excellent insight into the different disciplinary areas of the Association, and in turn, this should prove to a powerful tool in refining and strengthening the journal and its interdisciplinary focus.

One of our greatest accomplishments during the past four years has been the transition to an online publication format. The move was initially difficult, but we have had many wonderful colleagues volunteer their time to help make this a reality. I am especially grateful to Chris Spruck for his work posting material, including past issues, to the online forum on the EERA website.

Our online presence has not only reduced the costs associated with the journal, but has also increased the access to the articles published. This visibility has also increased visibility for the journal, and for the past four years, our average acceptance rate has remained in the 18-24% range.

I have thoroughly enjoyed working with so many wonderful authors during the past four years and will miss the opportunity to communicate with such a diverse group of individuals. I particularly thank Dr. Darla Twale for her previous role as editor, and Dr. David Shannon for his presidential leadership for much of the time of my service as editor. I wish Abbot the best of luck during the next four years, I thank you all for your support and hard work, and hope that you will continue to support the journal in years to come!

Sincerely,

Michael T. Miller
Editor

Reading Strategies of Struggling Readers

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Abstract

The present study investigated the reading strategies struggling readers might consciously rely on when they encountered difficulty. Sixty-one first- and second-grade struggling readers individually participated in a reading interview. The interview included five open-ended questions, and the responses were coded with different "strategies" categories. Results showed that struggling readers were likely to rely on the strategy of examining word parts, consulting outside resources and using context to determine word. Suggested future research and implications for practice were also discussed.

Although reading experts have identified basic skills (e.g., phonological awareness, decoding, fluency, and vocabulary knowledge) that are important for successful reading, it has become clear that higher-order reading skills or those involved in comprehension itself are also essential to successful reading (National Reading Panel, 2000; Oakhill, Cain, & Bryant, 20003; Paris & Paris, 2003; Snow, 2002; van den Broek, Kendeou, Kremer, Lynch, Butler, & White, 2005). Some of these higher-order skills include print exposure and metacognitive strategies about reading (McBride-Chang & Chang, 1995), and the construction of a coherent representation of text in memory (Rapp, van den Broek, McMaster, Kendeou, & Espin, 2007).

Proficient readers and struggling readers perform differently in these basic skills and higher-order reading skills. Generally speaking, struggling readers were found to be deficient in decoding (Foorman, 1995; Goswami & Bryant, 1990; Perfetti, 1985), cognitive processing (Garner, 1987, Paris, Lipson & Wixson, 1994), metacognitive processing (Baker & Brown, 1984; Dole, Brown & Trathen, 1996; Garner, 1987) and working memory processes (Just & Carpenter, 1992; Swanson & Alexander, 1997).

Decoding skills include phonological awareness and letter and word identification. Struggling readers benefited from programs which taught students to transform letters into sounds and to blend the sounds to form recognizable words (Ehri, Nunes, Stahl, & Willows, 2001), which focused on phonemic awareness and phonemically based decoding skills (Ryder, Tunmer, & Greaney, 2008), and which practiced associations between letter patterns and pronunciations for pronounceable parts of words (Penney, 2002).

From a review of literature on the cognitive processes in text comprehension, Rapp, van den Broek, McMaster, Kendeou and Espin (2007) summarized possible sources of comprehension difficulties. With a limited attentional capacity, struggling readers were unable to adjust and allocate attention. Even when struggling readers had access to appropriate comprehension processes, they were unable to use them properly and incorrectly selected inappropriate information for constructing inferences. The quantity and quality of relevant background knowledge of struggling readers also prevented the activation of appropriate background knowledge.

Struggling readers are not good at knowing or applying metacognitive strategies to aid in reading comprehension. However, reading programs focusing on the use of metacognitive strategies improved the reading comprehension of struggling readers. These metacognitive strategies included reciprocal teaching, buddy journals, and the think aloud strategy (Guerlene, 2002); and strategies for word identification, vocabulary, visualizing, paraphrasing, self-questioning, and sentence writing (Cantrell, Almasi, Carter, Rintamaa, & Madden, 2010).

Working memory was a good predictor of comprehension (Daneman & Merikle, 1996; Swanson & O'Connor, 2009). Swanson, Howard, and Saez (2006) found that struggling readers showed deficits in the storage and executive processing component of working memory. Struggling readers had fewer attentional resources available to them, and had difficulty suppressing irrelevant information under high processing demand conditions.

The above studies located the deficiencies within the struggling readers. However, Triplett (2007) suggested that the deficiencies were socially constructed in school literacy contexts, curriculum, and relationships. She collected data from field notes of first-, second-, and third-grade students identified for reading intervention at their school, and semistructured interviews with classroom teachers, a reading teacher and a principal during a 4-month period. She found that students were struggling in contexts where teachers made assumptions about them based on class issues, teachers lacked the necessary education to work with them, and teachers made decisions in response to local and state accountability requirements. Students were also found to be struggling in curriculum that required them to read at a frustration level, answer questions at the end of chapters without any comprehension instruction, and lacked discussion as a vital comprehension strategy. In addition, students were struggling in relationships with teachers who did not invite them to talk about their reading or about themselves, and making them feel invisible, interrupted, and not cared for.

No matter whether these deficiencies reside within the struggling readers or in school literacy contexts, curriculum and relationships, these deficiencies may hinder struggling readers from moving to a higher level of discourse comprehension proposed by Johnson-Laird (1983, p. 407). The first level is phonemic or graphemic representation at which readers are concerned with decoding the sounds or letters of the language. Readers in the early stage of learning to read are frequently concerned with this level of reading to the exclusion of other levels. The second level is propositional representation at which readers are concerned with the surface structure of the language. Readers at this level identify the underlying propositions contained in the text and understand their relationships. The third level is the mental model at which readers are concerned with the true meaning of the language. Readers integrate the meaning of the sentence, its context of utterance, and the implicit inferences with their existing knowledge.

To remediate struggling readers' deficiencies in basic and higher-order reading skills, reading instruction programs have adopted different strategies to improve their reading comprehension. In fact, studies on strategy instruction found positive results on the reading comprehension and strategies use of struggling readers. For example, adolescent struggling readers receiving daily instruction in six strategies (word identification, visual imagery, self questioning, paraphrasing, and sentence writing) significantly outperformed readers who did not receive these instruction on a standardized measure of reading comprehension and reported using problem-solving strategies in reading to a greater extent (Cantrell, Almasi, Carter, Rintamaa, & Madden, 2010). In addition, Ryder, Tunmer and Greaney (2008) found that 6- and 7-year-old struggling readers benefited from explicit

instruction in phonemic awareness and phonemically based decoding skills, and outperformed measures of phonemic awareness, pseudoword decoding, context free word recognition, and reading comprehension.

Many of these reading instruction programs are based on what proficient readers do as they read (Pressley & Harris, 2006; Snowling & Hulme, 2005). Even though the National Reading Panel (2000) supported the idea of teaching such processes explicitly to all students, one challenge facing reading instruction studies is to better understand the strategies in which struggling readers are engaged. The understanding of struggling readers' reading strategies would be useful in developing reading instruction programs that directly influence their comprehension processes. If educators understand more about the reading strategies of struggling readers, educators are more likely to tailor a reading program which will meet the needs of struggling readers.

Vlach and Burice (2010) encouraged teachers to understand their students' interest and attitude toward reading at the beginning of the semester so that teachers could provide texts, set attainable goals, and created learning opportunities that reflected students' interests and attitude. They suggested asking whether students thought themselves as good readers, what students would do when they came to a word they did not understand, and what types of books were their favorites.

To explore strategies that children could potentially use when meeting unfamiliar words in reading text, Beech (2010) asked children aged 7 to 11 years old what they did when they were reading a book or something and they came across a word that they could not read. He found that most children irrespective of underlying skills prefer to identify an unfamiliar or difficult word in text by breaking it down and sounding out its constituent sounds. In addition to the explicit phonological strategy, many struggling readers did not have alternative strategies readily available apart from seeking help from teachers.

Conducting semi-structured interviews with first graders, Long, Manning, and Manning (1985) studied whether proficient and struggling readers held the same views about how they learned to read, what they and others did as they read, their reading ability, and why people read. Without any statistical analyses, the responses of the highest and lowest readers to the interview questions were compared and reported. Most readers stated that sounding out the word was the most frequent strategy they would use. The second strategy struggling readers used was asking their mothers while the second strategy proficient readers used was asking their teachers.

To further expand the studies of Beech (2010), the present study did not only ask struggling readers the strategies they used, but also the strategies they thought proficient readers would use, the strategies they and teachers would use to help someone struggling in reading, and the strategies they would use to make themselves better readers. Even though the present study used a similar instrument as the one used by Long, Manning, and Manning (1985), the present study conducted statistical analysis of the responses of struggling readers, not only readers with the highest and lowest reading scores.

Therefore, the purpose of the present study was to investigate the reading strategies struggling readers might consciously rely on when they encountered difficulty. Specifically, two research questions were asked. First, what were the reading strategies struggling readers could verbalize? Second, was there significant difference among the reading strategies struggling readers verbalized?

Method

Participants

Twenty-six first-grade (male 17, female 9) and 35 second-grade struggling readers (male 19, female 16) participated in the present study. The Developmental Reading Assessment (DRA; Beaver, 2003) was administered to all first- and second-graders at a suburban elementary school. Those students who scored at the bottom quartile were identified as struggling readers and invited to participate in the present study. All procedures followed the regulations of the institutional review board.

Procedure

The Reading Interview (Goodman, Watson, & Burke, 1987) investigated student perceptions of the reading process, the model the student believed teachers held about reading, and how a student's learning-to-read history affected his or her perceptions of reading. Five questions coded with "strategies" categories were used in the present study (Table 1). These five questions were open-ended and included the reading strategies that the reader could verbalize, the student's notion of what an effective reader was and did, and what students had seen teachers did to help students and what they thought teachers ought to do. All participants were administered the five questions of the Reading Interview individually in a quiet classroom of an elementary school at Midwest.

Data Analysis

The five questions of the Reading Interview (Goodman, Watson, & Burke, 1987) were coded by the researcher with the "strategies" categories according to the coding directions associated with the instrument. The "strategies" categories included using context to determine word, examining word parts, consulting outside resources, omitting, using word meaning, depending on classroom procedures, using word identification, reading text, attending to reading speed, taking interest in reading, and unclassifiable.

When a student provided several answers to one question, the codes were recorded in the order the student provided the answers. When a student provided several answers to one question and the answers, though different, received the same code, code the different answers only once. When it was not entirely clear what a student might mean by an answer, previous or succeeding answers might be consulted for clarification.

Results

Reading Strategies Struggling Readers Verbalized

To answer the first research question about the reading strategies struggling readers could verbalize, Table 2 showed that struggling readers verbalized ten identified reading strategies. The first identified reading strategy was the use of text information to determine word. Examples included: figure out the word, read it over again, look for the pictures, go on to the next word, etc. The second strategy was the examination of word parts, such as letters, the alphabet, syllables, vowels, and endings. Examples

included: sound out the words, blend it and sound it out, underline the word and break it up, get the mouth ready to sound out the first letter, etc.

The third strategy was the consultation of resources outside the reader, either another person or a written source such as a dictionary. Examples included: ask help from someone including peers, teachers, siblings, parents and grandparents; look it up in dictionary, etc. The fourth strategy was the complete omission of a word. Examples included: skip the word, read other words, read something else, pass the word up, etc. The fifth strategy was the explanation of the meaning of a word. Examples included: tell them the word, help them with the words, put the word in a sentence, etc.

The sixth strategy was the classroom procedures involving physical movement, classroom materials or groupings, or diagnostic procedures. Examples included: write it on the board, take it to the back table, raise hand for teacher, do work at the reading level, figure out what the trouble was, etc. The seventh strategy was the identification of a whole word or the practice of whole words. Examples included: read every word, read bigger words easier, learn big words, ask what the word would be, identify new words, practice with the words, draw pictures to show what the words mean, etc. The eighth strategy was the reading, buying, or borrowing of books, stories, or other text. Examples included: read with me, read books to them, read bigger books, find a different book, read every day, read more books, read more and different things, etc.

The ninth strategy was the attending to reading speed. Examples included: read faster, read slowly & steadily, read fluently, stop at periods, smoothing it out, etc. The tenth strategy was the interest in reading. Examples included: learn from the reading, read more books, etc. The eleventh strategy was the unclassifiable or unintelligible answers that did not fall into any categories of reading strategies. Examples included: I wouldn't read anyway, just read better, make a book, I get mad, etc.

Differences among the Reading Strategies Struggling Readers Verbalized

To answer the second research question about the differences among the reading strategies struggling readers verbalized, the percentage of the frequency of each reading strategy was computed (Table 3). The percentage was then analyzed in a multivariate Analysis of Variance (ANOVA), with reading strategy as the dependent variable and $p < .05$ as the significant level.

Results showed a main effect of strategy, $F(10, 51) = 407.3$, $p < .001$, partial $\eta^2 = .988$. Further pairwise comparisons using a Bonferroni correction showed that the percentage of examining word parts was significantly higher than the rest of the strategies ($M = 42.46\%$, $SD = .23$). The second most verbalized strategy was consulting outside resources ($M = 21.02\%$, $SD = .17$), and the third one was using context to determine word ($M = 10.5\%$, $SD = .13$). The percentage of using the rest of the reading strategies was less than 10%, and these strategies did not differ from each other.

Discussion

The reading strategy struggling readers verbalized with the highest frequency was examining word parts. This included sounding out the words, blending the word and sounding it out, underlining the word and breaking it up, and getting the mouth ready to sound out the first letter. These findings corresponded to those findings from Beech (2010) and Long, Manning, and Manning (1985). Nearly

half of the struggling readers in the present study consciously rely on these strategies when they encountered difficulty in reading. Triplett (2007) stated that struggling readers were placed in curriculum that lacked comprehension strategy. Sounding out may be the primary strategy these struggling readers have learned from the curriculum they are placed in. Such a lack of knowledge of comprehension strategies may further put the struggling readers in disadvantaged positions.

In addition, the use of examining word parts indicates that struggling readers are at the first level of phonemic or graphemic representation of discourse comprehension proposed by Johnson-Laird (1983). They are concerned with decoding the sounds or letters of the language, rather than constructing meaning from the text. To them, reading is all about sounding out the words. As long as they are able to sound out the words, they think they are able to read. This misconception of reading may come from the fact that sounding out is all they have learned about reading.

The other reading strategies struggling readers verbalized were consulting outside resources and using context to determine word. Consulting outside resources includes asking help from peers, teachers, siblings, parents and grandparents or looking the word up in dictionary. These findings also corresponded to those findings from Beech (2010) and Long, Manning, and Manning (1985). About 20% of struggling readers noted asking help from teachers. It is encouraging that struggling readers consider teachers as the primary outside resources when they encounter difficulties in reading. Teachers may take up the role as the more knowledgeable adult who scaffolds the reading of struggling readers. However, it is discouraging that only a small number of struggling readers seek outside resources. Over half of the struggling readers opt for dealing with the difficulties in sounding out the words by themselves.

Using context to determine word includes reading it over, going on to the next word, or looking for the pictures to figure out the word. Previous studies (Beech, 2010; Long, Manning, & Manning, 1985) did not mention that struggling readers used this strategy. The present study showed that only 10% of struggling readers used the strategy of reading it over to figure out the word. This may be because struggling readers use sounding out as the primary strategy when they encounter difficulties in reading. In fact, should struggling readers use the other information from the text to figure out the part they do not understand, they would have moved to the second level of propositional representation or the third level of mental model of discourse comprehension postulated by Johnson-Laird (1983). Again, the dominance of sounding out and the scarcity of using context to determine word and other strategies indicate a limited repertoire of reading strategies struggling readers are engaged in.

Limitations of the Study

Since the present study was conducted in one elementary school in the Midwest, the results may not be able to generalize to the other elementary struggling readers across the nation. However, it may give an insight into the reading strategies struggling readers are able to verbalize.

Suggested Future Research

The reading interview may be administered to understand the reading strategies verbalized by various types of readers, e.g., readers of different reading abilities (i.e., proficient readers, average readers,

struggling readers), readers of different age group (i.e., elementary, secondary, college, adult), or readers of different content areas (i.e., scientific reading, social studies reading, language arts readings).

With a better understanding of the reading strategies struggling readers are consciously relying on, future studies may also focus on the reading strategies struggling readers can verbalize after receiving reading intervention. This could be used to determine the effectiveness of reading intervention programs.

Implications for Practice

In addition to teaching the reading strategies of proficient readers to struggling readers, reading intervention programs should also understand the strategies in which struggling readers are engaged. The present study found that examining word parts was the strategy struggling readers were more likely to consciously rely on when they met difficulties in reading. An effective reading intervention program should go beyond the reading strategies of proficient readers and empower struggling readers to use strategies other than sounding out.

With sounding out the word as the dominant strategy, struggling readers are actually in a disadvantaged position in reading. Teachers should be aware of the impact of school literacy contexts, curriculum, and relationships on the limited strategy struggling readers use in reading. Were teachers equipped with the knowledge to work with struggling readers? Were struggling readers asked to answer questions at the end of chapters with any comprehension instruction? Were struggling readers invited to talk about their reading or about themselves?

To overcome such disadvantage, teachers may expose struggling readers to higher-order reading skills. Teachers may teach directly different reading strategies to struggling readers so that they will be able to understand the structure of language and construct meanings from the text. In addition, struggling readers may be paired up with proficient readers to learn reading strategies other fellow students are engaged in so that they know sounding out is not the only strategy they may use.

Conclusions

Teaching reading strategies of proficient readers to struggling readers is not the whole of an effective reading intervention program. Educators should also understand the reading strategies struggling readers are engaged in. Such an understanding is necessary for educators to encourage struggling readers to use strategies other than those they are familiar with.

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The author wishes to express special thanks to those teacher candidates who worked with the struggling readers and collected the data.

Table 1
Reading Interview Questions

1. When you are reading and come to something you don't know, what do you do? Do you ever do anything else?
2. When a good reader does come to something s/he doesn't know, what do you think s/he does?
3. If you know someone was having trouble reading, how would you help that person?
4. What would a/your teacher do to help that person?
5. What would you like to do better as a reader?

Note. These questions were taken from the Reading Interview published in Goodman, Y. M., Watson, D. J., & Burke, C. L. (1987). *Reading miscue inventory: Alternative Procedures.* New York, NY: Richard C. Owen.

Table 2
Reading Strategies Struggling Readers Verbalized

Strategies	Examples
1. Use context to determine word.	figure out the word; read it over again look for the pictures; go on to the next word
2. Examine word parts.	sound out the words; blend it and sound it out underline the word and break it up get the mouth ready to sound out the first letter
3. Consult outside resources.	ask help from someone including peers, teachers, siblings, parents and grandparents look it up in dictionary
4. Omit.	skip the word; read other words read something else; pass the word up
5. Word meaning.	tell them the word; help them with the words put the word in a sentence
6. Classroom procedures.	write it on the board; take it to the back table raise hand for teacher; do work at the reading level figure out what the trouble was
7. Word identification.	read every word; read bigger words easier learn big words; ask what the word would be identify new words; practice with the words draw pictures to show what the words mean
8. Read text.	read with me; read books to them read bigger books; find a different book read every day; read more books read more and different things
9. Attend to reading speed.	Smoothing it out; Read faster Read fluently; Stop at periods Read slowly & steadily
10. Take interest in reading.	Learn from my reading Read more books
11. Unclassifiable.	I wouldn't read anyway; Just read better Make a book; I get mad

Table 3
The Percentage of Reading Strategies Verbalized by Struggling Readers (N=61)

Strategies	Percentage (Standard Deviation)
1. Use context to determine word.	10.5% (.13)
2. Examine word parts.	42.46% (.23)
3. Consult outside resources.	21.02% (.17)
4. Omit.	1.78% (.05)
5. Word meaning.	2.15% (.06)
6. Classroom procedures.	4.03% (.09)
7. Word identification.	2.61% (.07)
8. Read text.	3.51% (.07)
9. Attend to reading speed.	2.83% (.07)
10. Take interest in reading.	1.04% (.04)
11. Unclassifiable.	8.06% (.11)

A Factor Analytic Study of the Internet Usage Scale

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Abstract

This study developed an Internet Usage Scale (IUS) for use with adolescent populations. The IUS is a 26-item scale that measures participants' beliefs about how their Internet usage impacts their behavior. The sample for this study consisted of 947 middle school students. An exploratory factor analysis with varimax rotation was conducted on the data that yielded an initial three-factor solution. However, after eliminating items that provided redundant variance, the three-factor solution was unacceptable. A two-factor solution was investigated and found to be acceptable. The first factor was termed "SELF-DETACHMENT" and accounted for 19.16% of the variance. The second factor was termed "USAGE" and accounted for 9.10% of the variance. These psychometric properties show promise for further exploration of Internet usage among adolescents.

In May 2010, the Associated Press reported that a South Korean court convicted a couple in the negligent death of their infant resulting from excessive video gaming. The video game they were obsessed with and played an average of 10 hours a day involved raising a virtual child (Yoon, 2010). Between 2000 and 2002, conservative estimates indicate that the number of U.S. online households and Internet users is projected to jump from 32 million to 44 million households, and from 62 million users to 85 million users (Murray, 2000). Since 2000, the U.S. experienced a growth rate of 151.6% in internet usage (IWS, 2010). More recent sources estimate that from 176 million to 239 million individuals in the United States have access (e.g., cable modem, wireless laptop, cell phone, etc.) to the Internet (IWS, 2010; Stellin, 2001) and almost 2 billion individuals worldwide (IWS, 2010). Given that approximately 75.9% of the population of the United States is using the Internet (World Bank, 2010), research concerning its benefits and burdens seems warranted. While the popular culture and mass media have lauded the positive effects of the Internet (e.g., Clark & Everhart, 2007), educational researchers are still examining its impact on students and their behavior.

Although there is little doubt that the Internet has initiated a revolution in the enhancement of personal and business communications, for some individuals who may be psychologically vulnerable, Internet usage may have significant emotional and behavioral consequences (e.g., Young & Rodgers, 1998). For example, Greenfield (1999) conducted a web-based study with 17,251 participants that found that about 6% of the sample suffered from some form of Internet addiction (see also Greenfield & Davis,

2002). However, a subsequent review of research on the topic of Internet dependency conducted by Walther and Reid (2000) cautioned researchers against the labels "dependency" and "addiction" when examining Internet usage (see Oblinger, 2003). As indicated by Scealy, Phillips, and Stevenson (2002) Internet usage can drive feelings of isolation or create social bonds.

Research to date on Internet usage and dependency has focused primarily on adult populations with limited emphasis on youth. One of the few articles concerning the impact of the Internet on students, Suler (1998) indicated that teens are now socializing in Internet spaces, such as chat rooms, instead of more traditional hangouts. Not surprisingly, we know very little about the benefits or burdens that may accompany this new realm. Thus, the Internet enables children and adolescents the option of turning to "cyber-friends" instead of satisfying their need for social contact through more traditional, real-world interactions.

Along with many other challenges facing today's youth and those who provide behavioral health care services for them, the potential impact of the Internet can not be ignored. In 1999, an estimated 11 million teenagers were online (Leland, 1999). Since then, the number of 12-17 year olds in the United States has continually increased from 34.7 million users in 2007 to 37.9 million in 2010 (eMarketer, 2010) with estimates as high as 93% of youth being online (Macgill, 2007). This trend is expected to increase with projections of 38.8 million users in 2011 and 39.7 million users in 2012 (eMarketer, 2010). Investigating the consequences of Internet usage and exploring possible interventions is imperative.

Often, the Internet can be used by students for educationally relevant purposes, such as conducting cross-cultural interviews, research, and sharing information. However, for some individuals, Internet usage may represent a means by which they become socially isolated, thus endangering the quality and quantity of their interpersonal relationships. For example, Reisberg (2000) reported that at least 10% of college students frequently using the Internet experienced a negative impact on their grades, health, and social lives. Because of the paucity of research, a question remains as to the magnitude of impact of Internet usage on America's youth.

In contrast, what we clearly know are some of the personal and interpersonal features of adolescence. We know that teens are in the process of identity development and exploration (Erikson, 1963). Adolescence is a time of independence and separation from parents and adults, which makes Internet usage a natural source of impersonal answers and information. Further, we understand that personal relationships are especially important at this time of life. On the Internet, youth can interact with a variety of people and groups offering them varying degrees of social and emotional support–some good, some not so good. Adolescence is also a time of stress and frustration.

This research was conducted for three main reasons. First, the nature of the impact of Internet usage on student behavior has yet to be concretely established, although we suspect that it impacts individuals differentially based on their psychological

predispositions. For example, pressures of school, family, and friends might make cyberspace the perfect place to vent and thus serve as a productive means to gain needed information and beneficial social contacts. In contrast, other youth may find the Internet only enhances their stress and consequentially may negatively impact their social and emotional well-being. Second, much of the current research in this area involves small sample sizes. For example, the issue of inadequate sample size used in similar research was expressed by Gross, Juvonen, and Gable (2002). Third, and perhaps most germane to the current study is that valid and reliable instrumentation needed to be developed to examine this phenomena. Thus, given the seriousness of these concerns, the purpose of this study was to develop a questionnaire that would measure how adolescents are using the Internet and the degree to which it impacts their social and emotional development.

Method

Participants

Middle school students (n = 947) from a rural part of the southeastern United States participated in the study. The gender composition was 492 female and 452 male with three of the students choosing not to report gender. The grade distribution consisted of 6^{th} graders (n = 329), 7^{th} graders (n = 308), and 8^{th} graders (n = 310). The typical ages for 6^{th} through 8^{th} grades are 11 to 14 years. The sample consisted of 287 (30.3%) African American, 498 (52.6%) Caucasian, 44 (4.6%) Hispanic, 106 (11.2%) Other, and 12 (1.3%) who opted not to respond to this item. In the sample, 400 participants received free or reduced lunch, while 476 of the participants did not receive free or reduced lunch, and 71 of the students opted not to answer this item.

Materials

The Internet Usage Scale (IUS) began with a 26 item pool, four of which were demographic in nature and 22 of which operationalized the participants' attitudes regarding how Internet usage affects their behavior. Participants selected one of four possible choices from (A) *Not at All* to (D) *A Lot* where the response indicates the magnitude of the attitude. The last question, "What do you do most frequently on the Internet," is answered from (A) *using web sites*, (B) *using chat rooms*, (C) *using e-mail*, and (D) *I use web sites, chat rooms, and e-mail the same amount of time*.

Procedure

Parental permission was obtained through the school administration for the administration of the Internet Usage Scale. Participation in the study was voluntary and students could elect not to participate in the study independent of parental consent. Students' anonymity was carefully guarded through the use of coded data throughout data collection, entry, and analysis stages. Standardized instructions were given to all study participants by the classroom teachers. The instructions were: "The following questions are related to your Internet use. For these questions the term Internet includes online use of web sites, chat rooms, and e-mail. Please read each question carefully and bubble in your answer on the separate answer sheet. You are not asked to give your names so

please be honest in answering." Students were given the opportunity to ask questions related to the administration of the instrument both before and after administration of the scale.

Results

Factor Analysis Overview

Factor analysis is a method for analyzing data that allows research to identify the main factors or clusters that explain the relationship among the observed variables (Pedhazur & Schmelkin, 1991; Tabachnick & Fidell, 1989, 2001). The observed variables, for example participants' responses to a particular measure, are believed to suggest the unobservable or latent construct of interest (i.e., the factor). When applied to scale development, factor analysis is useful, in that it selects a subset of items that are seen as representing the underlying construct the researcher is trying to assess (e.g., Glick & Fiske, 1996). The objective of factor analysis is to detect or differentiate the fewest possible factors that are compatible with and/or explain the data.

The factor analysis used the maximum likelihood method of extraction and varimax rotation. The maximum likelihood method of extraction (Joreskog & Lawley, 1968; Lawley & Maxwell, 1963) generated the parameter estimates. Maximum likelihood estimates the population values for the determinants that maximize the probability of sampling the observed correlation matrix from a population (Tabachnick & Fidell, 1989). In more simple terms, maximum likelihood minimizes the discrepancy between the population and sample covariance matrix, thereby maximizing the fitting function. Varimax rotation maximizes the factor loading variance and is the most commonly used method (e.g., Tabachnick & Fidell, 1989).

The data were analyzed using The Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity to determine if a factor analysis of the data would be appropriate. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .842. This analysis indicated that the distribution exceeded the standard .7 requirement. Bartlett's Test of Sphericity revealed that there was a connection between the variables, thus permitting the factor analysis [$\chi^2(231) = 3034.60$, $p < .001$]. Therefore, the data were analyzed utilizing an exploratory factor analysis using the varimax rotation method. Factor analysis was used to reveal which items tended to cluster together. These clusters are referred to as factors (Aron & Aron, 1999).

One method to determine the number of factors to retain is the eigenvalue > 1.0 method. An eigenvalue is a measure of the variance accounted for by a given factor. The factor analysis revealed 6 factors with eigenvalues greater than 1.0. An additional or complementary method for retaining a factor is the scree-test (Cattell, 1966). This method is advocated by Cattell and entails focusing the researcher's attention to a visual display of the eigenvalues. The scree-test "rule" is that a researcher should stop extracting factors when the eigenvalues begin to level off and form a comparatively straight line.

An examination of the scree plot suggested the presence of a three-factor solution. Upon further investigation, a three-factor solution was unacceptable due to items cross-loading on the factors. Cross-loading is when an item loads above .30 on more than one factor; thereby, the item(s) share redundant variance with one or more factors. As such, we investigated a two-factor solution.

The two-factor solution was much more satisfactory retaining only items that contributed unique variance to a specific factor. Reliability (internal consistency) of the two-factor solution was .74. The coefficient of variation for the two-factor solution was .27. The coefficient of variation allows a comparison and assessment of the amount of variation that exists in a measure (Howell, 1992). The higher the value the more variation exists, and the greater the variation the greater the ability of a measure to discriminate between groups. The items and factor loadings are presented in Table 1.

Factor I

The first factor, consisting of six items (i.e., 5, 9, 12, 14, 18, 24), was termed "SELF-DETACHMENT" and accounted for 19.16% of the variance. The standardized alpha coefficient of the items composing this factor was .70. This factor was conceptualized as a social/affective orientation toward Internet usage resulting choices that create a preference for the use of technology as opposed to more traditional face-to-face contact (e.g., family, friends, and activities). Globus (2002) reviewed the possible effects of Internet use on activities such as sports and other leisure activities. The factor label "SELF-DETACHMENT" was selected based on terminology utilized in the literature (Weiser, 2001). The coefficient of variation for Factor 1 was .37.

Gender differences. A one-way analysis of variance (ANOVA) was calculated to determine whether males and females differed on self-detachment. The analysis was significant, $F(1, 942) = 4.33$, $p = .038$ ($r = .07$). In general, males reported that internet usage led to greater social and affective detachment from others, as well as activities ($M = 9.77$, $SD = 3.67$), than did females ($M = 9.29$, $SD = 3.41$).

Factor II

The second factor, consisting of six items (i.e., 8, 10, 19, 20, 22, 25), was termed "USAGE" and accounted for 9.10% of the variance. This factor was conceived as an indication of the preference of adolescents toward how and when they are likely to use the Internet, a discussion by Jenkins (2001) highlighted possible ways in which adolescents may prefer to use the Internet. The standardized alpha coefficient of the items composing this factor was .67. The coefficient of variation for Factor 1 was .31.

Gender differences. A one-way analysis of variance (ANOVA) was calculated to determine whether males and females differed on usage. The analysis was significant, $F(1, 942) = 15.83$, $p < .001$ ($r = .13$). In general, females reported that they prefer internet usage more ($M = 13.25$, $SD = 4.05$) than did males ($M = 12.19$, $SD = 4.12$).

Discussion

The motivation for the development of the IUS rests on the scarcity of data reported in the literature. The lack of data concerned: (a) how much time adolescents spend on the Internet, (b) how they specifically use the Internet, and (c) the potential effect Internet usage has on their behavior. Of these three areas of concern, the most salient gap seems to be an exploration of the possible connection between Internet usage, socio-emotional development, and problematic behavior in adolescents (i.e., aggression, depression, social isolation, persecution, and rejection). Exploring these concerns necessitated the development of a scale examining the impact of Internet usage on adolescent populations. The first developmental step was to examine the adequacy of the psychometric characteristics of the Internet Usage Scale. The reliability analysis of the scale yielded a standardized alpha coefficient of .74. The second step involved conducting an exploratory factor analysis to examine the underlying structure of the data. The analysis suggested a two-factor solution. We labeled these factors self-detachment and usage. One puzzling aspect of the findings was the presence of behavioral differences between male and female adolescents.

There are several possible explanations why males would score significantly higher on detachment and females would score significantly higher on usage. For example, Vandello and Cohen (1999) found that the South is more dominated by collectivism (e.g., interdependence) than by individualism (e.g., independence). Additionally, even within a predominantly individualistic culture, such as in the U.S., males tend to be more individualistic than females; whereas, females tend to be more collectivistic than males (Cross & Madson, 1997; Madson & Trafimow, 2001; Verkuvten & Masson, 1996; Winstead & Griffin, 2002). Any of the various explanations of the observed sex differences hold merit, however, a more parsimonious explanation is that the observed differences are artifacts of the large sample size.

Although the results of the study suggest promise for incorporating the IUS into research investigating this topic, we acknowledge that the sample may present issues surrounding generalizability. Therefore, we want to caution researchers from over interpreting these results. Specifically, there are two plausible concerns worth mentioning: the geographical location of the sample (Southeast U.S. region) and the presence of gender differences in Factor I and Factor II mentioned above. The sample used to develop the IUS was from the Southeast. Research demonstrates that individuals in the South possess more traditional attitudes and values. For example, Secret (1987) showed that individuals in the Southeast tend to be more religious and conservative compared to individuals in other parts of the country (e.g., Madson & Trafimow, 2001). In addition, there is a body of research demonstrating a relatively strong attitude-behavior correspondence (e.g., Kraus, 1995). The extent to which such attitudinal differences impacted the manner participants responded to the survey items is unknown and beyond the scope of the current project.

If a causal link between Internet usage and detrimental behaviors can be established, information concerning Internet usage among teens could be considered in directing

intervention strategies toward the most vulnerable subgroups. Further inquiries should be designed to analyze the impact of the Internet usage on various cultural, socioeconomic, and gender subgroups. The information gained from this research could be used to alert educators, parents, and counselors to possible difficulties associated with Internet usage amongst adolescents.

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Table 1

Internet Usage Scale Items and Factor Loadings

	Factor Loadings	
Items	I	II
1. To what extent do you believe your time spent with friends is affected by the amount of time you spend on the Internet?	.395	.083
2. To what extent do you prefer to interact with your online-friends and contacts as opposed to your face-to-face friends?	.293	.347
3. To what extent do you believe your extra-curricular activities (sports, band, clubs) are affected by the amount of time you spend on the Internet?	.487	-.011
4. How often do you rely on Internet contacts to get advice?	.193	.361
5. To what extent are your responsibilities at home (chores, homework, pets) affected by the amount of time you spend on the Internet?	.477	.141
6. To what extent do you believe your time spent with community activities (church, scouts, sports, clubs) is affected because of the time you spend on the Internet?	.611	.022
7. To what extent do you believe your time spend with family is affected because of the time you spend on the Internet?	.618	.140
8. To what extent have you found yourself using the Internet more now than you used to?	.232	.580
9. To what extent do you find yourself looking forward to the time when you will be able to go on the Internet?	.258	.355
10. How often do you use the Internet?	.020	.740
11. How often do you feel lonely or sad when you are not on-line?	.444	.212
12. What do you do most frequently on the Internet?	.017	.472

Preservice Teachers' Observations of Children's Learning During Family Math Night

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Abstract

Family math night can easily be implemented into mathematics methodology courses providing an opportunity for field-based learning. Preservice teachers were asked to develop and implement an inquiry-based activity at a family math night event held at a local school with personnel, elementary children and their parents in attendance. This action research examines what preservice teachers discovered about how children learn mathematics during their interactions with parents and children. Preservice teachers' individual reflections focusing on children's learning were qualitatively analyzed and clustered. In addition, data from teacher educator's observation notes was used to triangulate findings. Four themes were identified in relation to children's needs for promoting learning in mathematics: (1) activity adjustment (2) engagement through guiding and questioning (3) motivational issues and (4) the use of manipulatives and visuals. The event appeared to offer preservice teachers insight into the elements of activities needed to guide children's learning in mathematics.

It makes sense that preservice teachers would learn best through interactions with children out in the field (Cady, Meier & Lubinski, 2006; Gallego, 2001; Moyer & Husman, 2000). While out in the field, preservice teachers can experience what it means to guide children to understand concepts; it is realistic learning. These authentic experiences have the potential to increase engagement (Kozar & Marcketti, 2008) and allow preservice teachers to experience what it means to teach rather than just reading about how to teach. It is important to interconnect field-based experiences with coursework by providing opportunities to interact and learn with children (Gallego, 2001; Putnam & Borko, 2000).

A study by Pringle (2006) showed that preservice teachers have positive dispositions toward the integration of students in their assignments, and recognize the importance of students' alternative conceptions in using such knowledge to make decisions about teaching. Moyer and Husman (2006) evaluated teachers who were enrolled in a mathematics methodology course on an elementary school campus versus those who were not. They found that those who were able to learn with children better understood the connection coursework had on student learning and understanding in mathematics. In a long-term study, Linek, Fleener, Fazio, Raine and Klakamp (2003) found that when children were present in mathematics methodology courses, preservice teachers were better able to understand learning. Their study showed that the collaborative effort of integrating the course resulted in heightened awareness including better performance from both teachers and students.

In the university setting, curriculum and experiences can be regulated by the professors. However, controlling the environment that preservice teachers experience during their student teaching placements can be very difficult; this experience is sometimes detached from the methodology course. Preservice teachers do not connect what is taught in their methodology courses with what is experienced in the field when contents are experienced as separate entities (Putnam & Borko, 2000). There is a sense of disconnect with the university curriculum, and preservice teachers focus on attaining good grades rather than understanding how the content of the course relates to students' mathematical understanding and learning (Moyer & Husman, 2006).Preservice teachers should be able to experience and appreciate what it means for a child to understand mathematics through interactions based on a synthesis of university curriculum and field-based learning.

To encourage the documented benefits of learning with children, family math night was integrated into a mathematics methodology course. The preservice teachers designed and implemented an activity to be carried out at a university organized family math night event at a local elementary school. The activities were inquiry-based in nature and focused on either primary (K-3) or intermediate (4-6) elementary grades. The goal of this study was to examine what preservice teachers discovered about elementary children's learning in mathematics. Specifically, the research question was: What kind of insight did the preservice teachers develop in relation to how children learn mathematics through the creation and implementation of an inquiry-based family math night activity?

Family Math Night

Family math night is an exemplar of collaboration linking a higher education institution, local community and elementary schools. Preservice teachers create an activity or game to be implemented at a local school (Freiberg (2004) and Kurz (2011). Children and their parents attend the event and circulate to various activities set up as stations in a multi-purpose room. The preservice teachers model and provide a structured, parent-friendly lesson plan to guide the implementation of the activity at home.

There are several frameworks guiding the integration of family math night in mathematics methodology courses. Freiberg (2004) describes a program of integrating family math fun night with preservice teachers. Within this program, there are various types of activities including drill and practice, problem solving, estimation and others. Additionally, Freiberg describes the coordination of these events, provides a framework to guide future implementation and describes many of the observed benefits. Lachance (2007) has a model where the students worked with a partner to develop an activity to help children and their parents learn using hands-on explorations.

The integration of family math night varied from Freiberg's (2004) and Lachance's (2007) described frameworks. Preservice teachers were required to create an inquiry-based learning activity and they completed the assignment on an individual basis supported by several elements to guide the investigation (Kurz, 2011). In general, the preservice teachers created an investigation supported by standards, including an objective and a list of materials needed. They core of the family math night investigation framework included the activity description, guiding

questions and modifications. After the event, the preservice teachers wrote a guided reflection focusing on children's thinking.

Methodology

Research methods

The study documented what happened during the family math nights arranged as a part of the mathematics methodology course and investigated what preservice teachers and the teacher educator noticed during the experience. Following an action research tradition, the researchers used constant comparative method (Bogdan & Biklen, 2006) to gain insights into strong points and deficiencies of the family math night activity in order to make revisions in its implementation over time.

Participants

The preservice teachers were enrolled in a mandatory upper division mathematics methodology course for perspective teachers at a culturally diverse university in the western United States. Fifty preservice elementary teachers participated in the study; 84% were female. They were at various stages of their program of study: 8 were interns (teaching without a credential), 1 was full-day student teaching, 25 were half day student teaching, and 16 were not in the classroom. Due to the large number of participating preservice teachers, three schools were selected to host a family math night on different evenings of the same week. The preservice teachers chose what school they wanted to attend based on their needs. They all participated in one evening of family math night after developing mathematical activities. The teacher educator regularly visited the family math night activities, stayed throughout the entire event, and took comprehensive notes. She also queried both children and the preservice teachers throughout the event focusing on the mathematics of the activities.

Data Sources

Discussions and investigations demonstrating the kinds of mathematical activities appropriate for two hour family math events took place in their mathematics methodology course. Preservice teachers were provided with books to peruse in class to help guide their investigations into appropriate inquiry-based activities for primary and intermediate elementary students (Coates & Stenmark, 1997; Thompson & Mayfield-Ingram, 1998). Since most of the elementary schools were Title I with a significant amount students who were Latino/a, the preservice teachers with the resources were encouraged to translate their activity into Spanish.

The activities developed for the event were designed as inquiry-based investigations. The preservice teachers had to create an inquiry based objective supported by standards. Steps to help prepare for the activity needed to be provided. The foundational components of the assignment included these features: describing the inquiry-based activity, providing open-ended questions to support the investigation, and creating modifications to alter the activity making it less challenging and more challenging as needed (Kurz, 2011).

In order to change how preservice teachers evaluate their understanding of education, reflections should take place (Pryor & Kuhn, 2004; Tillema, 2000). According to Davis (2006), writing provides the opportunity to connect ideas about learners with their instruction. Potari and Georgiadou-Kabouridis (2009) showed that reflection is an important element used to investigate the understanding and development of an elementary teacher in the teaching of mathematics. With the importance of reflection in mind, preservice teachers were asked to complete a written reflection focusing on one question: What did you learn about how children learn mathematics from your family math night experience? The reflections were designed to provide a minimal amount of structure, allowing the preservice teachers to interpret children's learning in relation to mathematics. The reflection was due one week from the event.

While preservice teachers' reflections were the primary source of data, teacher educator's activity observation notes and other anecdotes were used to supplement and triangulate the themes that emerged in preservice teachers' narrative texts. In addition, the family math night activities written by the preservice teachers were also used to support the analysis. This process contributed to the understanding of the Family math night activity and preservice teachers' insights. Using multiple perspectives (preservice teachers, teacher educator) and having two researchers do thematic coding of the preservice teachers' narrative texts also triangulates the data increasing the validity of the findings (Miles & Huberman, 1994).

Data Analysis

The preservice teachers' narrative texts were evaluated looking for similarities and differences to identify common themes that were qualitatively stated (Ryan & Bernard, 2003). The constant comparative method (Glaser, 1965; Bogdan & Biklen, 2006) was used to discover the themes. This method allowed the researcher to evaluate the text looking for parallels and variations between the participants' statements. The narrative texts were continually compared and contrasted, and themes were developed (LeCompte, 2000). In addition, the themes were regularly reevaluated and revised throughout the evaluation process. Teacher educator's observation notes and other anecdotes were coded by two researchers in light of their relationships to the themes which appeared in narrative text. The review of the literature and previous study results did not impact the derived themes; they themes were solely discovered through analysis of the narrative text and observation notes. Since these narratives were taken word for word from the participants, it allowed an effective discovery of themes (Ryan & Bernard, 2003).

The experience was examined and defined through reflections of the participants based on their experiences during family math night. The hermeneutic phenomenological approach asked preservice teachers to describe what is was like for them to learn from students rather than to ask them what they believe was important to take into consideration when participating in some type of educational practice (van Manen, 1997). This philosophy guided our investigation toward the needs of preservice teachers and their perceptions of student learning with the aim of better understanding the impact of educational practices.

LeCompte (2000) has provided steps for analyzing qualitative data and these steps were followed for this study. First the data were prepared for evaluation through the organization of the

narrative texts. During this step, the research question relating to the kind of insight that preservice teachers developed in relation to how children learn mathematics through the creation and implementation of an inquiry-based family math night activity was reviewed. The second step involved the *declaration* of significant items concerning the themes of educational insight. This involved repeated readings of the data in search of significant themes. For the third stage, themes were organized and put into categories though comparing and contrasting items. Items that were similar were clustered together. After this clustering, the taxonomies were identified. Step four concerned creating patterns through questioning and analyzing the patterns that were present. The final step entailed describing the patterns as meaningful structures (see LeCompte (2000) for detailed steps).

Results

Through the analysis of the reflections completed by the preservice teachers after the event, themes indicated that the preservice teachers were contemplating how the family math night experience influenced their understanding of student learning. The four themes were:

- The adjustment, modification, and adaptation of activities are needed to help promote learning.
- To facilitate learning and engagement, teachers have to guide using higher level questioning techniques and focus on investigating mathematical ideas through promoting thinking.
- There are several issues in relation to student motivation in learning mathematics including: encouraging problem solving, discovery techniques and rewards (external and internal).
- The use of manipulatives and visuals support mathematical learning by allowing students to develop and show their ideas.

Activity Adjustment

One of the themes was the need to adjust the investigations to meet student needs and the realization that students are at various levels of mathematical understanding. One preservice teacher stated "I learned a lot about modifying games at family math night…Not all students are at the same level and we have to modify lesson plans." The importance of learning how to modify and adjust activities to assist the students was a common element. "The levels of mathematic ability did not depend on what grade the student was in. I was surprised to how much of a gap appeared between the students." Another stated, "Just like in a classroom each student 'caught on' with varying speeds and had to be given the guidelines in different forms." Specifically, a preservice teacher stated:

> For the second graders who had difficulties, I modified the activity and allowed them to use one die instead of two. Using one die allowed students to make combinations of a one-digit number… they began to understand the activity and after a few tries of using one die, I had them try using two dice.

While another stated, "I think that all lessons and activities need to have modifications or possible modifications to make for students who are performing at levels above or below what the lesson or activity is designed for."

The teacher educator commented on the preservice teachers initial difficulties with the activity adjustment. As various children visited each activity, the preservice teachers became more and more effective at meeting the students' needs. Because there was a constant flow of children, the preservice teachers were able to test and then perfect their adjustments.

Engagement through Guiding and Questioning

The preservice teachers described their experiences in questioning students relating to their design of the activity. One stated, "I learned that you have to be patient and explain just enough to them so that they could get the concept and answers on their own." One preservice teacher created an activity with fractions using dominos. He stated:

> When I would ask him some of the leading questions for the game, like 'How could you score more points on an individual play?' he glanced at the tiles already played and thought for a moment and answered that I should play tiles with the lowest denominator.

Another thought, "Some of the children need little coaching beyond a guiding question occasionally. Most of them were able to think through difficult spots and come to solutions." While another commented,

> When I noticed students struggling, I used the guided questions from my lesson plan to assist them…once they got past wanting to use an already set equation in their mind and began playing with the tiles to make many new equations, the students enjoyed the game.

Because the guided questions were written in advance, the preservice teachers had already prepared to question the children at a deeper level. As the teacher educator circulated, she noticed the preservice teachers looking at their activity instructions to remember their questions. They used the questions when they did not know what to say to the students in terms of enriching the activity. They also used these questions to engage in mathematical discussions.

Motivation

Different issues relating to student motivation in mathematics were noticed and by the participants. "I was a bit surprised to see these children having so much fun playing math games." Rewards were discussed and evaluated. Some of the preservice teachers commented on the need of rewards such as prizes, color, and competition to motivate children to learn in mathematics. "They did not want to play the game for the fun of playing the game, but for whatever prize I might have for them." Another affirmed, "Some students were more interested in getting the sticker or the [play] dollar than the game." Others saw external rewards as distractions. One stated, "I would really recommend that for the next family math night you do not allow prizes…so that math is the main focus." Some preservice teachers perceived rewards as unnecessary to teach mathematics, believing that properly designed mathematical activities

alone will motivate children to learn. "I was a little surprised that they found my activity as interesting as they did especially since I did not have anything to give out." And another said, "It was amazing to see the concentration on the children's faces and their joy for doing math for the pure fun of it. No reward other than accomplishment was necessary"

In terms of motivation, the teacher educator commented on the overall excitement of the participants in completing the activities. Initially, the children were drawn to the activities with prizes; the prizes seemed to get the event started. Then, the children began to play at all activities. The children would stay at the activities they enjoyed, not necessarily the activities with rewards. The motivation was related to the children's mathematical interest (either naturally occurring or encouraged by the preservice teacher efforts to help children learn).

Manipulatives and Visual Aids

The use of manipulatives and visuals to enhance the understanding of mathematics was observed by the participants. "While watching students' various techniques for adding numbers, it became obvious that students often need visual aids in order to connect mathematical processes with some form of tangible example." Another commented, "If I had told the students to find multiple factors for a number and not given them manipulatives I don't think they would have been able to see how the number breaks up in their head." The preservice teachers commented on the benefit of structuring more hands-on, inquiry-based type activities with manipulatives and appeared to learn from using this approach. A preservice teacher who had students make their own clocks to use as a manipulative commented:

> When [students] are required to create their own manipulative, they have a deeper awareness of the parts that go on it. This in turn, allows them a more conceptual view of what the parts represent and helps them to acquire a more thorough understanding of how to use the manipulative when they begin to experiment.

The teacher educator noted that the manipulatives helped the preservice teachers demonstrate their mathematical activities in a conceptual manner. They used the manipulatives to help the children understand the mathematics in a richer, deeper manner. The tools supported the activity and helped both preservice teachers and children represent and explain their mathematical thoughts and ideas.

Discussion

The preservice teachers discovered some important aspects of children's learning in mathematics by creating and modeling a family math night activity and these aspects were supported in the teacher educator's activity observation notes. The activity paired with a reflection can help the preservice teachers become more mathematically aware of children's needs in understanding mathematics. Warfield, Wood and Lehman (2005) support this idea saying that it is crucial that preservice teachers learn to reflect on students' mathematics learning and about their role in the development of students' thinking. The four themes indicate that insight took place regarding some of the ways in which children learn and understand mathematics.

It is important to note that the activity structure surely influenced the preservice teachers' discoveries. The components of the assignment aligned with the observations described by the preservice teachers. For example, open-ended questions are included in the assignment and are encouraged to be used to assist teaching during the family math activity. Preservice teachers then commented on the need to use open-ended questions to facilitate children's learning in mathematics. Cobb (1988, p. 92) noticed that "teacher actions do influence problems that students attempt to solve and thus the knowledge they construct." The way the structure aligned with the observations showed that preservice teachers were implementing inquiry-based learning in the appropriate manner and were able to see how the structure supports children's mathematical learning.

The preservice teachers observed the diversity of learning levels and styles among children, both across grade levels and among children of the same grade. These interactions allowed the preservice teachers to experience the diversity they will experience in the classroom. In Wang and Cai's (2007) study, mathematics teachers view an effective teacher as a facilitator who is sensitive to a child's social and cognitive needs. With this experience came the insight that investigations must be adjusted and adapted to meet the varied needs of students. As Ball (2000) pointed out, part of quality teaching in mathematics includes making modifications based on what the students need to better understand the task at hand.

The need to facilitate engagement through the use of higher level questioning while also promoting children's thinking was observed by the participants. Authentic tasks that require children to justify their mathematical reasoning are generally considered valuable (Ball, 1993). Children should be in charge of their own learning while adults facilitate their investigations and explorations learning along with them (Gallego, 2001). To support the investigations, questions that require students to explain and justify their thinking can support learning. In a study by Leikin and Rota (2006), discussion and deep questions with elaborate answers are a valuable component when designing and implementing inquiry-based investigations. Sahin and Kulm (2008) found that sixth grade teachers focusing on mathematics rarely asked guiding questions and instead focused on probing and factual questions. Inquiry-based learning should be supported by the use of deeper questions, providing children with the opportunity to justify and explain their mathematical reasoning (Leiken & Rota, 2006; Sahin & Kulm, 2008). In this study, the participants saw value in deep questions; they focused on the justification of mathematical ideas through open-ended questions.

Similar to other relevant studies (Moyer & Husman, 2006; Rule & Arthur, 2007), preservice teachers in their reflections noticed the importance of student motivation in mathematics. According to the preservice teachers' narratives and teacher educator's observations in this study, it is difficult to unambiguously describe motivation. There was no consensus on what elements are necessary to motivate children to learn in mathematics. They did observe that motivation is an important building block in relation to children's learning in mathematics and there are a variety of factors relating to motivation. This relates to Middleton and Spanias (1999) findings. They describe a variety of theoretical orientations toward motivation in mathematics, concluding with some key observations that some of the preservice teachers in this study also observed. For example, investigations need to be structured at an appropriate level of challenge and difficulty for students. The actions of the teachers can greatly influence student motivation.

On the subject of intrinsic versus extrinsic motivation, Middleton and Spanias found that intrinsic motivation is superior to extrinsic motivation in mathematics. Some of the preservice teachers alluded to this in their reflections. As well, Middleton and Spanias pointed out that instructional design can be highly motivating in mathematics. Hickey, Moore and Pellegrino (2001) also found that when children are presented with investigations that mirror reform-based ideas, children are more likely to be motivated. The preservice teachers' observations showed that they were beginning to develop a sense of the importance of structuring inquiry-based learning to yield more motivated students.

The preservice teachers viewed visual aids and manipulatives as valuable resources. The use of manipulatives to teach mathematics is recommended as they help students concretely develop ideas and relationships (Skemp, 1987). Many of the preservice teachers incorporated the use of manipulatives. They noticed the value of manipulatives to help children form and explain ideas. Moyer (2001) found that manipulatives are frequently used to make mathematics fun, and often used as a diversion rather than to support mathematical development. As Moyer pointed out, simply using manipulatives is not enough; use should be based on sound ideas including how the manipulatives relate and connect to mathematics. The family math night event allowed the preservice teachers to see the value of manipulatives as tools to rationalize and develop thinking, as was indicated by their reflections.

This study also offers supportive evidence on the benefits of field-based learning. As Kozar and Marcketti (2008) pointed out, field-based learning offers preservice teachers valuable experiences promoting understanding. Linek et al. (2003) found that collaborative efforts in local elementary schools that included field-based components improved how teachers teach. Whereas the benefits of learning while interacting with children have been well documented, this study supports the advantages of field-based learning specific to family math night. The design and implementation of family math activities promote insight regarding how children learn, although long-term benefits were not evaluated.

Conclusion

Potari and Georgiadou-Kabouridis (2009) describe the journey of an elementary teacher over time, with key elements that include reflecting, designing activities, and using research and practice to influence thought. With the framework of this event, preservice teachers were able to design, implement and reflect on mathematical activities as practiced. They were able to connect their event experiences with how children learn and understand mathematics. It is a start to guiding preservice teachers to become reflective learners while designing activities for the purpose of having children experience mathematical ideas through hands-on, inquiry-based activities.

The preservice teachers' ability to recognize and reflect on students' needs in learning mathematics while participating in a family math night is just a beginning. Swars, Smith, Smith and Hart (2009) found that over time, prospective elementary teachers were able to change their beliefs when participating in mathematics curriculum focusing on cognitively guided instruction. In their study, changes took place over a two year period; the prospective teachers' beliefs continued to evolve throughout the program. Fennema, Carpenter, Franke, Levi, Jacobs and

Empson (1996) also found that teachers were able to change their instruction to better meet their students' needs over a four-year period with instruction and guidance focusing on the integration of cognitively guided instruction.

Huffman, Thomas and Lawrenz (2008) found that preservice teachers who were prepared focusing on reform-based methodology were only slightly more likely to use reform-based practices as compared to those who were not given this kind of instruction. It is important to realize the results for this study are temporary if they are not strengthened with other experiences. As Grootenboer (2008) has noted, changes in beliefs about teaching are complex and take place over long periods of time, with preservice teachers often resistant to change. For depth to take place, preservice teachers' learning experiences must be supported through other experiences that encourage inquiry-based learning both in the university setting and during the first few years of teaching. Family math night can be one element of this journey.

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Examining Reflective Practice: Insights from Pre-service Teachers, In-service Teachers and Faculty

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Abstract

This study examines reflective practice of pre-service teachers, in-service teachers and teacher educators. Using Schon's in, on and for practice conceptual framework, the study addresses the following questions: Is there a disconnect between what teachers do, faculty require, and students perceive as reflective practice? What types and methods of reflection are used and perceived as the most effective? Do collective conversations about a student's teaching experience help to improve reflection in, on and for practice? The results from this study suggest that pre-service teachers can benefit from a more explicitly defined framework for reflective practice.

> *When I officially become a teacher, I hope that I can meet with the other teachers at my school and talk about lesson plans and ideas, just as we did in the video reflection. It was really a lot of help...and now I have new ideas to take with me into my teaching career.*

This statement is part of a written reflection by a pre-service teacher enrolled in a methods class that included a lab experience based as a local elementary school. The purpose of this reflective practice assignment was to encourage pre-service teachers to think critically and deeply about their teaching experiences. Reflective practice has become a common term used to describe a variety of activities in teacher education programs (Loughran, 2002). Schon (1983, 1987) defines reflective practice at its best as an experience which involves thoughtfully considering one's own experiences in applying knowledge to practice while being coached by professionals in the discipline.

Pre-service teachers are frequently required to observe and conduct lessons in schools and then "reflect" on those experiences. However, these assignments may be given without a clearly articulated definition and rationale for reflective practice (Ross, 2002). In addition, the reflective assignments are often vague, occurring along a continuum from merely thinking in retrospect about the experience to a well-defined and crafted practice leading to a specific purpose (Loughran, 2002). Specifically, writing is frequently assigned as a reflective method in pre-service teacher education courses. Writing can be an active, engaging and personal process,

allowing the author to move between the past, present, and future (Kottkamp, 1990). However, pre-service teachers are often writing about their initial teaching experiences to satisfy course requirements rather than for the purpose of deeper analysis. In addition, both pre-service teachers and instructors may find this to be a time-intensive process with varying results. Additionally pre-service teachers may be required to complete reflections for more than one course with different criteria. Instructors from different classes may be providing feedback on written reflections without a common set of expectations, standard method of evaluation, or observation of the lesson implementation.

Research Questions

This article examines issues regarding the absence of a shared definition of reflective practice and makes visible current practices in the field. Research questions were as follows: Is there a disconnect between what practicing teachers do, instructors require, and students [pre-service teachers] perceive as reflective practice? What types and methods of reflection do in-service and pre-service teachers use and perceive as the most effective? Finally, do collective conversations about a pre-service teacher's teaching experience help to enhance and increase reflection *in, on* or *for* practice?

Theoretical Perspective

Reflective practice is an evolving concept that has been influenced by various philosophical and pedagogical theories (Florez, 2003). Reflection can be described in three phases, or modes: (a) reflection *in practice*, or the dynamic, "thinking on your feet" a teacher does during a lesson; (b) reflection *on practice*, the reflection that occurs post instruction, when a teacher thinks in hindsight about the lesson, student engagements, and other components of the experience; and (c) reflection *for practice*, the thinking about future experience informed by the past practice…what now needs to occur coming from the reflection of the past (Schon 1983).

Using these phases to define how teachers think about their teaching, Loughran (1995) developed a framework to help make the *invisible* day to day reflective practices of teachers visible. The framework consists of "reflecting during the act of planning the lesson (anticipatory reflection), and during the actual teaching of the lesson (contemporaneous reflection), as well as after the lesson (retrospective reflection)" (Freese, 1999, p. 2). Through this process, teacher educators can employ instructional strategies to train pre-service teachers to use reflection for asking the harder, deeper and more probing questions regarding practices and to analyze the effects on our classrooms and students. This level of reflection has been described as a complex and multidimensional search for understanding, drawing from the past and the present, with implications for the future (Smith, 2001).

Despite the development of a framework, a clear definition of reflective practice remains elusive (Ross, 2002). Freese (1999), a researcher working in the field of pre-service teacher education, supports making reflective practice more explicit by calling for a shared definition through modeling and conversation about reflection**.** She conceptualizes reflection for her students as: "The process of making sense of one's experiences by deliberately and actively examining one's thoughts and actions to arrive at new ways of understanding oneself as a teacher " (p. 2). Duncan-Andrade (2005) describes the need for pre-service teachers to critically examine their

actions in terms of the "4 Es" of emancipatory pedagogy: engage, experience, empower and enact (p.70). These critical learning activities ultimately encourage students to examine and act out their sense of agency, imagining the best possible teaching--what could happen, rather than what did happen (Davis, 1996; Smith, 2001).

Collective conversations can lead to negotiating and engaging in different forms of reflective practice. Freese (1999) suggests that "…reflection can be enhanced when conducted with another individual" (p. 2). In the process of developing a shared definition she formed cohorts of graduate and pre-service teachers working together over three semesters. Graduate students ran mock reflective sessions and then mentored pre-service teachers in writing their reflections. Freese used videotaped teaching sessions as a prompt for reflective conversations, finding this to be the most powerful reflective practice. She described this strategy as "allowing the student and instructor to get back into the moment" (p. 7). Davis (1996) agreed that collective conversations are the most beneficial reflective method. He suggests that teachers use these conversations to link together as a pedagogical community. The community is connected through their own lived experiences, encouraging them to 'think aloud' in an active problem solving mode. He characterizes this as developing the ability to imagine the possibility, or what Schon (1987) calls *for practice* reflection. One pre-service teacher participant in a reflective community similarly validated her experience with the mentor: "It was just a lot easier when you know they were right there to have someone there just to talk things out" (Freese, 1999, p. 6).

Even the most experienced teachers were motivated to continue examining their teaching practices. In a school where collective conversations were scheduled as a part of a teachers' critical friends group, participants used dialogue, questions and suggestions to build a culture of reflective teaching and learning. One participant characterized it as: "This group makes me feel like things are gonna change. I'm gonna need to change because it makes me always want to get better, and I want to offer what I have. As long as this group is available, I'll feel professional" (Duncan-Andrade, 2005, p.73).

Korthagen (1993) encouraged teacher educators to use what he called irrational forms of reflection as a part of their methodology instruction. He contrasted this to teacher education courses where teaching is prepared for as a linear and predictable practice. His innovation included the use of guided imagery to help pre-service teachers examine their preconceived notions of what their expectations might be compared to the actual day to day unplanned for acts they might encounter in the classroom. Korthagen described the decisions that fill a teacher's day as the type that new teachers are often unprepared for, and that may lead beginning teachers to feel less competent at meeting students' needs, feel a lack of closure to their professional day, and promote feelings of failure. The negative self images may then lead to decreased teacher retention rates.

In order to help alleviate some of the beginning teacher jitters, Cushman (1999) suggests that teacher education students should be provided with "the distinct advantage of an intimate knowledge of the school and community culture, with expectations for continual professional development" (p.1). By providing authentic models of teachers' professional conversations about their teaching, with mentorship experiences, pre-service teachers can begin to experience more of the decision making processes they will encounter in the classroom. Education faculty must offer

pre-service teachers access to authentic teaching experiences while strengthening the reflective practices used by pre-service teachers and the in-service teachers who support them (Davis, 1996; Duncan-Andrade, 2005; Freese, 1999; Loughran, 1995; McIntyre & Byrd, 1996; Schon, 1987; Smith, 2001).

Research Context and Methods

Both quantitative and qualitative methods were used to examine the frequency and preferences of reflection by in-service and pre-service teachers. Pre-service teachers' collective conversations and subsequent written reflections regarding their teaching experiences were examined for discourse markers showing depth and growth of reflective language. Faculty from the university school of education was surveyed regarding their modeling of and use of reflective practice assignments.

Setting and Participants

The study was conducted in a small southeastern city with a wide range of economic, linguistic and cultural diversity. The setting was selected as a site for the study in part because of the established relationship between the researchers, the participating schools and the university. The in-service teacher survey was conducted at two participating schools within the school of education professional development system. The researchers enlisted the participation of two principals of two urban schools via email to invite them to participate in the study. The principals sent information regarding the project and the survey URL to all teachers in their respective schools. Within the two schools, twenty-seven teachers volunteered to participate by completing the survey.

The faculty survey was administered to part-time and full-time faculty in the same teacher education program. Faculty was invited to participate through an email that described the project and provided the survey URL. Twenty-one faculty members volunteered to participate by completing the survey.

Researchers sent an email describing the project with an invitation to participate, including the survey URL, to pre-service education students enrolled in methods courses. The participants were selected because their course assignments required them to write lesson plans that were submitted to the instructor for approval. The lessons were then implemented in a supervised classroom or educational lab setting. Sixty-eight pre-service teachers volunteered to participate by completing the survey.

In addition, these pre-service teachers gave consent for researchers to access their written reflections for further analysis. These written reflections were collected over three semesters and in three different formats: as a required element of the university's school of education standardized lesson plan; as learning logs or journals; and as electronically-submitted reflections written after pre-service teachers participated in a collective conversation. These conversations were prompted by a class assignment common to the methods courses in which pre-service teachers were required to make video recordings of their teaching throughout the semester. The video protocol was introduced to students as a support activity, an opportunity to get feedback

and ideas on a problem they perceived in their teaching, rather than a time to show success or expertise. Students used video cameras purchased through a school of education grant to record multiple sessions of their teaching. They then chose one clip to share. The video sessions began with the presenting pre-service teacher introducing the video clip with a critical question regarding the lesson. The cohort group then viewed the video clip, taking notes to use in the follow-up discussion. The presenter reiterated the critical question and then became the responder, as her cohort group asked clarifying questions and provided constructive feedback. The instructor facilitated the session, purposefully acting as note-taker rather than discussant. Pre-service teachers reviewed a minimum of five and no more than ten teaching clips of cohort members who led their own critical discussions. A written reflection about their teaching clip and the feedback from their cohort group was then electronically submitted.

Surveys

Online surveys were administered to 90 pre-service teachers enrolled in field experience classes, 70 in-service teachers at two schools within the professional development system partnership, and 53 faculty members in the school of education. Survey instructions included Kottkamp's (1990) definition of reflective practice (p.183). "A cycle of paying deliberate, analytical attention to one's own actions in relation to intentions -- as if from an external observer's perspective -- for the purpose of expanding one's options and making decisions about improved ways of acting in the future, or in the midst of the action itself". Surveys were designed to include open-ended response items and checklists, in addition to questions with a Likert-scale response (i.e., never, seldom, sometimes, often). The responses on the open-ended and short-answer items provided rich data on trends related to reflective practices within and across the groups of participants.

Survey Analysis

For each item in the survey, the computer software computed response percentages. The following sections describe the data analysis procedures for the different types of items on the survey.

Checklists. The survey distributed to pre-service and in-service teachers included three checklist items regarding frequency (i.e. never, sometimes, or often) and preference for types of reflective practices (i.e., writing, internal dialogue, conversation, and as a component of lesson planning). The survey distributed to faculty included two checklist items regarding methods and rationale for reflective practice assignments. On all surveys, an "Other" category was provided for open response on each checklist item. Participants were required to select one response per item.

Open-ended responses. Five items in the surveys distributed to pre-service and in-service teachers required open-ended responses about the types, the setting, and the collaborators with whom participants used reflective practice: (a) When do you most often engage in internal dialogue? (b) When using writing for reflection, what tool(s) do you use? (c) What types of comments do you include in your lesson plan regarding reflection? (d) With whom do you most often engage in conversation regarding your teaching? And (e) Please insert additional comments regarding your experiences with reflective practice.

Four items in the surveys distributed to the faculty required open-ended responses regarding assignments, rationale for teaching reflection, and evaluation methods: (a) You assign reflection as a component of reflective practice to encourage students to...; (b) What method(s) do you use to teach reflective practice to students?; (c) How are students' reflective practices evaluated in your class?; and (d) Please insert additional comments regarding your experiences with reflective practice.

Likert-scale items. The pre-service and in-service teacher surveys included seven Likert-scale items. Participants selected one response per item regarding the frequency of engagement in reflection *in, on,* and *for* practice (Schon, 1983) and preference for methods used for reflective practice. The faculty survey included four Likert-scale items related to the frequency of teaching reflective practice per semester and the frequency of instructional method used (i.e., conversations in class, online conversations, and written reflections).

In order to examine the practices across pre-service teachers, in-service teachers, and faculty responses of matched items were compared. Researchers looked for trends in (a) frequency of reflective practices; (b) preferences for methods; and (c) the types, the setting, and the collaborators with whom participants engaged in reflective practices. To further examine the findings of the surveys and the effectiveness of assigned reflective practices, researchers collected written reflections from the learning logs and lesson plans of pre-service teachers.

Analysis of Pre-service Teachers' Written Reflection Assignments

Written reflections included as required components of lesson plans, learning logs and video reflections were examined. The primary purpose was not to look for further validation of reflective practice but rather to get a sense of the depth of the reflective practices through examining the written language. The protocol for analyzing pre-service teachers' written reflection assignments was modeled after Schon's (1983, 1987) *in, on* and *for practice* conceptual framework. Learning logs related to teaching experiences and the reflection component of lesson plans at the beginning and end of an academic semester were analyzed for evidence of reflection *in, on,* and *for practice*. For every reflection, the data were coded and entered on a master grid to show development, frequency, and depth of reflective practice based on Schon's three categories. Statements were analyzed for key terms (e.g., "Next time I will" as evidence of reflection *for practice*, "I realized as I was teaching that I needed to" as evidence of reflection *in practice*, "Now I know" as evidence of reflection *on* practice) indicating level of understanding of reflective practice. Statements were also coded as retelling if they listed only the events of their lesson or summarized with little to no analysis. These written reflections about their teaching clip and the feedback from their cohort group were submitted electronically.

Results

Surveys

In-service teachers, pre-service teachers, and faculty reported frequent use of reflection. While 100% of in-service teachers reported that they used reflection *in, on* and *for practice*, 92% of the

pre-service teachers reported using one or more of these types of reflection. Eighty-one percent of faculty indicated that they required reflective practices in their courses.

While in-service teachers reported the use of reflective practice at a higher frequency than pre-service teachers, both groups reported the use of reflection *on* practice as the type of reflection used most often (See Figure 1). In-service teachers, however, used reflection *in* and *for practice* at a much higher rate than pre-service teachers. Almost twice as many in-service teachers reported the use of reflection *in practice* as pre-service teachers.

Additionally faculty members were asked to state their purposes for reflective practice assignments. Table 1 includes examples of faculty responses showing the broad range of statements, coded as *on* and *for practice*.

Figure 2 shows the method(s) pre-service and in-service teachers used most frequently to reflect. Both groups reported using internal dialogue and conversation more frequently than any form of written reflection (e.g. learning logs, journals, electronic journals, and lesson plans). The frequency of written reflection was higher among pre-service teachers than in-service teachers. Eighty-four percent of faculty members reported some form of writing as a required method of reflection in their classes.

Table 2 shows the methods faculty use to teach reflective practice and evaluation techniques for reflective assignments. Discussions, modeling, journaling and role playing, are examples faculty listed. Responses to the question regarding evaluation techniques ranged from informal assessments, to points for participation, to rubrics.

Figure 3 shows the reflective practice methods perceived by in-service and pre-service teachers as the most effective. Of in-service teachers, 35% reported internal dialogue and 31% reported conversation as the most effective methods. Of pre-service teachers, 28% indicated that writing and 26% reported conversation as the most effective methods.

Forty-four percent of in-service and 34 o% f pre-service teachers would like to use conversation more frequently for reflection. Thirty-six percent of in-service and 32% percent of pre-service teachers chose writing as the method they would like to use more frequently (See Figure 4).

Pre-service Teachers' Written Reflection Assignments

Beginning of semester. Analysis of initial written reflections (i.e., from the beginning of the semester) indicated very little use of reflection *for practice*. The following excerpt shows an example of one pre-service teacher's (Student A) initial written reflection. The coding of key reflective terminology indicates the use of written reflection *on practice* as the primary purpose.

> I had a few problems with students saying the wrong sound intentionally like for /r/ they said /grrr/ because it's funny.
> The hall is a terrible place for a reading lesson.
> I am wondering if it may be better to stop and wait for people to walk by then start again.

Furthermore, analysis indicates that pre-service teachers' written reflections *on practice* typically emphasized emotional responses to the teaching experience with few attempts to examine teaching styles and techniques. The following excerpt shows an example of one pre-service teacher's (Student B) initial written reflection. Her consistent emphasis on affective responses to the teaching experiences was typical of pre-service teachers' initial reflections.

> There were times during the lesson when I felt a little unsure of myself especially when I am writing on the overhead, I am worried about spelling things wrong: I also at one point thought I might have put the wrong answer when going over the morning message, but I checked back in the book and it was right, or it worked).I was still a little nervous but not as much. I think the lesson as a whole went pretty smoothly. It definitely had its bumps, but I think it went ok. I had fun. I have fun everyday though. I really am going to miss this class.

Some pre-service teachers' entries primarily consisted of summary statements. These statements did not include details or explanations of why the event worked or did not work in the context of the classroom. The following excerpt gives an example of a pre-service teacher (Student C) who used written reflection to retell the events of her teaching experience in a linear fashion with little to no analysis.

> I thought this lesson went rather well. The kids seemed to be interested in the picture walk through the book and identifying the initial and final sounds.
> The students did really well at the centers today.
> They really enjoyed reading *One Red Rooster* with me and making the animal sounds as we read.

End of the semester. Analysis of written reflections from the end of the semester indicated increased use of reflection *for practice*. The following shows an example of the pre-service teacher, Student A's entry taken from a final reflection. The coding of key reflective terminology indicates the use of written reflection *for practice* as the primary purpose, as compared to the same student's reflections *on practice* as reported above.

> I need to practice before teaching because the pattern doesn't make sense at this point. I am still learning names and faces so I need to work on that. I'm looking forward to more teaching to gain the confidence and the pacing needed.

Analysis also indicated that pre-service teachers' written reflections demonstrated fewer affective statements, with a greater focus on teaching styles and practices by the end of the semester. The following excerpt is an example of a pre-service teacher Student B's entry which shows reflective language taken from a final reflection.

> Today at my station we reread the story of the week and answered the questions at the end. I tried calling on random people saying if they weren't ready I'd move on, but that didn't work as well as I thought it would. First of all, I should have done like Marcee did and have them each read a sentence or two because reading page by page made it hard to tell if somebody wasn't ready to turn the page.

Additionally, no pre-service teachers' entries were coded as "summarizing only" at the end of the semester. The following is an excerpt of pre-service teacher Student C's two-page written reflection submitted after being a part of a collective conversation and video reflection in class. Notice the contrast between her initial reflection emphasizing retelling above and this example of reflection *for practice* and the ideas she presented for the next time she teaches this objective.

> To save time, instead of drawing each shape and then writing the defining characteristics, I could have had the shapes pre-drawn and cut out. I could have put tape or magnets on the back of the shapes. This way the shapes would have been more precise because I would have had more time to work on them, and then I would have time to go around and help the students if needed. I could have also used the overhead, just to change things up a bit. Another good idea I learned from the video reflection would have been a sorting activity. I could have divided the class into small groups, and given them some polygons to sort. This hands-on activity would get the students more involved, give them practice with the polygons, and encourage working as a team. When I officially become a teacher, I hope that I can meet with the other teachers at my school and talk about lesson plans and ideas; just as we did in the video reflection. It was really a lot of help. And now I have new ideas to take with me into my teaching career.

Discussion

This study addressed issues regarding the absence of a shared definition of reflection and made visible current practices in the field. Specifically the research examined the difference between the reflective practices of in-service and pre-service teachers. It also examined instructional and evaluation methods being used by faculty members in teacher education courses as compared to reflective practices being used by in-service teachers.

Types of Reflective Practice Used

A difference was found between the reflective practices of in-service and pre-service teachers in that the majority of practicing teachers reported the use of *in practice* reflection while few pre-service teachers reported reflection of this type. This may be due to pre-service teachers' perceived lack of control in making pedagogical decisions. In addition, they may not have a repertoire of strategies and tools to change course *in practice*. This relates back to what Duncan-Andrade (2005) refers to as the third of the four E's of emancipatory pedagogy…engage, experience, empower and enact (p.70).

Reflective journals were listed by faculty as commonly required assignments. A journal is typically defined as a tool used to document personal thoughts, feelings, and narratives. This is in contrast to Freese's (1999) definition of reflective practice which states its purpose is to help teachers modify and improve instructional practices by asking probing questions. Analysis of pre-service teachers' written reflections frequently included summaries of the teaching sessions. Furthermore, these retellings often included affective statements related to emotions experienced during the lesson, similar to a journal entry. This may explain the occurrence of egocentric

affective statements, lengthy retelling of the events, and statements that give minimal information.

The disparity between what in-service teachers do and faculty require of pre-service teachers in reflective assignments supports the idea of calling for a shared definition of reflective practice (Freese, 1999). Faculty's responses to the survey regarding purpose and evaluation for teaching reflective practice methods indicated a wide range of expectations and criteria for evaluation. While several faculty members stated that they used rubrics, no examples of evaluation criteria were given and no common rubric was identified. Within the descriptions of reflective assignments, faculty listed methods included in the checklist from the survey, but also included a wide range of activities, such as responding to newspaper articles and completing self-evaluation forms.

Methods of Reflective Practice Used and Perceived as Most Effective

Of the four methods listed on the survey of reflective practices (internal dialogue, writing, lesson plans, and conversation) results show that the methods of reflection that both in-service and pre-service teachers used most frequently were internal dialogue and conversation respectively. Overall in-service teachers reflected at a higher rate than pre-service in all categories with the exception of categories related to writing. For in-service teachers writing may seem less efficient and more time consuming in the course of the school day, whereas inner dialogue and collective conversations are natural components of the pedagogical community. On the other hand written reflection is a requirement for pre-service teachers in many of their courses as described in results of the faculty survey.

Surveys also revealed that pre-service teachers perceived writing as the most effective method of reflective practice. This too may be influenced by the fact that instructors reported frequent written reflective assignments with less consistent descriptions of conversation as reflective practice. In-service teachers reported that their most effective forms of reflective practice were conversations and internal dialogue respectively. As Freese (1999) suggests, "…reflection can be enhanced when conducted with another individual" (p. 2).

*Changes in Reflective Practice*s

Smith (2002) described reflection in its most useful form as characterized by a complex and multidimensional search for understanding drawing from the past and the present, with implications for the future. These thoughtful practices can be a useful tool during "pre-active, interactive and post-active phases of teaching" (p 2). When collective conversations were used in the methods classroom *for practice* reflection increased. Pre-service teachers in their cohort groups were allowed to get back into the moment by becoming "outsiders" looking in at the classrooms. Supportive comments from the collective conversations around a pre-service teacher's experience appeared to help her as they went through a lesson analysis of why the lesson was more or less successful for her students. It gave her concrete ideas for modifying her instruction at a level that was tangible for her…in other words it provided a scaffold for understanding by a group of her own peers. Providing this collective conceptual lens proved useful in assisting students to reflect in writing *on* the lived teaching experience, expressing a

personal and deliberate search for meaning to enhance the experience. Follow-up written reflections provided a forum to analyze what was going on and then make sense of recommendations for what they would change in their future practice. These findings were consistent with Davis (1996) and Freese (1999) who agreed that collective conversations were the most beneficial reflective method, suggesting that these conversations link teachers together as a pedagogical community.

Limitations of the Study

Although pre-service teachers participated in field experiences in several different schools within the university's professional development system, surveys were limited to teachers in the two schools where the researchers had a professional connection with the principals and teachers. This helped researchers gain access but limited the number of participants.

Another concern was in the design of the survey items. The phrasing of the questions differed among participants, requiring the comparison of item responses across emerging themes rather than item by item (e.g., frequency of reflection was asked of all three participant groups, but the questions were asked particular to each audience).

In the case of pre-service teachers' survey results, responses may have been influenced by the fact that some types of reflective practice were required while others were not. Pre-service teachers responded that they valued writing as the most effective form of reflective practice and inner dialogue as the least. The responses may have been influenced by the fact that written reflections were required components of the class whereas inner dialogue could not be assigned or evaluated.

Finally, although we clearly made this process anonymous, the responses may have been influenced by the perceived role of the individual administering the survey. Researchers, who were also the course instructors, administered the survey to the pre-service teachers. Principals at the participating schools sent emails suggesting that practicing teachers complete the survey. This may have influenced how participants responded to questions regarding preference (i.e., "Which methods are most effective for reflective practice?" with lesson plans being a predisposed choice because of its status as a required form of reflection in class and/or the workplace.)

Implications

In our own reflection of this data we have discovered that pre-service teachers may benefit from a more explicitly defined framework for reflective practice. One way to achieve this would be for instructors to use Schon's definition of reflection as a three part model: *in, on* and *for practice,* with reflection *in* and *on practice* having implications *for future practice*. This could include modeling effective reflective practice in class by the teacher educator, providing rubrics that include the three phases of reflective practice as formative assessments, and avoiding general terminology such as journals and learning logs. Another model for reflective practice could occur between the in-service and pre-service teacher, with increased conversations and sharing of products that show how reflection informs future practice.

In our practice we are seeing a trend of more teacher educators using more collective conversations around video reflections as an instructional tool. In our own classes we have included a structured video reflection protocol. Students choose a video clip of a teaching session in which they need help *for* practice. With this clip they come up with written responses to the following questions, taken from Davis' *Tools for Teaching* (1993): What went well? What didn't go well? What did the children enjoy the most? What did the children enjoy the least? What three things would I change the next time I teach this? Students present their video clips to their cohort group and receive oral and written comments using a plus-delta or other form of feedback. Students then write a reflection *for practice* using feedback from the collective conversation. We have seen a positive impact on the use of reflective language from this more collaborative approach to reflection.

At the university level we see a trend toward more collective conversation. Our University Center for Teaching Excellence has begun a program called the Faculty Lecture Society. This program is to encourage faculty reflection through conversations and shared video clips in a supportive atmosphere. A description of this program is available at http://uncw.edu/cte/resources/lecturersociety.

In-service teachers reported the use of reflection *in, on* and *for practice*. They also expressed a desire to increase conversations, the method of reflective practice they identified as being most effective. Therefore, faculty may be more successful in helping pre-service teachers demonstrate the same methods of reflective practice if they modify their assignments to include collective conversations. Our research showed that this may be best achieved by requiring pre-service teachers to audio and/or video tape their teaching to share in a collective conversation with peers. As Loughran (2002) suggests, written reflection following a collective conversation helps pre-service teachers to extend their learning and develop a common understanding of their experiences. By including collective conversation with subsequent written reflections *for practice*, pre-service teacher educators should be encouraged to support their students in changing their perception of reflection from a "done" to a more proactive "doing" and "would like to be doing" (Smith, 2001, p. 4).

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Table 1
Faculty's Purposes for Reflective Practice Assignments

Participant #	Statement	Code	Other
001	Help them construct knowledge from their learning experience, to think about how their teaching has influenced their students	On	
	and revise lessons so that they can meet the needs of the diverse learners in their classrooms.	For	
002	…describing the three science lessons with comments on what went well	On	
	and what you would have done differently	For	
004	Revise their teaching practices	For	
006	Examine their beliefs about students and curricula		Critical analysis of curriculum
009	Think about how they view other students who do no share their same cultural or linguistic background		Critical analysis of their teaching practices from a socio-cultural perspective
010	To complete the professional evaluation tool		Meet a requirement
011	Challenge the status quo of teaching and school practices		Critical analysis of practices
015	Examine their teaching events	On	
	and use the analysis to impact their teaching practices	For	

Table 2
Faculty Teaching and Evaluation Methods Regarding Reflection

Participant #	Teaching methods	Evaluation techniques
001	Class discussions, giving examples, written comments	Informally through formative assessment and with a rubric that considers depth of reflection and suggestions for modifying instruction
002	Large and small group discussion as well as written reflections	Students are evaluated on writing style and content. Discussions are evaluated on participation
003	Modeling	Rubric
004	Discussion, journals, lesson records, portfolio	Personal conferences
005	Discussion -group and individual	Sometimes not graded, sometimes a rubric is provided Sometimes students self-assess
006	Socratic questioning, media	Rubrics, response charts, peer evaluations
007	I simply have them reflect at every opportunity. I encourage them to think about not only what they might improve but what they like about their work.	It depends upon the class. Generally they are included as a part of rubrics that I create for assignments. They area given a portion of the overall grade.
008	Cognitive recall combined with behavioral analysis of situations	Largely by self-reporting as I do not have the time to observe their performance in the field, therefore, I accept their analysis if the reflective practice was complete and thorough.
009	Journaling	Level of detail in reflection description and analysis
010	Fill out professional evaluation tool	Assign points to grading rubric
011	Analysis of lesson plans Peer and self assessment Models of reflective practices to compare with	Peers and instructor review, discussion and “pre-post” portfolio evidence
012	Discussions (on-line and face-to-face), Writing as a part of lesson summarization	Lesson plan analysis
013	Writing, discussion, modeling	I don’t evaluate the content of

		their reflections (i.e. I don't put much value in what they say) but rather in the quality of their "digging deep" effort in the reflection
014	Reading and discussion of newspaper and magazine articles, and case studies Individual and cooperative/collaborative in-class and online activities	Self-evaluations Informally via verbal and written feedback Formally, using a graded rubric
015	Group interactions and discussion items, role plays, samples	Their reflections are graded based on their level of reflective thought as opposed to an evaluation of what they write
016	A variety of graphic organizer formats designed to extend and connect thinking, guided reflection questions, feedback on writing that identifies strengths and areas for growth, rubric to assess reflections, classroom discussions on reflection, viewing examples of reflections	Rubrics, feedback
017	Guided discussion questions	Use of a rubric
018	Discussion, modeling, observation activities, readings, peer evaluations, self-evaluation	Participation, papers, synthesis and evaluation activities

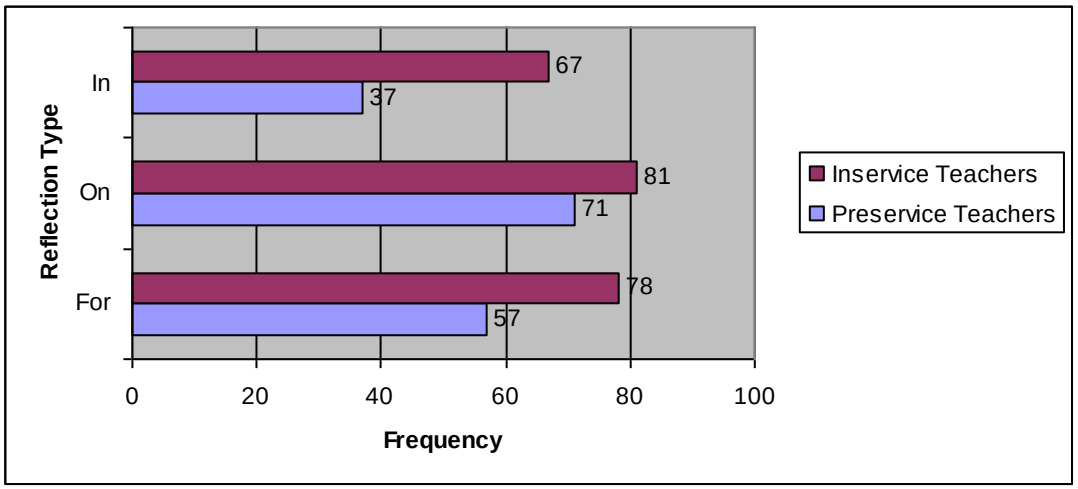

Figure 1. Type of reflection used most frequently by participants

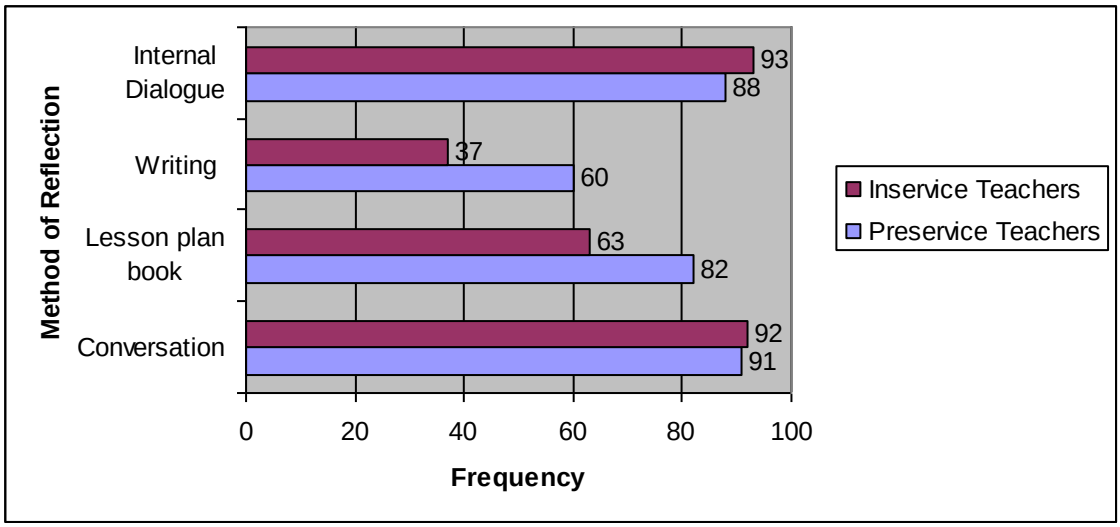

Figure 2. Methods used for reflective practice

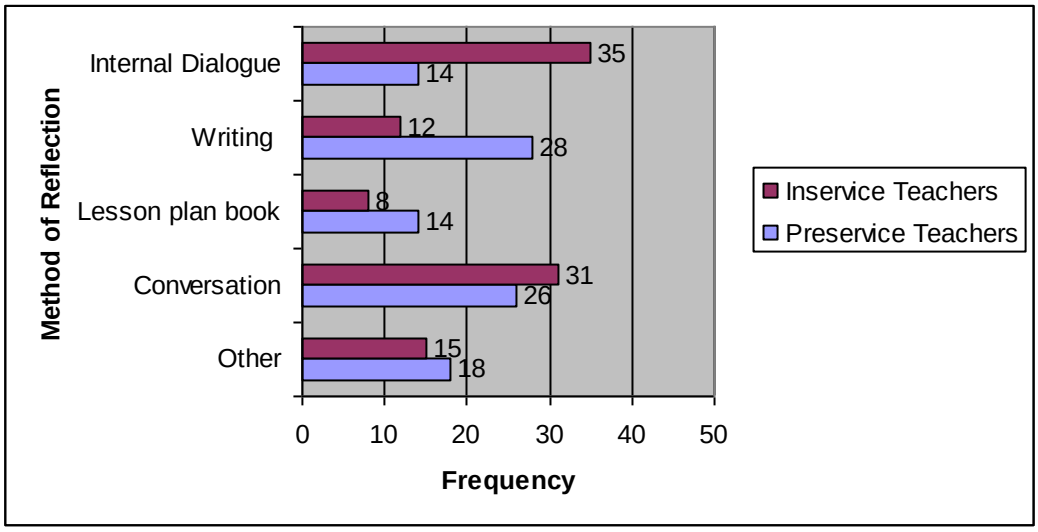

Figure 3. Methods of reflection believed to be most effective for reflective practice

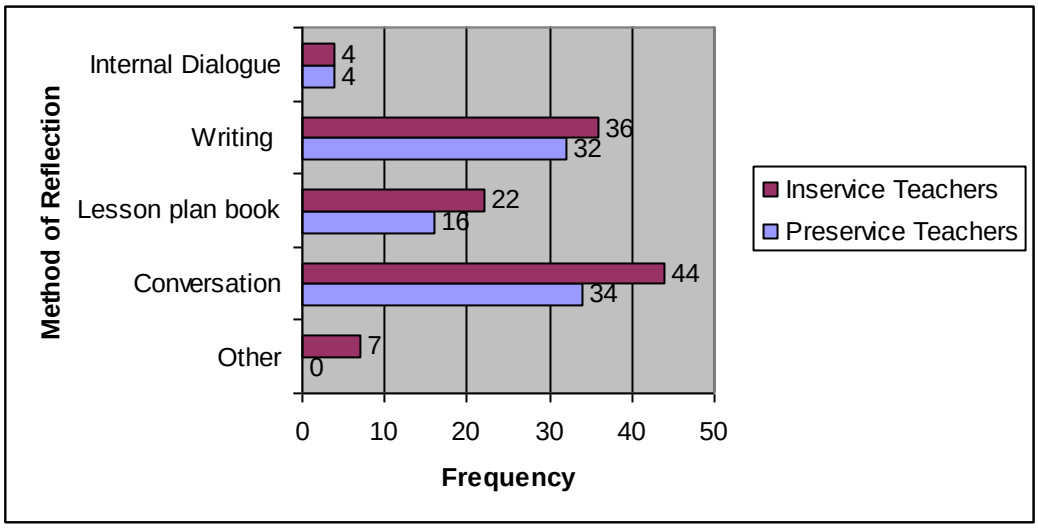

Figure 4. Method of reflection participants would like to use more frequently

The Effect of Student Ethnicity on Teacher Perceptions

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Abstract

Prospective teachers (N = 171) read an essay that manipulated the ethnicity of the student-author (European American, African American, Asian American, or none mentioned). They then rated the author's intelligence and probable future success and estimated the author's GPA. The Asian American student was seen as more intelligent than the control student, but ethnicity did not affect the other dependent variables. The findings may be explained by the stereotype validity model as the essay suggested the author might have characteristics stereotypical of an Asian American. Future research should examine whether experienced teachers will evidence a similar lack of bias.

Students from minority groups often face difficulty in the United States' educational system. For example, in 2001, while only about half of Hispanic and African American students entering ninth grade graduated from high school, approximately 3/4 of European American and Asian American students did (Orfield, Losen, Wald, & Swanson, 2004). Furthermore, National Assessment of Educational Progress (NAEP) scores in recent years (1983-2003) show that African American students have generally performed at a lower academic level than their European American counterparts. Although progress toward racial equality in NAEP scores was made up to the 1980s, the gap has remained steady since 1988 (Thernstrom & Thernstrom, 2003). This experiment explored whether or not teachers may hold different expectations of students of different ethnicities, as these biases may contribute to the academic achievement gap.

Research has suggested that teachers' expectations of students can have profound effects on students' actual achievement. Rosenthal and Jacobson (1968) found that higher teacher expectations led to an increase in the IQ scores of students. Many researchers have suggested that this "Pygmalion Effect" may have an effect on how students of minority ethnicities perform in school (Parks & Kennedy, 2007; Tenenbaum & Ruck, 2007; Williams & Muehl, 1978). That is, if teachers expect less of minority students, it is possible that these expectancies cause a self-fulfilling prophecy inhibiting students' academic achievement.

Perceptions of Intelligence and Estimated Grade Point Average (GPA)

Past research suggests that teachers often hold more negative perceptions of African American students' intelligence and academic ability compared to European American students. One such study found that when preschool teachers were given a picture of an African American or European American student, both African American and European American teachers rated the European American children as higher in terms of intellectual ability and academic achievement than the African American children (Adams, 1978). Another experiment showed that education

majors at several American universities believed a European American student hired by the researcher would be better able to learn words than an African American student hired by the researcher. After working with one of the students, teachers believed that the European American student would be able to spell more words correctly than the African American student (Bennett, 1976). However, these studies were performed in the 1970s, and it is unclear whether contemporary teachers harbor the same prejudices.

More recently research has shown that when college students enrolled in a teacher education course were given a picture of a student, African American children were perceived to have lower GPAs and IQ scores than European American students (Richman, Bovelsky, Kroovand, Vacca, & West, 1997). However, a 2007 study by Parks and Kennedy found that ethnicity did not have a simple main effect on how participants rated 10-year-old students in terms of academic achievement, although they did find an interactive effect between ethnicity and attractiveness in which unattractive African American children were rated the lowest in academic and social competence. In addition, research from both the 1970s and this decade shows that teachers criticize African American students more often and that they are less willing to recommend them for gifted and talented programs than European American students (Elhoweris, Mutua, Alsheikh, & Holloway, 2005; Rubovits & Maehr, 1973).

Perceptions of Academic Success and Future Career Success

Teachers may believe that African American students have less academic potential than European American students. A study conducted by Pigott and Cowen (2000) found that randomly selected African American students were perceived by teachers to be less likely to graduate from high school and more likely to have problems with future school work than randomly selected European American students. In 1988, Wong, Derlega, and Colson found that undergraduate students enrolled in psychology and teacher education classes expected an African American student described in a vignette to do worse on a test on nutrition and believed the African American student would do worse in terms of future academic achievement than a European American student.

Additionally, past research suggests that African American students may also be perceived by teachers to be less likely to succeed in their future careers than European American students. Simpson, Smith, and Means (1974) found that both European American and African American college students given an essay purported to be written by either a European American or an African American student rated the European American student as more likely to gain successful employment than the African American student. Wong et al. (1988) also found that a male African American student described in a vignette was expected to do worse in his future career than a male European American student. Another recent study found that teachers who viewed pictures of either four African American or four European American children rated the African American children as less self-confident, less ambitious, and taking less initiative (Richman et al., 1997). Because these qualities would affect a person's future career success, African American students also may be perceived as less likely to succeed at their future careers than European American students.

Teachers' Perceptions of Asian American Students

Little research has experimentally tested whether teachers have different perceptions of Asian American students and students of other ethnicities. Asian Americans are sometimes lauded as a "model minority," and stereotypes exist that Asian American students are hard-working and do well academically (Allis, 1991; Lee, 1994; Lee & Ying, 2001). Wong, Lai, Nagasawa, and Lin (1998), for example, found that university students interviewed via telephone reported that Asian Americans perform better academically than African American students, are more motivated to do well in college and are more likely to succeed in their careers than Caucasian and African American students.

Some past research suggests that those involved in education may exhibit some biases toward Asian American students. For example, Yeh in 2001 found that about 75% of school counselors described Asian-American students as hardworking or academic. Furthermore, Chang and Demyan (2007) found that when teachers were asked to list up to six traits describing Asian American, European American, and African American students in general, teachers referred to Asians as intelligent and industrious more often than they described European American and African American students with these terms. Given these stereotypes, it is reasonable to suspect that teachers might have even higher expectations for students of Asian descent than for their European American peers. Stereotyping is detrimental to all students, whether the stereotypes are positive or negative. In the case of Asian American students, the stereotype of Asian Americans as a group that does well academically can cause stress or anxiety for those who do not excel in education (Cocchiara & Quick, 2004).

To determine if the ethnicity of a target influences teachers' perceptions of the student's intelligence, the estimated GPA of students, and perceptions of a student's future academic and career success, the following hypotheses were tested: 1) Compared to an African American student, an Asian American and European American student will be thought to: A) have a higher GPA, B) to be more intelligent, C) have greater potential for future academic success, and D) have greater potential for future career success. 2) Compared to a European American student, an Asian American student will be thought to: A) have a higher GPA, B) be more intelligent, C) have greater potential for future academic success, and D) have greater potential for future career success.

Method

Participants

Data were collected in secondary education classes at a university in suburban New York during the spring of 2010. The sample consisted of 171 participants, 110 (64.3%) graduate students and 60 (35.1%) undergraduate students. The response rate was 88.6%, and participants did not receive any academic or extra credit for their participation. The majority of the participants were European American (81.9%) and the sample consisted of 72 (42.1%) male and 98 (57.3%) female students. The participants planned to teach a variety of academic subjects: math (14%), science (6%), English (14%), history (24%), art/music (20%), foreign language (3%), and business (18%).

Experimental Stimulus

An essay was created to serve as the experimental stimulus. The ethnicity of the author of the essay was systematically varied between the four conditions. An essay was chosen because it was believed that this form of work would be sufficiently ambiguous as to allow possible teacher prejudices to be revealed.

The essay was purported to be written by Michael, a 17-year-old junior, for his English class. The essay was five paragraphs long, and the topic of the essay was how friendship impacted the writer's life. The four versions of the essay were identical except for two sentences which manipulated the ethnicity of the author. One-fourth of the participants received a version in which the author referred to himself as "black", one-fourth received a version where the author referred to himself as "white", one-fourth received a version where the author referred to himself as "Asian," and the last fourth received a version of the essay where the author did not mention his ethnicity. The version of the essay without the mention of the author's ethnicity had 392 words and the other three versions had 394 words. The essay can be found in Appendix A.

Dependent Measures

The survey consisted of three scales: the Perceived Intelligence Scale, the Perceived Future Academic Success Scale, and the Perceived Future Career Success Scale (see Appendix B). In addition, a single item measured the estimated GPA of the student. The Perceived Intelligence Scale consisted of five items and had a Cronbach's alpha of .82 on this sample. It was created by the researchers but modeled after the Perceived Academic Ability scale used by Good and Adams (2008). A sample item on the scale is, "The writer is probably capable of obtaining good grades in school."

The Perceived Future Academic Success Scale was created by the researchers based on questions asked in the study by Simpson et al. (1974). The scale consists of five items, and a sample item is "The writer will probably get into the college of his choice." The scale had a Cronbach's alpha of .83 on this sample of prospective teachers.

The Perceived Future Career Success Scale was created by the researchers and was based on criteria commonly used to measure extrinsic career success (Judge & Kammeyer-Mueller, 2007). The scale consists of three items, had a Cronbach's alpha of .82 on the sample, and a sample item is, "The writer will probably be able to get a high-paying job in the future."

Procedure

Participants were told that the purpose of the study was to look at how an essay might affect prospective teachers' perceptions of students. The participants were told that participation was voluntary and that all responses would be kept anonymous.

Participants were randomly assigned to read one of the four versions of the essay and fill out the survey. After the participants completed the survey, they filled out a manipulation check, which

asked about the ethnicity of the author and included four other items to prevent participants from discerning that the study was about ethnicity and possibly contaminating the rest of the data collection process.

Results

Data Analysis

Analyses of variance (ANOVAs) were used to determine if the purported ethnicity of the student writing the essay influenced prospective teachers' perceptions of the students' intelligence, probable future academic and career success, and the expected GPA of the student. Data were analyzed using SPSS version 18, and a *p*-value of .05 was used as the cutoff for statistical significance.

The Effect of Purported Ethnicity of Student on Perceived Intelligence

A one-way ANOVA revealed a significant main effect for purported ethnicity on perceived intelligence, $F(3, 136) = 2.77$, $p < .05$, $\eta_p^2 = .06$**.** A Tukey-Kramer post-hoc test revealed that the perceived intelligence of the Asian American student ($M = 4.61$) was significantly greater than that of the control student ($M = 4.10$), $p < .05$. On the other hand, contrary to the hypotheses, the differences between the perceived intelligences of the Asian American, African American, and European American students were not statistically significant. Figure 1 displays the means for each group.

Estimated GPA, Perceived Academic Success, and Perceived Career Success

No significant effect was found for the ethnicity of the student on estimated GPA, $F(3, 130) = 0.61$, $p = .61$, $\eta_p^2 = .01$. As can be seen in Table 1, the estimated GPAs of the four different conditions were almost the same. Similarly, ANOVAs revealed no significant effects for the purported ethnicity of the student on perceived academic success, $F(3, 135) = .99$, $p = .40$, $\eta_p^2 = .02$, or on the perceived career success of the student, $F(3, 135) = .52$, $p = .77$, $\eta_p^2 = .01$.

Discussion

This experiment suggests that the ethnicity of students has little effect on future teachers' perceptions of a student's intelligence, GPA, or future career and academic success, at least when a large amount of information about the student is provided. This finding is encouraging as numerous previous studies (Adams, 1978; Bennett, 1976; Elhoweris et al., 2005; Richman et al., 1997; Rubovits & Maehr, 1973; Wong et al., 1988) have suggested that teachers and prospective teachers may, in fact, hold biases toward students of different ethnicities.

Purported ethnicity was found to have an unanticipated effect on perceived intelligence in which the Asian American student was seen as more intelligent than the control student. However, there was no difference in perceived intelligence between the Asian American, European American, or African American students.

The difference between the perceived intelligence of the Asian American and that of the control student can be partly explained by the stereotype validity model (Madon, Guyll, Hilbert, Kryiakatos, & Vogel, 2006). According to this theory, people are more willing to judge a target based on stereotypes when individuating information is in line with the stereotypes. Since the information provided within the essay seems to be in line with common stereotypes that Asian Americans are intelligent (e.g., the writer plays chess and goes to the library to learn about Native American culture), it may have made participants a bit more willing to rely on stereotypes when rating the intelligence of the Asian American student.

On the other hand, ethnicity did not have an effect on the other dependent variables. Again, individuating information may provide the reason why. Details within the essay may have influenced the participants' ratings more than the writer's ethnicity. In some of the previous studies (e.g., Richman et al., 1997), little information about the target was provided (e.g., just a photo) and the lack of information may have led participants to rely on using ethnic stereotypes.

Furthermore, since the essay provided information that may seem counter to common stereotypes regarding African Americans, the information may have made participants even less willing to rely on stereotypes in forming perceptions of the student. A way to test this would be to run a 4 x 2 experiment (ethnicity x type of individuating information) to contrast the effect of information that supports and contradicts common stereotypes.

Alternatively, the general lack of bias may reflect something about this time period or these students. It is possible that the students, enrolled in teacher education courses, are especially sensitized to the ethnicity of the student. Since the participants have most likely been exposed to the issue of the academic achievement gap between students of different backgrounds, the participants may have tried to avoid basing their responses on the ethnicity of the student and any stereotypes they may hold. While these data do not necessarily generalize to other universities in the nation, it appears that the specific education program may have done a good job at making students aware of the issue of racial equality in education.

Another possible cause for the general lack of significant differences may have been the sensitivity of the dependent measures. While the measures are based on scales used in past research, it is possible that they may not have been sensitive enough to measure the differences in the prospective teachers' perceptions of the students. Although a cover story was provided, it is also possible that some participants may have guessed the true purpose of the study and therefore responded in a way to appear less biased.

An interesting question to investigate would be whether non-European American teachers' perceptions of the students differ from the perceptions of European American teachers. Statistical analyses run to investigate the effect of the student's ethnicity on only the European American participants yielded similar results to the results with the sample as a whole. Since the vast majority (82%) of the participants in this study were European American, it was not possible to investigate the effect of the prospective teachers' ethnicities fully.

Another way to expand on this study would be to look at whether teachers with a similar background who have been teaching for several years display a similar lack of bias. It is possible

that teachers who have some experience teaching may have developed more biases or that as proximity from the university environment decreases, prejudice takes hold. While the results of this study suggest that biases in prospective teachers may be on the decline, the academic achievement gap remains a critical issue that demands further research.

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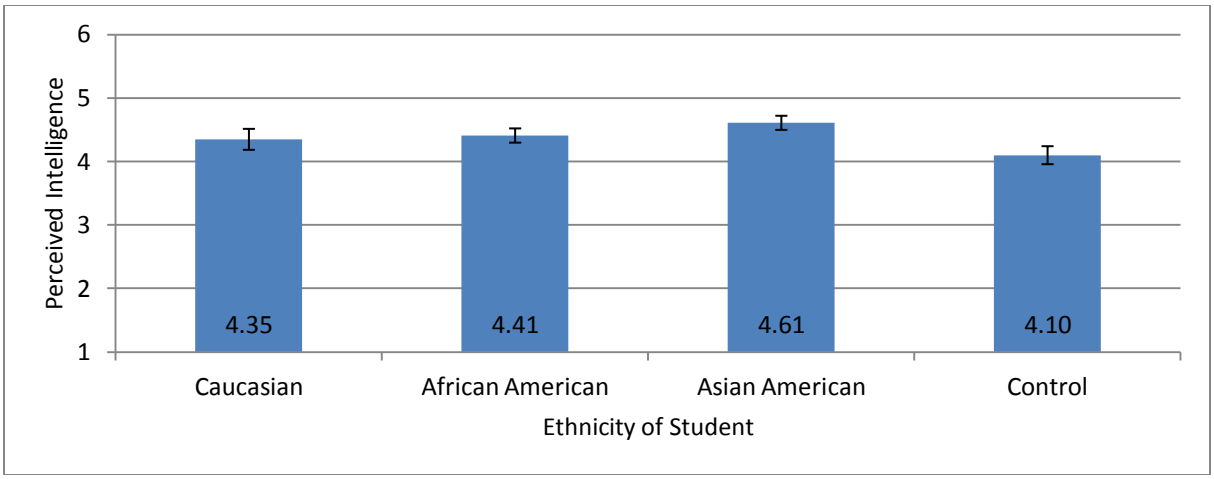

Figure 1. The Effect of Purported Ethnicity on Perceived Intelligence

Table 1.

Means Table for Dependent Variables

Ethnicity	Intelligence	Estimated GPA	Perceived Academic Success	Perceived Career Success
European American	4.35 (0.14)	87.19 (6.26)	3.93 (0.79)	3.73 (0.78)
African American	4.41 (0.12)	85.62 (6.27)	4.00 (0.80)	3.74 (0.81)
Asian American	4.61 (0.12)	86.24 (6.52)	4.15 (0.74)	3.86 (0.65)
Control	4.10 (0.14)	86.14 (5.11)	3.76 (0.69)	3.67 (0.69)

Appendix A
Experimental Stimuli

The following essay was given to participants.

Question: How have your friends impacted your life and the way you live?

Friends are an important part of my life. They are always there for me and are fun to be with. They are like a second family to me and have greatly impacted my life. My friends have led me to try new hobbies and sports, introduced me to the ideas and beliefs of other cultures, and taught me that people of different religions or different backgrounds can get along despite the differences between them.

My friends led me to try new hobbies, some of which I still enjoy doing. As a child, I often played basketball and football with my friends. They led me to try new sports, such as swimming, soccer, baseball, and handball. They taught me how to play some games such as chess and checkers. Although I never really got the hang of some of the sports, like soccer, other sports and hobbies interested me greatly. I still swim and play baseball occasionally, and I enjoy playing chess with my friends.

Growing up **(white, black, Asian)*** in a multi-ethnic community, I befriended people of other races. Many of them had different beliefs and ideas, and through my friendship with them, I was introduced to new cultures. I remember becoming friends with a Native American boy named Sam. He would tell me stories that his father told him. On multiple occasions I went to the library to read many books about Native American culture. I spent several hours there, reading through Indian folk tales and books about how they lived. My friends opened my eyes to a wider world and introduced me to other cultures and beliefs.

Some of my friends have also helped me realize that people with differing beliefs or different backgrounds can still get along. When I was in elementary school, I met a Muslim boy from Afghanistan, who just moved into our class. As a(n) **(white, black, Asian)*** Christian, I did not really understand his religious beliefs. Similarly, he didn't really understand my religious beliefs. At first, we barely knew each other, but as the year went on, we became best of friends. Our differing religious beliefs did not affect our friendship in any way. People can get along with others despite any differences between them.

I believe that friends are invaluable. They can greatly impact a person's life and allow him or her to see the world through a broader perspective.

*For the control group, the ethnicity of the student is not mentioned.

Appendix B
Dependent Measures

Estimated GPA: Participants were asked to answer an item regarding the GPA they would expect the student to have.

1. Please estimate the GPA of the student, on a 0-100% scale. ___%

*Perceived Intelligence Scale:

1. The writer probably does well in school compared to other students.
2. The writer is probably capable of obtaining good grades in school.
3. The writer probably doesn't do well in school. (reverse-scored)
4. The writer usually does not produce high-quality work in school. (reverse-scored)
5. The writer is probably smarter than most of the other students in his grade.

*Perceived Future Academic Success Scale:

1. The writer will probably get into the college of his choice.
2. The writer will most likely do poorly in college. (reverse-scored)
3. The writer has a good chance of getting an academic scholarship to college.
4. The writer will most likely earn good grades in college.
5. The writer will likely have difficulty with college-level work. (reverse-scored)

*Perceived Future Career Success Scale:

1. The writer will probably be able to get a high-paying job in the future.
2. The writer will probably be successful in his future career.
3. The writer will probably be promoted often.

*Participants were asked to answer the questions on a 6-point Likert-type scale, with 1 being "strongly disagree" and 6 being "strongly agree."

English Learner Oral Language Production in Middle School Academic Classes

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Abstract

Because of current federal and state educational policies, oral language development is an often overlooked aspect of language and literacy use and development of English Learning (EL) students in K-12 schools in the United States. This article describes a study in which a researcher used an ecobehavioral approach to investigate the conditional probability that young adolescent EL students would produce language in content area classes as they engaged in four different instructional grouping configurations: whole class, small group, one-to-one, and individual instruction. Significant differences emerged between instructional grouping configurations in terms of EL student production of oral academic language. Overall, there was a significant probability that academic talk would not occur during whole class and individualized instruction and a significant probability that academic talk would occur during small group and one to one instruction. Reading aloud was not likely to occur during whole class, small group, and individualized instruction. However, it was significantly likely to occur during individualized instruction. Although further investigation is warranted across multiple contexts, these data suggest that EL students may engage in more academic language production if they are paired with other students during classroom instruction.

English learning (EL) students in K-12 schools face the challenge of not only having to learn English as a second language, but also using their developing language as a tool for learning (Cummins, 2001). Second language acquisition researchers have demonstrated a strong relationship between academic oral language production, second language acquisition, and academic development. When EL students have opportunities to converse extensively in English with more proficient EL students and native English speakers, their vocabulary tends to improve (Ellis, 1994; Fuente, 2002; Gass & Alvarez-Torres, 2005), they develop more native-like grammar and syntax (Polio & Gass, 1998; Storch, 2008; Swain & Lapkin, 1998, Watanabe & Swain, 2007), and their reading comprehension increases (Early & Marshall, 2008; Echevarria, 1996; Saunders & Goldenberg, 1999). Other researchers have established a strong link between classroom academic language use and language and academic development. Villar (1999) explored the role of instructional conversations. He found that instructional conversations supported students in making critical schematic connections and promoted English language acquisition. Additionally, Barwell (2005) found that EL who collaborated with partners to write and solve mathematic word problems negotiated a stronger meaning about the mathematical concepts and acquired mathematical language in English. Finally, Early and Marshall (2008) found that hands-on project-based learning with an emphasis on student collaboration resulted in increased reading comprehension with deep student conceptual development. Academic language production in the classroom appears to be a key that has the potential to help to close the achievement gap between native English speaking and EL students (Cummins, 1996, 2001).

While second language researchers in the last two decades have begun to explore the ways in which classroom oral language use supports second language acquisition, considerably less research has been conducted on ways to encourage inter-student and teacher-student interaction in either language or content area classrooms. This kind of research is important because English language learners tend to engage in few interactions in academic settings. In a study by Arreaga-Mayer and Perdomo-Rivera (1996), third, fourth, and fifth grade urban English language learners spent less than 8% of classroom time in bilingual classrooms and less than 5% of their time in grade level content area classrooms producing either written or oral language. These classrooms were characterized by teacher-centered instruction in which students spent the majority of their time listening to the teacher lecture. Of the limited time spent producing language, these English language learners predominantly engaged in reading aloud rather than producing language for personal or academic expression. Even when students were producing their own language, these expressions focused on labeling, naming, modeling, and repeating. Students rarely produced language for personal expression. Arreaga-Mayer and Perdomo-Rivera (1996) found that students were most likely to communicate during language arts/reading lessons and had few opportunities to produce language during math, science, or social studies lessons.

Collaborative learning appears to be a promising practice for promoting student academic language use in classrooms. However, in a study of classroom interaction of sixth grade English language learners in a social studies class, Jacob, Rottenberg, Patrick, and Wheeler (1996) found that EL students participating in collaborative groups did not interact much in collaborative groups. On the contrary, Foster (1993) concluded that English as a foreign language (EFL) students were more likely to interact when the activity in some way required the group participants to exchange information. These two studies do not provide enough of a foundation to draw any conclusions about the engagement of EL students in classroom discussions.

This lack of opportunity for academic language production is unfortunate considering that through conducting a series of studies that has encompassed more than two million English language learners in kindergarten through twelfth grades, Thomas and Collier (1995, 1997, 2002) have reached the conclusion that the instructional programs in which English language learners reach the highest levels of academic language proficiency

> are highly interactive, emphasizing student problem-solving and discovery learning through thematic experiences across the curriculum. [These programs] are likely to provide the kind of social setting for natural language acquisition to take place, simultaneously with academic and cognitive development. Collaborative interaction in which meaning is negotiated with peers is central to the language acquisition process, both for oral and written language development (Collier, p. 4, 1995)

While Thomas and Collier have not researched the individual components of second language acquisition such as grammar and syntax, they have measured the attainment of high levels of second language proficiency as the English language learner's ability to perform well on standardized tests of reading in English.

Because of the potential of classroom interaction to facilitate second language acquisition, DeBot (2001) called for more research on classroom interaction. He wrote a research agenda on

classroom interaction for Teachers of English to Speakers of Other Languages (TESOL), the international professional organization for English as a second or foreign language teachers. In this agenda, he concluded that we need some foundational research in understanding how EL students interact under normal instructional conditions and he specifically mentioned that we need more research on adolescent EL student interaction. Very little research in authentic classroom settings under non-experimental conditions have been conducted since then, so we still have little idea of how EL students interact and produce language in their classes on a daily basis.

Methods

Given the paucity of research on academic language use by K-12 EL students in academic content area or language classes, this current study will provide a partial foundation for understanding how K-12 EL interact in classes under normal instructional conditions. This study sought to describe EL student oral language production during five types of instructional grouping configurations: whole class instruction, small group instruction, one to one instruction, individual instruction, and no instruction. The primary questions of this study were

1) What percentages of time during whole group instruction, small group instruction, one-to-one instruction, and individual instruction do EL students engage in academic oral language production?
2) During which instructional grouping configurations are EL students in middle school content area classrooms most likely to produce academic oral language?

Setting

This study took place in two grades 6-8 middle schools in a large urban school district in the Midwestern part of the United States. The school district has seen exponential growth in the past decade that exceeds 1000% while the number of licensed English as a second language (ESL) teachers has only increased by 250%. EL student comprise about 8% of the total student population in the school district. In the two middle schools in the study, they accounted for between 15-20% of the student population. Both schools are situated in economically depressed neighborhoods, with more than 75% of the students at the school receiving free or reduced-fee lunches under the National School Lunch Program.

Participants

The classrooms for the studies were purposively chosen to ensure that the teachers would use a variety of instructional grouping configurations. Ten sixth through eighth grade teachers who taught math, science, social studies, or language arts participated in the study. The 28 students selected for the study were all native Spanish-speaking EL students who attended the sixth, seventh, or eighth grades. The students were randomly selected from a pool of students that returned signed research consent forms. All of the students observed were levels 2-4 in their oral language development as measured by the Language Assessment Scales (DeAvila & Duncan, 1990).

Variables

This study determined the conditional probability of EL students producing academic oral language (talk academic and reading aloud) during various levels of instructional grouping configurations: whole class instruction, small group instruction, one-to-one instruction, and independent instruction. Arreaga-Mayer, Carta, and Tapia (1992) defined these variables as

1) [Talk academic] is defined by those instances in which the student is observed verbalizing, singing, or signing in response to the academic activity or material (p. 44)…
2) Reading aloud is defined by those instances in which the student is observed looking at materials like a book, worksheet, workbook, overhead chart or blackboard and reading aloud what is written (p. 44)...
3) Whole class instruction is recorded when the target student is receiving the same activity and task as all the other students and interaction with the teacher is occurring (p. 32)…
4) Small group instruction is recorded when the target student is involved with the same activity and material with at least one other student, but not all the students, and the interaction with the teacher is occurring (p. 33)…
5) One-to-one instruction is scored when the target student is interacting alone with the person coded in the teacher definition section of the code (p. 33)… This teacher could be a teacher, instructional assistant, or peer [and]
6) Independent instruction is recorded when the target student is engaged in an activity and task that is self-managed (p. 33).

Instrument

The data collection and analysis instrument used for this study is called the Ecobehavioral System for the Contextual Recording of Interactional Bilingual Environments (ESCRIBE). Arreaga-Mayer, Carta, and Tapia developed the instrument in the early 1990s as "an observational coding system for the evaluation of instructional programs serving special education and mainstream culturally and linguistically diverse learners" (p. 2). This instrument used momentary time sampling to record classroom ecological-or environmental-factors, teacher behaviors, and target student behaviors. The researcher collects data every 15 seconds, cycling through rounds that consist of a coding of the instructional environment variable following by 6 sets of coding teacher and target student behavioral variables.

Data Collection

The independent variable included 5 levels: whole class instruction (WCI), small group instruction (SGI), one-to-one instruction (1:1), independent instruction (II), and no instruction (NI). The dependent variables included two levels: talk academic (TA) and reading aloud (RA). Since the observations took place under normal classroom instruction without any research interventions, all students engaged in all levels of the independent variable.

The researcher observed 28 different middle school EL students in content area classes during 28 different class periods over a three week period. During these observations, 1782 lines of data were collected. The mean observation duration was 34 minutes. The observations occurred in several different content area subjects in sixth, seventh, and eighth grade classes: Reading classes accounted for 20.15% of the time, mathematics classes accounted for 26.71% of the time, language arts classes accounted for 23.63% of the time, science classes accounted for 5.22% of the time, social studies classes accounted for 22.62% of the time, and class procedural business accounted for 1.35% of the time.

Data Analysis

Once data are collected while observing the target student, the researcher can run an analysis program embedded within the ESCRIBE software to determine the conditional probability that any specific student dependent variable or combination of variables might occur within a temporal proximity to any one of the independent variables. The data analysis program compared the likelihood of a specific dependent variable (student academic or language behavior) occurring within temporal proximity to a specific independent variable (instructional context or teacher behavioral variable). For example in the current study, the likelihood that reading aloud (the dependent variable) would occur while the target EL student was engaged in individualized instruction (the independent variable), was compared to the likelihood that reading aloud would occur during all of the instructional grouping configuration levels. The ESCRIBE program analyzed this covariation of instructional grouping configurations and student language behaviors using the following formula:

"Where P(Ri/Ai)=the proportion of the response (Ri) given ecological arrangement (Ai), P(Ri)=the proportion of the response (Ri) given all data (base rate), mi=the frequency of (Ai), and mo=the frequency of all data sequences in the file." (Juniper Garden's Children's Project, p. 37, N.D.). The ESCRIBE program provided the frequency that the dependent variable occurred in temporal proximity to each independent variable, the extent of variance in terms of a z-score, and the statistical significance in terms of a p-value.

Findings

This study was conducted to discover under which instructional grouping configurations EL students were most likely to engage in academic language production. This study used the ESCRIBE research instrument to measure EL student oral language responses, the dependent variable, during four types of instructional grouping configurations, the independent variable. These instructional grouping configurations included whole class instruction, small group instruction, one-to-one instruction, and individual instruction. All five instructional grouping configurations were observed: Whole class instruction accounted for 37.77% of the observational time, small group instruction accounted for 13.80% of instructional time, one-to-one instruction occupied 6.06% of class time, independent instruction consumed 38.22% of the time, while 4.15% there was no apparent instruction. Across all instructional grouping configurations, EL

students spent 1.01% of their time reading aloud, and 8.98% of their time talking about academic topics.

The results of the data are reported in terms of frequency, conditional probabilities, z-scores, and p-values. The z-score indicates the amount that the conditional probability for a specific student activity related response varied from the mean of all the student activity related response. The z-score also shows a directional relationship. A negative z-score indicates that the mean for a specific dependent variable is less than the mean for an aggregate of all the dependent variables (Keppel & Wickens, 2004). A p-value <.05 was considered significant for the purposes of the current study.

Whole Class Instruction

The researcher coded whole class instruction when the teacher was addressing the entire class or providing the same instruction to all students at the same time. Examples include teacher demonstrations and class discussions. Reading aloud occurred three times during whole class instruction with a conditional probability of 0.08 of occurring. The z-score for reading aloud during whole class instruction was -1.241 and there was no significant probability that reading aloud would occurring during whole class instruction. Talk academic was coded 16 times during whole class instruction with a 0.02 conditional probability of occurring. There was a z-score of -4.895 with a $p<0.001$. Consequently, during whole class instruction, talking about academic topics was significantly not likely to occur.

Small Group Instruction

The researcher coded small group instruction when the target student was working with at least one other student and an additional person who could be a teacher, assistant, or peer. During small group instruction, EL students read aloud for a total of 5 times with a conditional probability of 0.02 that they would read aloud. The Z-score of 1.496 was not statistically significant. However, EL students engaged in academic talk 69 times during small group instruction. Academic talk was significantly likely to occur during small group instruction with $p<0.001$ and $z=9.300$.

One to One Instruction

The researcher coded one to one instruction when the target student was working with one other person. That person could have been a teacher, and assistant, or a peer. EL students read aloud 10 times during one to one instruction with a conditional probability of 0.09 of occurring. This finding was statistically significant with $z=8.283$ and $p<0.001$. The likelihood of academic talk occurring during one to one instruction was also significant with a frequency of 36 times, a conditional probability of 0.33, $z=6.569$, and $p<0.001$.

Individualized Instruction

The researcher coded individualized instruction when the target student was working alone, without any interaction with a teacher, assistant, or peer. No EL student read aloud during

individualized instruction, so there was a 0.00 conditional probability that it would occur. This finding is significant considering that $z=-2.231$ and $p<0.05$. Similarly, academic talk was also not likely to occur during individualized instruction. EL students talked about academic topics 32 times during individualized instruction with $z=-3.303$ and $p<0.001$.

Summary of Findings

Significant differences emerged between instructional grouping configurations in terms of EL student production of oral academic language. Overall, there was a significant negative probability that academic talk would occur during whole class and individualized instruction and a significant probability that academic talk would occur during small group and one to one instruction. Reading aloud was not likely to occur during whole class, small group, and individualized instruction. However, it was significantly likely to occur during individualized instruction.

Conclusions & Discussion

This study begins to fill in some gaps in the research on EL students and classroom interaction. It shows that a group of 28 urban Spanish-speaking EL students in grades 6-8 in the Midwest were likely to engage in academic talk when they were paired with other people during small group and one-to-one instruction and that they demonstrated a likelihood of reading aloud when paired with one other person during one-to-one instruction. These students were observed over a three week period in the middle of the school year, so these results begin to paint a picture of how adolescent EL students might interact and produce oral academic language under normal daily instructional conditions.

In section 2 of this article, there were two studies about the likelihood of EL/EFL students interacting during collaborative learning activities. Jacob, Rottenberg, Patrick, and Wheeler (1996) concluded that EL students in an elementary content area class were not likely to interact in collaborative groups and Foster (1993) found that when a teacher set the collaborative grouping situation to require an exchange of information, adult English as a foreign language students in a language classroom were more likely to engage in small group discussions. Unlike the findings of Jacob, Rottenberg, Patrick, and Wheeler (1996) the current study found that EL students do interact and produce academic language during small group and one-to-one instruction. While not conclusive, these studies raise the question about whether EL student age, the nature of the instructional setting (academic or language focus, second or foreign language), and the native English speaker presence in a classroom influence EL/EFL student willingness to produce oral language. The findings from the current study suggest that factors other than the presence of native English speaking students may influence EL student willingness to engage in academic discussions and reading aloud when paired with one or more other students. Further studies need to be conducted in K-12 content area, ESL, and bilingual classrooms to explore how student age, grade level, language proficiency level, the nature of the tasks assigned during collaborative grouping configurations, other instructional variables, the native language of the target student, the context of the language learning (second versus foreign language) and the presence of native English speakers in the classroom influence EL student interaction and academic oral language production. Additional studies should also be carried out to explore the

relation between EL students' academic oral language production, participation in different instructional grouping configurations, and the aforementioned additional variables and K-12 EL student language and literacy development.

As discussed in section 2 of this article, Arreaga-Mayer and Perdomo-Rivera (1996) found that 1) urban EL students in grades 3-5, spent less than 5% of their time producing either oral or written language and 2) EL students communicated even less during social studies, mathematics, and science lessons. Even though the findings of the current study found that they spent about 10% of their time producing just oral language, this finding does not contradict the findings of the Arreaga-Mayer and Perdomo-Rivera (1996) study. The percentage of time spent in each level of instructional grouping configuration does not reflect the average middle school classroom in the middle schools included in this study. Specific teachers were chosen for this research project because pre-study observations indicated that they were likely to use a variety of instructional grouping configuration. Purposive sampling was essential for this study, in order to collect enough data about each instructional grouping configuration. Many teachers in the schools used little to no small group and one-to-one instructional grouping configurations, so their classes would not have been suitable for this study. More studies need to be done to explore the extent to which EL students have the opportunity to engage in academic language production in content area classes. These studies need to examine multiple content areas, grade levels, teacher preparation for teaching EL students, and school contexts (urban, suburban, rural, high socioeconomic, low socioeconomic, etc.).

The findings of the current study suggest that if teachers move away from a more teacher-center, whole class instructional model toward greater use of small collaborative groups and pair work, they are likely to increase EL student academic oral language production. These results are important. In the ongoing national, state, and local debates about how best to support the language and literacy development of our students, the language-specific developmental needs of K-12 EL students are excluded from the conversation. As discussed in section 1, national educational policy and literacy initiatives are based on research that was done with native English speaking (NES) students only (NICHHD, 2000). While there are some commonalities between the literacy development of native English speakers and English language learners, the unique EL student characteristics and needs for English oral language development and native language literacy development are ignored. Despite the fact that a large literacy development gap exists between EL and NES students, the national literacy initiative, Reading First does not address strategies for native language literacy development, cross-linguistic reading strategies, and instructional approaches for oral language development (Gamse, Jacob, Horst, Boulay, & Unlu, 2008). Perhaps one contributor to the literacy development gap is that EL students have few opportunities to practice producing language in their content area and ESL/bilingual classes. If EL students are to reach higher levels of literacy development, then content area teachers, who typically spend the most time with EL students, should more explicitly plan for frequent opportunities to engage them in academic language use. How will K-12 EL students acquire academic language at high levels if they have few opportunities to engage in authentic academic discussions?

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Preservice Teacher Beliefs about Retention: How do They Know What They Don't Know?

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Abstract

This study attempts to measure the perceptions of preservice teachers concerning the use of grade retention. Findings suggested preservice teachers had an overall positive view of grade retention because they believed it prevented future failure, helped maintain standards, and assisted students who struggled with language arts. This was especially true for preservice teachers acquiring early childhood certification. Respondents perceived grade retention as necessary for students who are struggling academically, had low ability, and were immature. Preservice teachers viewed parental involvement as the most effective intervention in deterring the use of grade retention.

The crux of reports such as *A Nation at Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education, 1983) and legislation like the No Child Left Behind Act of 2001 (NCLB, 2002) and the American Recovery and Reinvestment Act (ARRA, 2009) point to a primary concern of the public. Namely, not all students are learning at high levels. Reacting to this pressure, policy makers expect the achievement gap to narrow despite the fact that all classrooms have substantial ranges in student abilities (Abbott et al., 2010; Martin, 2010). In response to the public's concerns over stalled progress, some states and school districts have adopted strict promotion policies, many of which result in grade retention for under-achieving students (Burkam, LoGerfo, Ready, & Lee, 2007; Xia & Glennie, 2005b).

Grade retention, also known as *flunking*, *grade repetition*, or *being held back* (Eide & Showalter, 2001; Xia & Kirby, 2009), has resurfaced due to pressure to stop social promotion, the practice of advancing low achieving students to the next grade despite not performing on grade level (Jimerson & Ferguson, 2007; Lorence, Dworkin, Toenjes, & Hill, 2002; Penfield, 2010; Wu, West, & Hughes, 2010). In the 1960s, social promotion was used extensively (Jacob & Lefgren, 2002) but by the 1980s, public perception of social promotion was vastly different and educators viewed it as the primary reason why students were under-achieving (Penfield, 2010; Xia & Glennie, 2005c). Retention numbers increased throughout the 1990s (Allen, Chen, Willson, & Hughes, 2009) and by 2009, the National Center for Education Statistics (NCES, 2009) predicted that about 10% of students in kindergarten through eighth grade had been retained once. Additionally, some states (Florida and Texas) and districts (Chicago and New York) have taken

retention decisions out of teachers' hands by adopting strict promotion standards based on high-stakes tests (Penfield, 2010).

In the current educational context, ARRA (2009) set aside $4.35 billion for states in the Race to the Top Fund established to reward significant improvement in student outcomes, closing achievement gaps, and improving high school graduation rates. Although the bill does not mandate the use of retention, it clearly defines *high-need students*, *common standards*, *increased learning time*, and *formative assessments*. The intersection of such variables has created the high stakes educational climate from which advocates of retention create their platform.

As researchers attempt to study retention, they have stressed the importance of teacher beliefs concerning at-risk students and retention (Cadigan, Entwisle, Alexander, & Pallas, 1988). Research has shown teachers, especially primary grade teachers, believe retention is a viable option for students who are struggling (Roberts, 2007; Tomchin & Impara, 1992; Witmer, Hoffman, & Nottis, 2004) because primary grade teachers, "have limited knowledge of the long-term student trajectories after retention" (Xia & Glennie, 2005c, p. 3). These beliefs are important to understand because the majority or retention recommendations are initiated by classroom teachers (Bonvin, Bless, & Schuepbach, 2008; Cannon & Lipscomb, 2011).

This study examines the perspectives of preservice teachers at two four year universities and their perceptions about grade retention using an on-line survey. Researchers propose that preservice education should work to develop the beliefs of preservice teachers about effective instruction (Chong, Wong, & Lang, n.d.). Because beliefs play and pivotal role in the decisions teachers make in the classroom, it is logical to understand how preservice teachers perceive retention (Pajares, 1992). Most practicing teachers form their belief systems based on previous experiences or by the influence of peers (Beswick et al., 2008; Haberman & Dill, 1993; Kagan, 1992; Witmer et al., 2004). Conversely, preservice teachers have limited previous experience or professional peers to form pre-determined attitudes. As a result, preservice teachers develop their dispositions about retention from memories of previous teachers, their own personal experiences, and formal education (Alkhrisha, 1994). Studying their beliefs before they enter the field is an important research endeavor.

Literature Review

The use of grade retention is one of the most antagonistic debates in education. Organizations such as the National Association of School Psychologists (2003) and the American Educational Research Association (2000) have drafted strong policy statements against grade retention to deter its use. Nevertheless, some educators and policy makers cite various reasons as support of its use, the dominant being early learning problems reflect immaturity and providing students another year to develop will increase their capacity to learn (Beswick et al., 2008; Cannon & Lipscomb, 2011; Chen, Chengfang, Zhang, Shi, & Rozelle, 2010; Xia & Kirby, 2009), a view more prevalent with early childhood educators. Haberman and Dill (1993) concisely summarized this view by stating this rationale, "assumes that knowledge can be broken down into bite-sized pieces and delivered with a specific age of child-consumer in mind" (p.353). Others view retention as a method to reduce the skill variance between students (Xia & Glennie, 2005c) which improves the teacher's ability to meet students' academic needs (Brophy, 2006; Hong &

Raudenbush, 2005). Finally, some speculate that the threat of retention causes students and parents to take academics seriously (Allensworth, 2004; Roderick & Nagaoka, 2005; Thompson & Cunningham, 2000). Regardless of which argument is used, a gap between research and practice exists in the beliefs of the public, teachers, and policy makers (Tanner & Galis, 1997; Xia & Glennie, 2005c).

Research concerning grade retention measures its impact on three areas, namely academic achievement, socio-emotional outcomes, and high school drop outs (McCombs, Kirby, & Mariano, 2009; Xia & Glennie, 2005a; Xia & Kirby, 2009). However, concerns raised by academics about the methodology of such studies has created the perception that results are merely speculation (Briggs, 2006; Chatterji, 2010; Hughes, Chen, Thommes, & Kwok, 2010; Wiley, 2006; Xia & Glennie, 2005a). Methodological concerns raised by researchers include lack of control groups to serve as a comparison to retained students, controlling for pre-existing variables, small sample sizes, various measures of academic/socio-emotional performance, and subjective teacher retention recommendations (Brophy, 2006; Greene & Winters, 2004, 2007, 2009; Lorence et al., 2002; Tanner & Galis, 1997; Wu et al., 2010; Xia & Glennie, 2005c).

For the remainder of this section, retention literature is briefly discussed and categorized in the following manner: (a) retention's negative effect on academic and socio-emotional outcomes as well as dropping out of school, (b) retention's positive impact on student outcomes, (c) the characteristics of retained students, (d) interventions administered to avert the use of retention, and (e) preservice teachers' beliefs about retention.

Academic Outcomes

In reviewing retention literature concerning student outcomes, it is important to focus less on short-term studies and concentrate more on longitudinal analyses (Xia & Glennie, 2005a). As a whole, the results of most studies conducted to measure retention's impact on student achievement report negative findings (Xia & Glennie, 2005a; Xia & Kirby, 2009). Some studies report that retained students have short-term benefits over low-performing but promoted peers but gains quickly fade (Beswick et al., 2008; Wu, et al., 2010; Xia & Glennie, 2005a). For example, Alexander, Entwisle, and Dauber's (1995, 2003) comprehensive study of the Baltimore School District found that retention had short term positive academic outcomes for students; however, this positive achievement deteriorated by secondary school. In various recent studies, Hong and Raudenbush (2005) and Hong and Yu (2007) found no evidence that retention benefited kindergarten students and that retention had immediate negative consequences on reading and math performance the following year. Similarly, Griffith, Lloyd, Lane, and Tankersley (2010) found that retained students' reading achievement was worse than low performing but promoted peer group during the retention year. Furthermore, these reading deficiencies continued to persistent when the students reached the 10^{th} and 12^{th} grades. Martin (2010) concluded that early grade retention negatively impacted the homework completion of secondary students and also increased their absenteeism. Both in the United States and internationally, researchers have argued that grade retention resulted in large financial costs for school system, estimated at over 14 billion dollars annually, with little return in learning (Ehmke, Dreschsel, & Carstensen, 2010; Greene & Winters, 2004; Jimerson & Ferguson, 2007; Rocher, 2008).

Socio-Emotional Outcomes

Retention's negative impact on students' socio-emotional and behavioral outcomes is prevalent in the literature. Two meta-analyses (Holmes & Matthews, 1985; Jimerson, 2001) both concluded that retained students scored significantly lower on self-perception and attitude measures than promoted peers. Martin (2009) found that retention caused serious harm to students' self-esteem with negative consequences still present in high school. Anderson, Whipple, and Jimerson (2002) found that sixth graders viewed retention as the most significant life event they could experience. Finally, Jimerson and Ferguson (2007) found that retained students exhibited more behavior problems than promoted peers.

Retention and Dropouts

Edley and Wald (2002) surmised that, "after 40 years, study after study on grade retention has reached the same conclusion; failing a student, particularly in the critical ninth grade year, is the single largest predictor of whether he or she drops out" (p. 1). This statement is supported by researchers who have found that a significantly higher percentage of retained students drop out, and one retention increases the chance a student will drop out to 20-50% (Jimerson, 1999; Jimerson, Ferguson, Whipple, Anderson, & Dalton, 2002; McGrath, 2006; Smith, 2004; Xia & Glennie, 2005a). If students drop out due to grade retention, the ramifications are felt into adulthood because retention also negatively impacts post-secondary enrollment and subsequent financial earnings (Eide & Showalter, 2001; Ou & Reynolds, 2010).

Positive Outcomes

Retention's positive outcomes for students can be found in the literature and are often associated with studies that take place in states and school districts that have implemented strict promotion policies (Burkam et al., 2007). For example, studies disseminated over the past six years concerning Florida's retention policy have all found positive, short-term outcomes for students (Greene & Winters, 2004, 2006, 2007, 2009; Ladner & Burke, 2010). Additionally, research in Texas concerning students' reading scores showed that scores improved as a result of retention (Hughes et al., 2010; Lorence & Dworkin, 2006; Lorence et al., 2002). McCombs et al. (2009) found positive results concerning New York City's retention policy up to the seventh grade. Moreover, this study is significant because the authors reported both positive academic and socio-emotional result for students. Finally, Cannon and Lipscomb (2011) studied retention rates before third grade in the Los Angeles Unified School district and found that first and second grade students benefited academically from retention, although long term outcomes were uncertain.

Characteristics of Retained Students

Researchers have come to consensus concerning the characteristics of retained students with the most prevalent being low performance on academic measures, usually language arts or mathematics (Alexander et al., 1995; Hong & Raudenbush, 2005; McCombs et al., 2009; Xia & Kirby, 2009). Additionally, demographic characteristics of retained students include: minority (usually African American or Hispanic), male, low socio-economic background, living with one

parent, young for grade, and being born to a teenage mother (Cannon & Lipscomb, 2011; Chen et al., 2010; Corman, 2003; Frey, 2005; Martin, 2009; Greene & Winters, 2009; Hong & Yu, 2007). The parents of retained students do not exhibit a sense of shared responsibility for their children's school success, probably because school was a challenge for them too (Cannon & Lipscomb, 2011; Corman, 2003; Jimerson, Carlson, Robert, Egeland, & Sroufe, 1997; Willson & Hughes, 2006).

Interventions as Opposed to Retention

Because grade retention is an expensive intervention (Bowman, 2005; Eide & Goldhaber, 2005; Xia & Glennie, 2005a), its administration makes little sense in light of other research based interventions proven to assist struggling students (Hill & Weiss, 2005; Thompson & Cunningham, 2004). Moreover, because students have individual needs, it is important for educators to attempt various targeted interventions to determine which ones produce positive remediation (Jacob & Lefgren, 2007). Effective interventions include assistance in reading and math, tutoring and extending the school day, facilitating parental involvement, and lengthening the school year through Saturday or summer school (Benson & Martin, 2003; Cannon & Lipscomb, 2011; Clay, 2005; Davenport, Delgado, Meisels, & Moore, 1998; Jimerson & Kauffman, 2003; Meier & Sullivan, 2004; Musti-Rao & Cartledge, 2007; Vaughn & Linan-Thompson, 2004; Wynn, 2010).

Preservice Teacher Beliefs about Retention

Due to a relationship between belief and action, certain teacher beliefs concerning educational issues are vitally important to understand (Johnson & Howell, 2009). Therefore, assessing the beliefs of teachers might give researchers insight into changing their dispositions (Freeman, Gum, & Blackbourn, 1999; Koehler, 1988). Beliefs can be defined as the innate theories and opinions teachers' posses about educational practice and are instrumental to understanding teachers' decision making processes (Cook, 2002; Pajares, 1992).

Beswick et al. (2008) surmised that when educators' beliefs are guided by misinformation, the academic futures of students are jeopardized. This is especially true because teacher beliefs concerning child development have been linked to views of grade retention (Gredler, 1992). Although all teachers have been found to exhibit positive views concerning retention (Johnson & Howell, 2009; Range, 2009; Tomchin & Impara, 1992; Witmer, et al., 2004), this attitude is much more prevalent in the primary grades (Biegler, 2000; Silberglitt, Jimerson, Burns, & Appleton, 2006; Xia & Glennie, 2005c).

After an extensive literature search, only three manuscripts could be found that discussed preservice teacher attitudes about retention (Alkhrisha, 1994; Haberman & Dill, 1993; Johnson & Howell, 2009). Alkhrisha (1994) concluded that preservice teachers supported the use of retention for students not meeting standards, for those who were socially immature, and for those who were endanger of later school failure. Furthermore, preservice teachers who were majoring in early childhood education were more apt to support retention than students majoring in secondary education. Johnson and Howell (2009) found that, as a result of formal education, preservice teachers attitudes concerning the use of retention changed from supportive to less

supportive. However, "these attitudes remained more neutral than might have been anticipated, suggesting that attitude-change may require further development" (p. 40).

Preservice teacher education is focused on developing the belief system of preservice teachers to help create their attitudes about current issues in education (Kennedy & Kennedy, 1996). Consequently, because the presumption of most practicing educators is that retention increases learning readiness, such beliefs indirectly influence preservice teachers (Haberman & Dill, 1993). As a result, changing the beliefs of preservice teachers about retention requires considerable time and effort (Johnson & Howell, 2009).

Context of the Study

Two four-year universities, one public and one private, were used in the data collection. The private university was located in the Midwest and provided approximately 100 areas of study. Total undergraduate enrollment for the fall of 2010 was 1,517 students. The public university was located in the Mountain West and offered approximately 190 areas of study. Total undergraduate enrollment for the fall of 2010 was 9,793 students. Both universities had a teacher preparation curriculum in which students could receive licensure to teach at the early childhood, elementary, or secondary levels.

Research Design and Methods

This study was designed to illuminate how preservice teachers perceive grade retention. The research study followed a descriptive tradition and used an on-line survey to measure respondents' perceptions (Fraenkel, Wallen, & Hyun, 2012). Four research questions guided the inquiry:

1. What factors best explain preservice teachers' overall attitudes towards grade retention?
2. What interventions do preservice teachers believe are best at reducing grade retention rates?
3. What is the difference in how preservice teachers view overall grade retention based on their area of intended certification?
4. What is the difference in how preservice teachers view primary grade retention based on their area of intended certification?

The sample was a convenience sample (Fraenkel, Wallen, & Hyun, 2012) in which specific classes were selected because they contained large numbers of preservice teachers who were acquiring certification in early childhood, elementary, and secondary education. Instructors at both universities were e-mailed in March 2011 asking them to allow their students to participate. After instructor permission was secured, an e-mail which contained a link to an online survey was forwarded by instructors to their students at both universities inviting them to participate in the study. Up to two reminder e-mails were sent each week for two weeks to instructors to again forward the survey to their students. Out of a possible 217 respondents, 95 responded to the survey, a response rate of 44%.

Study Participants

Of those preservice teachers who responded to the survey, the majority were female (78.3%) while 21.7% were male. Average age was 21.68 with a range from 18 to 53 years old. Most respondents were working on elementary certification (46.7%) while 39.1% were seeking secondary certification and 14.1% were seeking early childhood certification.

Instrument

The instrument used in the collection of data was a revised version of the Teacher Perceptions about Retention Survey (TPARS) developed by Tomchin (1989). The TPARS has been used in other retention studies (Haynes, 2007; Pouliot, 1999; Quarterman, 2004; Range, 2009; Tomchin & Impara, 1992; Witmer et al., 2004). In sum, section one of the survey included 14 Likert scaled statements (scale ranged from 1=strongly disagree to 4=strongly agree) which included: (a) two statements written to measure support or non-support of grade retention, one focusing on overall grade retention and the on other grade retention in the primary grades and, (b) 12 statements concerning reasons why retention should be used. Cronbach's alpha was calculated for all 14 items and was found to be 0.71. Additionally, a Pearson correlation was computed between the *age* and responses to the statement, "Students should sometimes be retained." The correlation was $r = -0.56$, indicating that older respondents tended to disagree with retention and younger respondents agreed. This correlation provides some evidence that the survey had construct validity (Ary, Jacobs, Razavieh, & Sorensen, 2006). Content validity was also supported by the correspondence between literature on retention and items on the survey.

Section two prompted preservice teachers to select one factor they consider the most important when making a decision to retain a student. The third section required preservice teachers to rate the importance of interventions at keeping struggling students from being retained. These interventions were identified within the literature and included: (a) additional reading programs, (b) summer school, (c) parental involvement, (d) public school tutoring (e) private tutoring, (f) direct instruction strategies, (g) formative evaluations, (h) multiage classrooms, (i) smaller class sizes, (j) mental health support, (k) before and after school programs, (l) personal learning plans, (m) special education services, (n) cooperative learning, (o) group work, and (p) looping. Finally, the survey concluded with one open-ended question designed to allow respondents to describe situations in which retention might or might not be effective.

Data Analysis and Findings

Quantitative data were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 18.0. Means and standard deviations were calculated for Likert-scaled items. Frequencies and percentages were calculated for forced choice items. Answers to the open-ended question were coded, re-coded, and categorized into themes (Hatch 2002).

One statement on the survey was written to ascertain preservice teachers' overall beliefs about retention. The statement, "students should sometimes be retained," yielded a mean of 3.13 (SD=0.55), which indicated respondents supported the use of grade retention. Additional analysis

on this statement showed 88 respondents either *agreed* (N=68) or *strongly agreed* (N=20) with the statement (scale ranged from 1=strongly disagree to 4=strongly agree).

A second statement, "retention should occur before second grade," was written to measure whether prospective teachers' beliefs mimicked the literature concerning the supportative attitudes of educators about primary grade retention. This statement garnered an overall mean of 2.45 (SD=0.68) (scale ranged from 1=strongly disagree to 4=strongly agree). Additional analysis on this statement showed that the sample was split concerning their view, meaning 50 respondents strongly disagreed or disagreed with statement while 45 respondents strongly agreed or agreed with the statement. Additional findings are organized according to each research question.

Research Question One

Research question one asked what factors best explain preservice teachers' overall attitudes towards grade retention? This question was answered within two sections of the survey and with two different analyses, namely linear regression and descriptive statistics.

Linear regression analysis was used to identify those items that best explained the variability in overall perceptions about retention. The overall retention item, "students should sometimes be retained," was the dependent variable; it was regressed onto the 12 scale items (independent variables) that were included as possible reasons for retention. See Table 1 for a summary of the regression analysis. In addition, a plot of the residuals for the 12-item model against the predicted values indicated that the relationship was indeed linear. A stepwise selection procedure identified items that contributed most to the variability. Items that contributed little to the variability were deleted. Items to be included were chosen based on high correlations with the dependent variable, low correlations with other items, and high B-weights in relation to others. Four items were retained in the model and generated an R^2 of .394.

The four items that were included in the model were items that explained preservice teacher attitudes toward retention. The first three items had positive B-weights, indicating a direct relationship with retention; for example, strong agreement about retention being effective also had strong agreement about retention preventing future failure (M=2.91, SD=0.59), helping to maintain high standards in the classroom (M=2.80, SD= 0.54) and assisting those students who struggle with language arts (M=2.34, SD=0.58). The fourth item had a negative B-weight; preservice teachers who agreed that retention is effective, disagreed that, for students who are on grade level with academic work, excessive absences should be a reason for retention (M=1.89, SD=0.66). According to the preservice teachers in this sample, these four items provide the best explanation of why students should be retained.

Additionally, preservice teachers were asked to choose one factor they considered most important when retaining students. Overwhelmingly, preservice teachers perceived two factors as the most important when retaining students in grade, namely academic performance (39.4%) and ability (37.2%). The remainder of the factors, effort being put forth (11.7%), emotional maturity (6.4%), age in relation to others (3.2%), and home environment (2.1%), were chosen less frequently. Additionally, preservice teachers were also asked one opened question in which they

could describe particular situations in which retention may or may not be beneficial. Respondents believed that students who were academically, socially, or emotionally immature as candidates for grade retention. For example, respondents perceived retention as beneficial in the primary grades because students might be emotionally immature which negatively affects their ability to learn and behave.

Research Question Two

Research question two, which asked preservice teachers to rate the effect of seventeen interventions aimed at keeping under-achieving students from being retained, was answered by section three of the survey. Table 2 displays these interventions, listed in order from highest to lowest mean.

Preservice teachers rated parental involvement (M=3.87) as having the most effect in discouraging the use of grade retention. Additionally, respondents rated special education services (M=3.58) and additional reading programs (M=3.50) as interventions perceived to hold promise in reducing grade retention. Interventions viewed as having the least effect included group work, formative evaluations, peer tutoring, looping, and multiage classrooms.

Research Question Three

Research question four asked if there was a difference in how preservice teachers viewed overall grade retention based on their level of intended certification. This question was answered by comparing respondents' answers to the statement, "students should sometimes be retained." Table 3 displays the means and standard deviations for this statement based on intended level of certification.

Analysis of variance (ANOVA) was conducted to determine if there was a significant difference among certification levels for overall beliefs about retention. Results of this ANOVA are displayed in Table 4.

A significant difference was found among the groups in regard to their overall beliefs about retention ($p = .03$). Follow-up comparisons (using the Least Significant Difference method) revealed that preservice teachers planning to teach at the early childhood level were significantly more positive about retention than those planning to teach at the elementary level ($p<.01$).

Research Question Four

Research question four, which asked if there was a difference in how preservice teachers viewed primary grade retention based on their intended certification, was written to ascertain whether the sample's beliefs mirrored the literature, namely, that educators perceived retention as being more effective if occurred before second grade. This question was answered by comparing respondents' answers to the statement, "retention should occur before second grade." Table 5 displays the means and standard deviations for this statement based on intended level of certification.

Analysis of variance (ANOVA) was conducted to determine if there was a significant difference among certification levels for beliefs about primary grade retention. Results of this ANOVA are displayed in Table 6.

A significant difference was found among the groups in regard to their beliefs about primary grade retention ($p = .03$). Follow-up comparisons (using the Least Significant Difference method) revealed that preservice teachers seeking early childhood certification were significantly more positive about retention than those seeking secondary teaching certifications ($p<.01$).

Discussion and Conclusions

Preservice teachers were surveyed to ascertain their attitudes about grade retention. Findings suggest that these higher education institutions need to sharpen instruction to dissuade its favorable view. Consistent with other literature, there was a notable gap between a preponderance of research findings concerning retention's effectiveness (Hong & Raudenbush; 2005; Hong & Yu, 2007; Jimerson et al., 2002; Pouliot, 1999; Xia & Glennie, 2005a) and preservice teacher attitudes about it. Preservice teachers' views of grade retention as an effective intervention were stronger than practicing teacher views of retention (Range, 2009), and their overall positive views of retention are consistent with recent (Hananel, 2010; Moynihan, 2008; Wynn, 2010) and past findings (Alkhrisha, 1994; Byrnes & Yamamoto, 1986; Tomchin & Impara, 1992; Witmer et al., 2004). When asked how much they agree with the statement, 'students should sometimes be retained," prospective teachers agreed, a finding consistent with Wynn (2010). Similar to other findings (Biegler, 2000), regression analysis indicated that preservice teachers were supportive of retention because they believed it prevented future failure, helped maintain standards, and assisted students who struggled with language arts.

Why does this attitude still exist despite the abundance of research that concludes its detrimental to students on many levels? Haberman and Dill (1993) suggested that it exists in preservice teachers for two reasons. First, prospective teachers view themselves as accountable to groups of students as opposed to individuals. Preservice teachers view group learning as the ultimate outcome within classrooms and lack the forethought to hold themselves accountable for individual student learning. Second, they view anything that might impede synchronous instruction as a nuisance. These impingements, "are individual children who resist or are unable to function in the group; those behind in basic skills and grade level achievement" (Haberman & Dill, 1993, p. 356). This attitude causes preservice teachers to view such students as a hindrance to the learning of others, and as a result, their solution is to retain them. This argument is reflected in one respondent's open ended answer who said, "Students who are not retained do one of two things: pull the rest of the class back toward their level, or never learn because the teacher focuses on the level of the rest of the class."

This study illuminated interesting findings within the sample of prospective early childhood education teachers (birth through kindergarten). First, prospective teachers who were acquiring early childhood certification agreed that grade retention as a whole was beneficial significantly more than preservice teachers who were seeking elementary certification, a finding atypical in some literature (Range; 2009; Tomchin and Impara, 1992). Secondly, early childhood preservice

teachers were significantly more positive about grade retention in the primary grades than secondary certification preservice teachers. The literature has illuminated the supportive views of elementary teachers concerning primary grade retention (Silberglitt et al., 2006; Tomchin & Impara, 1992; Witmer et al., 2004), but few studies distinguish early childhood teacher (birth through kindergarten) views from elementary teacher (first grade through fifth grade) views, a possible explanation to these findings.

Preservice teachers agreed that retention prevented future school failure, a view that Wynn (2010) and Pouliot (1999) described as a false belief underpinned by the concern of departing only basic skills to students as opposed to their holistic development. Tomchin and Impara (1992) argued that when teachers base their instruction on this stance, they believe that retention is necessary to build a foundation for basic skill development.

Similar to other inquires (Range, 2009; Tomchin & Impara, 1992; Witmer et al., 2004), preservice teachers perceived school academic performance and ability as the two most important factors to consider when retaining students. Wynn (2010) described this finding as important because retention literature clearly states that academic performance should not be the sole reason for administering grade retention. Additionally, similar to Alkhrisha (1994), preservice teachers' viewed students who are immature as candidates for grade retention because they believed retention provides students additional time to mature cognitively, physically, and emotionally. However, Bonvin et al. (2008) warned that when assessing grade retention factors with educators, no definite patterns exist and, "the implicit rules and regulations that lead to a decision to retain can vary considerably" (p. 3).

Little is known about what interventions educators recommend to deter grade retention (Hananel, 2010). In this study, preservice teachers rated parental involvement and additional reading programs as interventions that might restrain the use of grade retention, findings consistent with Range's (2009) survey of practicing teachers. However, little is known about how parental involvement truly impacts the effects of grade retention because most inquiries have little insight into how parents react and support retention decisions (Bonvin et al., 2008).

Similar to Range's findings (2009), preservice teachers rated multi-age classrooms as the least productive intervention to hinder the use of grade retention. However, both Brophy (2006) and Moynihan (2008) recommended multi-age classrooms as a possible intervention because these classrooms center on developmentally appropriate instruction in which students progress at their own pace.

Limitations and Areas of Further Study

The findings of the study are limited to two, small universities (one private and one public) in the United States with a response rate of 44%, distance from the desired 50% level. Additionally, the researchers had limited knowledge concerning the amount of instruction preservice teachers received on grade retention before the administration of the instrument. For further study, it would be important to interview preservice teachers, especially those seeking early childhood certification, concerning where their beliefs about grade retention began. The literature clearly highlights how complex prospective teachers' beliefs can be and how difficult they are to

change. If grade retention is not the answer for low-performing students, then further study concerning the views of teachers concerning interventions to discourage its use is important. In this and other studies, prospective and practicing teachers viewed parental involvement as the most effective intervention. Although a vague term which can be exhibited in many ways, parental involvement as an intervention for under-achieving students is a possible research endeavor. Finally, a qualitative analysis of typical textbooks used in preservice teacher education would be important, with significant attention paid to how much time is spent critically synthesizing the arguments for and against grade retention.

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Table 1
Regression analysis for overall retention regressed onto 12 items

Item	B	t	p
Prevents future failure	0.30	3.39	<.001
Helps maintain standards	0.26	2.68	<.001
Aides low performance in language arts	0.27	3.29	<.001
Benefits students on grade level with excessive absences	-0.20	-2.75	<.001

Table 2
Descriptive Statistics for Effect of Interventions to Deter Grade Retention

Intervention	Mean	SD
1. Parental involvement	3.87	0.34
2. Special education services	3.58	0.56
3. Additional reading programs	3.50	0.52
4. Private tutoring	3.47	0.64
5. Personal learning plans	3.45	0.64
6. Public school tutoring	3.41	0.60
7. Small class size	3.40	0.68
8. Before and after school programs	3.40	0.59
9. Mental health support	3.35	0.65
10. Cooperative learning	3.30	0.68
11. Direct instruction strategies	3.12	0.77
12. Summer school	3.02	0.71
13. Group work	2.91	0.87
14. Formative evaluations	2.88	0.64
15. Peer tutoring	2.87	0.76
16. Looping	2.75	0.82
17. Multiage classrooms	2.50	0.83

Note: Scale ranges from 1 (no effect) to 4 (strong effect)

Table 3
Means and Standard Deviations for "Students Should Sometimes be Retained" based on Level of Certification

Certification Level	Mean	SD	N
Early Childhood	3.38	0.51	13
Elementary	2.98	0.51	43
Secondary	3.12	0.53	36

Note: Scale ranges from 1 (strongly disagree) to 4 (strongly agree)

Table 4
One-Way ANOVA for Overall Retention among Certification Levels

Source	Sum of Squares	df	Mean Square	F	Sig.
Between groups	1.20	2	1.00	3.74	0.03
Within groups	23.69	89	.27		
Total	25.69	91			

Table 5
Means and Standard Deviations for "Retention Should occur before Second Grade" based on Level of Certification

Certification Level	Mean	SD	N
Early Childhood	2.69	0.18	13
Elementary	2.60	0.58	43
Secondary	2.25	0.73	36

Note: Scale ranges from 1 (strongly disagree) to 4 (strongly agree)

Table 6
One-Way ANOVA for Primary Grade Retention among Certification Levels

Source	Sum of Squares	df	Mean Square	F	Sig.
Between groups	3.16	2	1.58	3.72	0.03
Within groups	37.80	89	.43		
Total	40.96	91			

Academic Achievement of Secondary Students with Learning Disabilities in Co-Taught and Resource Rooms

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Abstract

Although coteaching has become a widespread instructional option for students with disabilities, there are concerns regarding its effectiveness on student achievement especially at the secondary level. The authors examined whether ninth grade students with learning disabilities (LD) who received instruction in a resource classroom achieved at a comparable level to students with LD who received instruction in a cotaught general education classroom. The findings indicate that the students with LD in the resource classroom achieved at a better level than did those students who received their instruction in the cotaught classroom. Implications and suggestions for further research are discussed.

In response to providing a more inclusive education for students with disabilities, coteaching has become increasingly popular as an instructional service delivery option (Friend & Bursuck, 2009; Kloo & Zigmond, 2008; Magiera & Zigmond, 2005; Rea & Connell, 2005; Scruggs, Mastropieri, & McDuffie, 2007). Friend and Cook (2007) defined coteaching as "two or more professionals jointly deliver[ing] substantive instruction to a diverse, blended group of students in a single physical space" (p. 113). Vaughn, Bos, and Schumm (2007) stated that the "roles and responsibilities of each teacher are decided ahead of time…[and] vary according to the goals of the lessons and the needs of the students" (p. 43). When this service delivery model is implemented, both general education and special education teachers are expected to share positive interdependence. That is, these professionals contribute equally to the teaching responsibilities for all students in the classroom (Friend, Reising & Cook, 1993; Vaughn et al. 2007, Villa, Thousand & Nevin, 2004) to provide optimal educational benefits for all students in the cotaught class (Cook & Friend, 1995).

Traditionally, special education teachers taught in isolation with little emphasis on subject specific, content information. Prior to the 1970s, students with disabilities in the public schools were segregated from their general education peers and often were viewed as the educational responsibility of special education personnel only (Kavale & Forness, 2000; Ripley, 1997). The general education practice of team teaching, that is two teachers sharing responsibilities for planning and instruction in the same classroom, provided the roots for coteaching (Friend et al., 1993; Reinhiller, 1996). With the passage of Pub. L. 94-142 in 1975, educators sought to find an instructional model that would allow more students with disabilities to be served in the least restrictive environment (LRE). The Individuals with Disabilities Education Act (IDEA) Amendments of 1997 included the importance of access to the general education curriculum for

students with disabilities (Mageria & Zigmond, 2005; Yell, 2006), while the IDEA 2004 mandated access to a highly qualified teacher for students with disabilities (Yell, 2006). Both the IDEA 2004 and the No Child Left Behind Act of 2001 (NCLB) mandate that students with disabilities receive instruction in the same general curriculum as students without disabilities (Yell, 2006). Likewise, these laws require stronger accountability for student achievement (Latham, Latham, & Mandlawitz, 2008; Osborne & Russo, 2006; Yell, 2006), including the requirement that students with disabilities make adequate yearly progress (AYP) as measured by grade level standardized assessments (IDEA Regulations, 34 C.F.R. § 300.157; Kloo & Zigmond, 2008; Murawski & Dieker, 2004; Yell, 2006). According to Wood (2006), coteaching is an "effective way to promote inclusion and LRE" (p. 22). In response, coteaching has become a widespread instructional option for students with disabilities (Dieker & Murawski, 2003; Friend & Cook, 2007; Scruggs et al., 2007; Weiss, 2004; Zigmond, 2006).

Rationale for Coteaching

Although team teaching had been employed in general education classrooms from the 1960s through current times, only recently has that model been employed in collaborative classes including students in special education. As various models of coteaching evolved, Cook and Friend (1995) developed guidelines for creating effective practices that continue to provide the basis of coteaching strategies that currently are found in educational settings. According to Cook and Friend, the rationales for using the coteaching model included: (a) "increase[d] instructional options for all students," (b) improve[d] program intensity and continuity," (c) "reduce[d] stigma for students with special needs," and (d) "increase[d] support for teachers and related service specialists" (p. 3). Three additional rationales for coteaching have their roots in the IDEA and the NCLB Acts: (a) coteaching is a means of placing students with disabilities in the LRE (Kloo & Zigmond, 2008; Wood, 2006), (b) coteaching provides students with disabilities access to the general education curriculum (Kloo & Zigmond; Rice & Zigmond, 2000; Rice, Drame, Owens, & Frattura, 2007; Zigmond, 2006), and (c) coteaching provides a highly qualified teacher for students with disabilities (Anonymous, 2006; Friend & Cook, 2007; Hardman, Rosenberg, & Sindelar, 2005; Kloo & Zigmond, 2008; Murawski & Dieker, 2004; Villa et al., 2004; Zigmond, 2006). This latter reason for employing the coteaching model is of particular importance when a special education teacher is not certified in a specific content area.

Components of Coteaching

Embedded within Cook and Friend's (1995) rationales for coteaching are four key components: (a) general educators and special educators work together, (b) both educators deliver "substantive instruction," (c) these educators mostly are in the same physical space, and (d) they teach a heterogeneous group of students that includes students with and without disabilities. Other authors (Dieker & Murawski, 2003; McDuffie, Landrum, & Gelman, 2008; Murawski & Swanson, 2001; Ripley, 1997; Walther-Thomas, 1997) have concurred with Cook and Friend's essential components and have included additional elements they believe are germane to effective coteaching programs. Some of these components include: (a) joint planning time (Dieker, 2001; Dieker, n.d.; Fennick, 2001; Friend et al., 1993; Keefe & Moore, 2004; Ripley, 1997; Villa et al., 2004; Walther-Thomas, 1997), (b) joint responsibility for the success of the program and students (Murawski & Swanson, 2001; Rice et al., 2007; Vaughn et al., 2007; Villa

et al., 2004; Walther-Thomas, 1997; Wood, 2006), (c) joint confidence and trust in each educator's abilities (Cozart, Cudahy, ndunda, & VanSickle, 2003; Keefe & Moore, 2004; Mastropieri et al., 2005; Villa et al., 2004; Walther-Thomas, 1997), (d) a positive climate (Dieker, 2001), and (e) assessment procedures that are designed to evaluate the effectiveness of the instruction delivered to the students (Dieker, 2001; Dieker, n.d.; Dieker & Murawski, 2003; Murawski & Dieker, 2004; Walther-Thomas, 1997).

Of all the essential components included within the coteaching concept, two appear to have gained the most attention of researchers and have been deemed critical for a successful coteaching experience. Those factors are common planning time and compatibility of the personalities of the coteachers (Friend et al., 1993; Mastropieri et al., 2005; Scruggs et al., 2007; Villa et al., 2004; Weiss & Brigham, 2000). Common planning time allows teachers the opportunity to work together to determine the instructional strategies that will be used in the classroom setting and the instructional role each teacher will assume during each class period. Ripley (1997) and Rice and Zigmond (2000) noted that successful coteaching does not occur unless all of those persons involved in the process are committed to the planning, implementation, and the ultimate success of the coteaching process.

Compatibility of personality types helps educators trust each other's professionalism and expertise so that meaningful communication can take place (Villa et al., 2004). Once the coteachers have established mutual respect and trust, they then can discuss and openly manage their coteaching program thereby establishing a positive learning climate. In her research, Dieker (2001) found that the development of a positive learning climate was the most common practice observed in a cotaught classroom.

As coteachers gain confidence in their ability to work with each other, complementary teaching and team teaching appear to be the preferred coteaching model or strategy by the majority of educators (Villa et al., 2004). As Cook and Friend (1995) noted, many experienced coteachers have found that they use several coteaching models throughout the academic year, and even within a single lesson. Their choice depends upon the nature of the instructional content, the specific needs of individual students, and the preferences of the two teachers. According to Cook and Friend, Friend and Bursuck (2009), and Villa et al. (2004), one coteaching instructional model cannot be deemed superior to others or appropriate for all educational settings. They suggested that teachers should use the model that is appropriate for their setting based upon their students' instructional needs, age, maturity, the physical environment, and the nature of the content matter being taught. "At the core of co-teaching is determining what instructional techniques will be most efficient and effective in helping all students meet those standards" (Murawski & Dieker, 2004, p. 55).

Coteaching and the Secondary Classroom

Coteaching as a means of giving students with disabilities access to the general education curriculum and instruction by a highly qualified teacher is more prevalent at the elementary and

middle school levels than in high schools (Friend et al., 1993; Zigmond & Magiera, 2001). Coteaching in the secondary classroom presents several challenges (Dieker & Murawski, 2003; Keefe & Moore, 2004; Mastropieri & Scruggs, 2001; Mastropieri & Scruggs, 2007; Rice & Zigmond, 2000). One challenge is the nature of secondary education and the emphasis on subject specific content knowledge (Dieker, 2001; Keefe & Moore, 2004; Keefe, Moore, & Duff, 2004; Magiera, Smith, Zigmond, & Gebauer, 2005; Mastropieri & Scruggs, 2001; Rice & Zigmond, 2000; Rice et al., 2007; Zigmond, 2006). In addition, many special educators are required to coteach across several content areas, preventing them from acquiring the requisite subject area expertise (Dieker, n.d.). Since most special education teacher preparation programs focus on differentiated teaching strategies and adaptations rather than content knowledge in a specific subject area, the special educator's role in the cotaught classroom may be limited to an educational consultant or teaching assistant (Dieker, 2001; Friend & Cook, 2007; Magiera et al., 2005; Morocco & Aguilar, 2002; Rice & Zigmond, 2000; Scruggs et al., 2007; Weiss & Lloyd, 2002) rather than that of a co-teacher (Keefe & Moore, 2004; Keefe et al., 2004; "Researcher: High School Co-Teaching," 2004). When teachers do not view themselves as equal peers, the mutual trust and respect required for successful coteaching is negated and the coteaching process is jeopardized. Likewise, these discrepancies between the secondary general educator's and special educator's preparation programs and their content knowledge and pedagogical skills pose potential areas of stress between secondary coteachers.

A second challenge tends to be administratively-based. It stems from the type of support that school administrators provide educators who are involved in the coteaching process. Often, coteachers are assigned schedules that do not allow for an appropriate amount of planning time with each other or requisite knowledge of the coteaching process. Further, teachers often indicate a lack of knowledge about the coteaching process because neither their preservice training nor current teaching experiences prepared them for coteaching (Villa et al., 2004).

A third challenge occurs because the academic performance gap that exists between students with and without disabilities becomes more pronounced at the secondary level (Dieker, n.d.; Dieker & Murawski, 2003; Smith, 1997; Weiss & Lloyd, 2002). Because of the pressures and expectations of the NCLB Act and its mandated achievement of AYP for all schools, an expectation exists that students with disabilities can and should achieve at a level comparable to students without disabilities. This expectation has created a challenge especially for secondary school personnel because there is a significant achievement gap between students with and without disabilities that increases at the secondary level (Mastropieri & Scruggs, 2001; National Center for Educational Statistics, 2007; Zigmond, 2006). Students with disabilities frequently come to the high school with insufficient academic knowledge, poor learning skills, and a sense of failure. This becomes especially challenging for general and special education teachers since students with disabilities are expected to perform at a level comparable to students without disabilities on standardized measures of achievement (Dieker & Murawski, 2003; Murawski & Dieker, 2004; NCLB, 2001; Vaughn et al., 2007). Furthermore, in many states the results of standardized assessments or other performance assessments are determining factors for high school graduation (Mastropieri & Scruggs, 2001; Mastropieri et al., 2005). These factors contribute to many secondary teachers' beliefs that the poor performance of some students with disabilities will reflect negatively on them and their teaching abilities (Mastropieri et al., 2005). As a result, many secondary teachers are reluctant to engage in the coteaching experience and are

inclined to be less positive toward educational inclusion than their counterparts at the elementary or middle school levels (Dieker, 2001; Mastropieri & Scruggs, 2001; Murawski & Dieker, 2004).

Efficacy of Coteaching as an Instructional Practice

Coteaching has been promoted as an instructional model that is "likely to increase the outcomes for all students in the general education setting" (Murawski & Dieker, 2004, p. 52) as well as to improve academic performance outcomes and possibly alleviate the achievement gap for students with disabilities, yet Mastropieri and Scruggs (2001) wrote that a "major challenge is the relative scarcity of research on inclusive secondary classrooms compared with inclusive elementary classrooms" (p. 265). Others (Boudah, Schumaker, & Deshler, 1997; Dieker, 2001; Friend & Hurley-Chamberlain, 2006; McDuffie et al., 2008; Murawski & Swanson, 2001; Scruggs et al., 2007; Weiss, 2004; Zigmond, 2001) also have expressed concern about the research base supporting the academic effectiveness of coteaching. Dieker (n.d.) stated that "despite the increasing popularity of this service delivery model, the field currently lacks a strong empirical database on the overall effectiveness of this model" (Introduction section, para. 1).

The majority of research on coteaching at the secondary level has focused primarily on teachers' perspectives of coteaching (Friend & Hurley-Chamberlain, 2006; Mastropieri et al., 2005; Mastropieri & Scruggs, 2001; Rice & Zigmond, 2000; Rice et al., 2007; Weiss, 2004; Zigmond, 2001). Other research has focused on effectiveness as measured in terms of teacher relationships, teaching strategies, student attitudes, and social implications for general education students and students with disabilities who are in cotaught classrooms (Rice & Zigmond, 2000; Smelter, Rasch, & Yudewitz, 1994; Walther-Thomas, 1997; Weiss & Lloyd, 2002; Wilcox & Wigle, 1997).

Although there is a great deal of discussion on the appropriateness of particular models of service delivery among educational leaders, policy-makers, and advocates for individuals with disabilities, there continues to be limited qualitative and quantitative research on the coteaching service delivery model and its impact on student achievement in secondary classrooms (Mastropieri & Scruggs, 2001; Murawski, 2006; Rice & Zigmond, 2000). Therefore, more research that focuses specifically on the effects of coteaching on students' with disabilities academic achievement at the secondary level is needed (Dieker & Murawski, 2003; Murawski, 2006; Murawski & Swanson, 2001; Rice & Zigmond, 2000).

Method

The purpose of this study was to examine whether ninth grade students with learning disabilities (LD) who received instruction in a cotaught class achieved at a level comparable to their peers who received instruction in a resource classroom. Coteaching has been used for the past 6 years as the prevailing instructional model for core academic areas for the majority of students with disabilities at the school.

Teachers in the cotaught classes were interviewed to determine that they actually used instructional techniques characteristic of a cotaught class and that their teaching practices were

consistent with the literature (Dieker, n.d.; Friend & Cook, 2007). Their participation in professional, district-wide learning sessions that focused on coteaching also was validated. It was determined that the teachers involved in this study implemented a majority of the following essential coteaching practices:

1. Both coteachers delivered a substantive amount of instruction in the classroom (Cook & Friend, 1995).
2. Both teachers were knowledgeable of and utilized the coteaching strategies of parallel teaching and alternative teaching, which are at the higher end of the hierarchy of coteaching practice (Villa et al., 2004).
3. Both coteachers were provided with and took advantage of common planning time and collaborated with each other for a minimum of 1 day a week to a maximum of 3 to 5 days a week (Fennick, 2001; Friend et al., 1993; Ripley, 1997; Villa et al., 2004).

Design

This study used a pretest/posttest design comparing students with LD in cotaught and resource classrooms over a 12 week period. The dependent measures were pre and posttest scores on 40 questions taken from the End of Course Tests (EOCT) for a ninth grade literature course. The study was a nonrandomized sample because students already were enrolled in these existing classes. Students were provided with the testing accommodations as required by their individualized education programs (IEPs).

Population and Sample

The study was conducted in a high school of 2,285 students in a metropolitan area of a southern state. Of the 132 students enrolled in ninth grade literature, 28 had IEPs. The participants in the study were a sample of 14 students (9 males, 5 females) with LD, ages 14-16 years ($M = 15.04$, $SD = .87$), who were enrolled in a ninth grade Literature course (see Table 1). The participating students were assigned to either the cotaught or the resource class based on the recommendations of their IEPs. Ten of the students were White and four were Black. Five students (36%) qualified for free or reduced-price lunch. IQ scores were measured by the Wechsler Intelligence Scale for Children, Third or Fourth editions, and the Stanford-Binet Intelligence Scales. Participants' IQ scores ranged from 57 to 113 ($M = 87.54$, $SD = 15.45$; see Tables 2 and 3). Results of an independent t-test showed no significant differences between the two groups on the verbal ($t(10) = 2.014$, $p = .072$), performance ($t(10) = 1.335$, $p = .212$), or full scale ($t(11) = 2.188$, $p = .051$) IQ scores (see Table 4). Achievement test scores were measured by the Wechsler Individual Achievement Test, the Woodcock-Johnson Tests of Achievement, or the Kaufman Test of Educational Achievement (see Tables 2 and 3). Results of an independent t-test on the WIAT showed no significant differences between the two groups on reading comprehension ($t(11) = 0.494$, $p = .635$) or written expression $t(11) = 0.403$, $p = .704$; see Table 4).

Measures

The research instrument for data collection was the state's 2004 EOCT. The EOCT instrument was selected because it is a measure used by the state's Department of Education to evaluate the

level of understanding of the content and standards of the subjects taught in the classes involved in this study. The validity of the EOCT was determined primarily through content validation (C. Domaleski, personal communication, January 25, 2007). The reliability coefficient for Literature was .94. Each test contained an average of 75 sample questions. Subject area teachers chose 40 questions that were to be covered during the semester of the study. The same tests and procedures were used for both the pre and posttests.

Results

The study took place in ninth grade Literature. The data collected from the EOCT based pretests and posttests were analyzed to establish the achievement levels for the two groups of students with LD. A comparison of the pretest scores between the types of class using the Levene Statistic as a test of homogeneity of variance demonstrated no significant differences in ninth grade literature. An analysis of co-variance (ANCOVA) was applied to the independent variable (type of delivery), the dependent variable (mean posttest scores), and the covariate (mean pretest scores) to determine if there were significant differences among the treatment groups.

Based on the ANCOVA, no statistical significance was found between the mean scores of students with LD in ninth grade Literature. The mean of the students with LD in the resource classroom was higher when compared to students with LD in the cotaught literature class. The results of the ANCOVA using the written test as covariate did not show a statistical significance in ninth grade literature ($F(2, 4) = 2.101$, $p = .238$, $\eta^2 = .512$), but the eta square suggests a moderate influence on the outcome. Comparing the gain score using an ANCOVA with the full scale IQ as covariate ($F(2, 10) = 2.648$, $p = .119$, $\eta^2 = .346$) suggested that there is no significant difference, but the eta square at .346 suggests a low moderate influence on the outcome.

Discussion

Access to the general education curriculum, instruction by a highly qualified teacher for all students in the school setting and the improved academic achievement of all students are critical components of the IDEA 2004 and the NCLB Act of 2001. With the passage of the IDEA 2004 and the NCLB Act, coteaching has become a widespread instructional option for students with disabilities allowing them access to the general education curriculum in the general education classroom. However, many researchers (Dieker, n.d.; Friend & Hurley-Chamberlain, 2006; Mastropieri & Scruggs, 2001; Weiss, 2004) have cited concerns regarding the academic effectiveness of coteaching on student achievement especially at the secondary level and the lack of a strong empirical database on the overall effectiveness of this model. This study examined the effectiveness of coteaching on the academic achievement of ninth grade students with LD to determine whether those students who received instruction in a cotaught general education class achieved at a level comparable to those students who received their instruction in a resource special education classroom.

When the achievement of students with LD in cotaught classrooms was compared to the students with LD in resource rooms, the students in the resource class scored higher on the EOCTs in ninth grade Literature. Although there was no significant difference, it appears that the students with LD in the resource rooms made greater gains on the EOCT than did their counterparts in the

cotaught classrooms. It appears that the cotaught setting did not positively impact the achievement of students with LD, which is not consistent with the assertions of the proponents of coteaching (Murawski, 2006; Murawski & Dieker, 2004; Rice & Zigmond, 2000; Zigmond & Mageria, 2001). Based on the findings of this study, it would appear that students with LD who are assigned to a resource classroom because they lacked appropriate academic skills benefit from the more individualized instruction than could be provided in a large cotaught classroom. However, care must be taken when attempting to generalize the results due to the small sample size.

Limitations

Several limitations, other than the small sample size, are inherent in this study. The study was conducted using a quasi experimental design and a nonrandomized sample; therefore there was not the same level of control that would be found had a true experimental design been used. Critical to the study was the use of best coteaching practices found in the literature by the coteaching pairs assigned to the various content classes. Although teachers were interviewed to ensure their knowledge of coteaching characteristics, methodologies, and previous training, no actual measures of the coteaching strategies and interactions used by coteachers during the duration of the study were analyzed. In addition, students usually are not motivated to do their best on tests that appear to carry no weight on their grades, specifically the EOCTs. To counteract this limitation, teachers were authorized to offer an incentive to students, such as using the pretest and posttest scores to replace one or more test grades if those scores were higher than an existing test grade.

Implications for Practice

If students with LD are making greater gains in resource classrooms, than the rush to educate 90% of the students with disabilities more than 80% of the time in the general education classroom (Georgia Department of Education, 2008) may be misguided. While it is true that many, if not most, students with mild disabilities can succeed academically in cotaught general education classrooms, schools should not totally abandon the special education resource room model. IEP teams need to carefully consider the nature of the classroom, the specific content knowledge required, and which students with LD can succeed in the general education classroom. Students should be educated in resource or general education classrooms according to their academic needs and strengths, not according to state or federally established benchmarks. If the performance gap is one that can not be compensated for in a cotaught classroom, then IEP teams should consider whether the intensive remedial instruction should take place in a resource room instead. Students with LD may need to be taught in resource rooms until they are capable of achieving at a commensurate level as their peers without learning disabilities.

Schools also should recognize the value for students with LD in cotaught classrooms when schools give teachers planning time to ensure that coteaching can take place as it is intended to be implemented. If not, schools have to question the wisdom of having two teachers teach collaboratively.

Recommendations

Further investigations should focus upon the collection of longitudinal data, thereby satisfying Murawski's (2006) recommendation for "a longer time frame between testing periods" (p. 243). Collecting data at the beginning of the course and at the end of the course would establish a common starting point for all groups and more accurately assess academic gains for students with and without disabilities assigned to coteaching and general education settings. This process would provide school personnel with more reliable data regarding the effectiveness of the coteaching model at the secondary level and satisfy the recommendation of Rosman (1994) for collection of data over a longer period of time.

In the current study, students were assigned to the various classes based upon IEP information. Students with disabilities in small group settings (e.g., resource rooms) usually are assigned to these settings because of greater difficulty with achievement than their peers who are taught in general education settings. Therefore, future research needs to control for the severity of disability. Schools also should investigate the instructional characteristics of the resource classroom, specifically the alignment to standards of the core content taught in the resource classroom and the manner of assigning special educators to cotaught and resource classrooms. In addition, future research should examine whether the results of this study are true for students with other disabilities. Last, the study should be replicated with actual measures of the coteaching strategies and interactions used by coteachers, controlling for other variables in addition to fidelity of instruction, like years of experience teaching.

Overall, schools should continue to investigate the academic effectiveness of the coteaching instructional delivery system for students with and without disabilities. Although the results of this study indicate that students with LD were more successfully academically in resource classrooms, there are many questions that must be answered.

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Table 1
Demographics of Ninth Grade Student Participants

	Gender	Age	Ethnicity	SES	Level of Special Ed.	Grade Placed in Special Ed
1	M	15-5	B	Yes	cotaught	3
2	M	14-5	B	Yes	resource	5
3	M	14-1	W	Yes	resource	3
4	M	14-5	B	Yes	cotaught	5
5	M	14-1	W	No	cotaught	1
6	F	15-1	B	No	resource	4
7	F	14-2	W	No	cotaught	3
8	M	15-0	W	No	cotaught	5
9	M	14-11	W	Yes	resource	3
10	M	15-4	W	No	resource	4
11	F	14-0	W	No	cotaught	3
12	M	14-7	W	No	cotaught	4
13	F	15-8	W	No	cotaught	K
14	F	16-5	W	No	cotaught	2

Notes. Ethnicity: B = Black, W = White; SES: Yes = Free/Reduced Lunch;
N/A = Not Available

Table 2
IQ and Achievement Scores

	IQ	Overall Academic Achievement	Specific Academic Achievement
1	N/A	Broad Reason = 54[d] Broad Math = 61 Broad W-L = 61	
2	V = 77[a] P = 94 FS = 76		Numerical Operations = 79[e] Math Reasoning = 74 Written Expression = 75
3	V = 90[b] P = 87 FS = 87	Reading = 73[e] Math = 97	
4	V = 93[b] P = 100 FS = 96		Basic Reading = 72[e] Reading Comprehension = 66 Math Calculation = 87 Listening Comprehension = 108 Written Expression = 71
5	V = 82[b] P = 95 FS = 87		Reading = 84[e] Math Calculation = 110 Math Reasoning = 99
6	V = 78[b] P = 62 FS = 68		Basic Reading = 91[e] Reading Comprehension = 80 Math Reasoning = 66 Spelling = 94 Numerical Operations = 75 Written Expression = 69
7	V = 95[b] P = 98 FS = 96		Basic Reading = 86[e] Math Reasoning = 99 Reading Comprehension = 80 Numerical Operations = 97
8	V = 95[b] P = 87 FS = 87		Basic Reading = 87[e] Math Reasoning = 87 Reading Comprehension = 74 Numerical Operations = 76 Written Expression = 76
9	V = 61[a] P = 73 FS = 57		Letter Word Identification = 89[d] Passage Comprehension = 80 Reading Fluency = 76 Writing Sample = 79 Calculation = 69 Applied Problems = 84
10	V = 95[b] P = 103 FS = 98	Reading = 72[f] Math = 79 Battery = 73	

11	V = 117[b] P = 107 FS = 113		Numerical Operations = 85[e] Math Reasoning = 100 Word Reasoning = 86 Written Expression = 99 Reading Comprehension = 86
12	V = 90[b] P = 97 FS = 83		Listening Comprehension = 94[e] Oral Comprehension = 94 Reading Comprehension = 80 Math Reasoning = 83 Written Expression = 73
13	V = 88[b] P = 68 FS = 76		Letter Word Identification = 78[d] Passage Comprehension = 76 Calculation = 93 Applied Problems = 77
14	Verbal Reason = 93[c] Abstract Reason = 118 FS = 104		Written Expression = 62[e] Math Applications = 104 Reading Decoding = 83 Spelling = 75 Reading Comprehension = 97 Math Computation = 92

Notes. N/A = Not Available

Notes. a = WISC-IV, b = WISC-III, c = Stanford-Binet, d = Woodcock Johnson, e = WIAT-II, f = KTEA

Table 3
Descriptive by Test by Group

Test	Group	N	Mean	Standard deviation
IQ	Co-Taught	8	94.00	11.78
	Resource Room	5	77.20	15.99
VIQ	Co-Taught	7	94.29	11.01
	Resource Room	5	80.20	13.21
PIQ	Co-Taught	7	94.86	12.42
	Resource Room	5	83.80	16.39
Rdg Comp	Co-Taught	6	80.50	10.54
	Resource Room	4	83.75	9.60
Written	Co-Taught	5	76.20	13.77
	Resource Room	2	72.00	4.24
Pretest	Co-Taught	9	19.33	7.89
	Resource Room	9	13.60	4.03
Post Test	Co-Taught	9	17.67	7.79
	Resource Room	9	16.60	4.66

Table 4
Differences Between Co-taught and Resource Room on Test Taken

Test	Instruction	t	df	Sig (2-tailed)
IQ (FS)	Co-Taught	2.188	11	.051
	Resource Room			
VIQ	Co-Taught	2.014	10	.072
	Resource Room			
PIQ	Co-Taught	1.335	10	.212
	Resource Room			
RDG Comp	Co-Taught	.494	8	.635
	Resource Room			
Written	Co-Taught	.403	5	.704
	Resource Room			
Pretest Score	Co-Taught	1.50	12	.159
	Resource Room			
Post Test Score	Co-Taught	.277	12	.787
	Resource Room			
Gain Score	Co-Taught	1.615	12	.132
	Resource Room			

Students' Views on What Identifies Teachers as Effective

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Abstract

This paper looks at the survey responses of senior students of Mexican descent in one urban high school describing what makes teachers effective. Students identified teachers as effective when they provide help (by means of caring, supportive interactions, and effective teaching practices) within two specific contexts: their everyday school experiences and their transition from high school to post-secondary school and/or work. Understandings of the contextual interactions that students believe have an influence in their school engagement and overall wellbeing helps to advance our thinking about the importance of teacher actions and interactions with students.

This paper is based on the analysis of survey responses by 95 students of Mexican descent attending a large urban school at the end of their senior high school year in 2007. The aim of the survey was to understand students' perceptions of teacher effectiveness in one local school context. In particular, survey participants were asked to provide the names of three teachers who they would consider to be most effective in supporting student learning and overall student success in their school, and to offer evidence, in the form of an explanation regarding why they chose those particular teachers for nomination. A key advantage of the survey was that it provided an opportunity to explore the criteria by which 'effective teachers' are identified by this group of students. Students' responses suggest that 'effective teachers' were identified through their actions, behaviors, and practices.

Student responses were analyzed using a theoretical framework that draws from the literature on resilience (Garmezy, 1991; Masten, 2001; Pianta & Walsh, 1998; Rutter, 1987; Ungar, 2005; Wang, Haertel, & Walberg, 1997). This framework allowed for the focus of analysis to go beyond what teachers *do* that is effective but to also consider the situations in which students highlight teacher effectiveness. That is, when taking students' accounts of teachers' effective actions and interactions into consideration, it becomes clear that the types of support they discuss are situated within two contexts. In particular, students' describe teachers' support in dealing with daily school-related stressors or hassles (e.g., homework and school-related pressures; Rowlison & Felber, 1988) and the support teachers provide during the transition period from high school to college (Jindal-Snape & Miller, 2008; Newman, 2002; Winfield, 1994). Students' accounts are important because they highlight the naturally or contextually based circumstances and events in which they, as student, may need support. Accounts like these, especially from marginalized youth, are often missing in the literature. When studies do involve poor, urban youth of color, the focus is often on academic failure, neglecting to give much attention to the academically engaged (O'Connor, 1997). This paper adds to the literature regarding how teachers help strengthen student resilience and is particularly important because it focuses on the accounts of students of Mexican descent, a student population often overlooked in research.

Academic resilience

Educational research has focused much attention on understanding the protective processes of resilience that foster children and adolescents' ability to overcome obstacles and difficulties detrimental to their wellbeing and school engagement. Although protective factors may be related to the individual (e.g., internal capacities and strengths; Masten, 2001; Newman, 2002), there is wide consensus that the community, in particular schools, play a major role in the promotion of resilience in children and adolescents (Wang et al., 1997). More specifically, teachers who form caring relationships with students and who create positive learning environments seem to have a strong influence on students and their outcomes (Doll & Lyon, 1998; Kenny, Gallagher, Alvarez-Salvat, & Silsby, 2002; Knight, 2007; Masten, 2001; Masten, Coatsworth, & Douglas, 1998; Newman, 2002; Wang, 1998; Wang et al., 1997). Prior research also suggests that social support from school staff can be particularly beneficial for youth from poor communities (DuBois, Felner, Brand, Adan, & Evans, 1992; Winfield, 1994).

Student academic resilience is a dynamic process of coping with challenges and stress (Johnson, 2008; Masten 2001; Wang et al., 1997) that can be nurtured and strengthened throughout student's lives (Pianta & Walsh, 1998; Winfield, 1994). Specifically, student ability to use protective mechanisms or "resilient" traits when confronted with problems or obstacles (Winfield, 1994) is viewed as "changing over time and situations, dependent on, and specific to, the contexts embedded in children's lives" (Cefai, 2004, p. 151). Teachers' actions and responsiveness, then, can be viewed as positive interventions that serve to augment and promote students' protective processes during specific stressful times and instances. Two such cases pertinent to this work are everyday school matters and the transition period from high school to post-secondary school and/or work. Each is discussed next.

Every day school stressors

Experiences in school may add emotional and psychological stress to students. Studies on resilience have shown that chronic stressors (and not just acute adversities or major life events) can have negative consequences for children and adolescents (Jindal-Snape & Miller, 2008; Newman, 2002). Newman's (2002) literature review on resilience indicates that relatively minor but chronic and distressing difficulty, such as bullying and problems with friends, can have greater effects on children than dire life events. Pressures such as homework and other school-related demands, what Kanner and colleagues termed, *hassles* (as cited in Rowlison and Felber; 1988, p. 433), seem to increase anxiety and somatic symptoms, which can effect school engagement and outcomes in adolescents from poor rural communities and from minority backgrounds (Alva & de los Reyes, 1999; Compas, 1987).

Howard and Johnson's (2000) work indicates that the fear of not doing well in school and of failing can potentially weaken students' resilience. Their study on elementary students' accounts of what contributes to distressing experiences or 'tough life,' suggests that:

> Not only do the children seem to define learning difficulties as a key criterion of 'a tough life,' their talk about this topic is so pervasive and so tied up with their view of the school and its personnel as being caring and nurturant that it seems

> almost to amount to a form of school anxiety on the part of all respondents — falling behind and failing to achieve can predispose any child to 'a tough life' (p. 332).

Their work allows the consideration of academic setbacks as a *factor* that may threaten resilience and moves away from simply identifying school success (as shown through overt indicators such as passing grades on standardized tests) as a determinant of resilience (Luthar & Zigler, 1991). This suggests that although students may have passing grades and have successfully made it to their senior year, they may still be experiencing anxiety and worry about the ever-looming possibility of failure (cf. Pianta & Walsh, 1998).

Transition periods

A major life event, that can potentially compromise student resilience, has been identified as the transition periods from elementary to high school and from high school to post-secondary school and/or work (Newman, 2002; Winfield, 1994). Research on students' transition periods, although limited, points to these key turning points as times when children and adolescents may need added support from adults in order to successfully cope with and benefit from these periods (Jindal-Snape & Miller, 2008; Newman, 2002). During the transition phase to adulthood, teachers' support of high school students' future plans helps them develop their ability to cope (Newman, 2002) and students in urban schools seem to especially benefit from such support (Winfield, 1994).

Information and support around college application procedures helps reduce risk and anxiety during this period and strengthens school commitment. Horn and Chen's (1998) study, which specifically examined factors that contributed to the graduation of high school students, considered "at risk," noted that among the positive influences were teachers and school staff that provided help and information about financial aid and the college application process.

Other work pertaining to the influence of teachers on resilience, although not focused on students' transition periods specifically, also informs the importance of this time for adolescents from minority groups. O'Connor's (1997) case study, for example, looked at the approaches taken by six Black students and the influence of adults in their quest for educational achievement. O'Connor found that the youths' ability to succeed despite the realities of social constraints rested on three factors, among these, support by teachers and other adults who served as models of success and providers of information and strategies around the college admissions process and on matters such as how to finance higher education.

When teachers provide students with support and information on how to overcome financial drawbacks in the pursuit of social mobility, teachers in essence become part of students' social network (Kenny et al, 2002; O'Connor, 1997). Information provided by teachers and other influential adults help students to look beyond structural and racial constraints on social mobility (O'Connor, 1997). Research conducted by Kenny and her colleagues (2002) support this finding. Their study examined sources of support among sixteen academically successful inner-city high school seniors. All students reported significant relationships with at least one family member in addition to other important relationships with non-familial individuals, including teachers. Their

findings suggest that positive teacher-student relationships influence students' continued pursuit of academic success, especially when provided with strong support for present and future academic achievement.

Methodology

This research was conducted at Alamosa High School (all names are pseudonyms) in 2007. Alamosa is an urban high school located in Northdale, a densely populated Mexican-American working class community located in a large midwestern city. The school was chosen because of its high population (90% in 2006) of students of Mexican descent.

The data used in this paper were drawn from the author's multi-methodological dissertation, which explored the perceptions of ten teachers regarding the practices and strategies they believed contributed to their success with students. The primary aim of the overall study was to identify teachers who were effective, with respect to supporting student resilience and to understand the characteristics of these teachers and the mechanisms by which they supported their students. In order to determine which teachers were considered to be effective in the school, teachers and students in their senior year completed a short survey to nominate teachers they perceived to be effective. The survey was worded specifically to attend to the literature that identifies the principles of forming caring, supportive relationships and effective teaching practices as major influences of urban students' academic engagement and success (Gay, 2000; Ladson-Billings, 1994; Nieto, 2003) and promotion of educational resilience (Dryden, Johnson, Howard & McGuire, 1998; Johnson, 2008; Knight, 2007; Masten, 2001; Wang et al., 1997), thus allowing analysis of responses to be extended to how teachers promote and strengthen student ability to remain academically engaged, i.e., resilient. This work examines student survey data. In total, 133 surveys were distributed to graduating seniors and 95 (71%) completed surveys were returned.

Analysis

Student survey responses were analyzed through the theoretical concept of resilience and the criteria identified in the literature as being influential in building resilience (supportive teacher-student relationships and use of effective teaching practices). Ongoing comparison and multiple re-readings of students' responses revealed that students in this study identified teachers who are effective through their 1) willingness to "help" (an in vivo code; Strauss, 1987), 2) show caring, and 3) use effective instructional methods. The in vivo code "help" was used by 63%, caring and caring relations by 56%, and effective ways of teaching by 53% of the students. All student responses contained a combination of two or all three themes. But what also emerged was students' attention to notions of help. That is, while students mentioned effective ways in which teachers taught and supported them in general, most student respondents invariably referred to teachers' help and caring in one or two contexts: coping with every day school matters related to engagement and achievement, and making decisions around post-secondary plans. Analysis of data supports the position that resilience is a dynamic process with contextual and relational dimensions.

Findings

According to these students[1], teacher effectiveness can be measured by their "help."

> They all care on how we are doing in school. No matter how hard we are down they still manage to put their time and effort to help me. They make you a better person and teach more responsibility and you always learn something. (Mario)

> These three teachers make a difference in my life because they are always encouraging me to do my best and they are always telling them to do my best. They're always there to help you with your work. (Ana)

Mario and Ana's responses suggest that for them, the effective teachers are those that not only focus on how well they do in school, but those that provide the needed support to make sure they are successful. For example, Mario identified three levels of teacher effectiveness: the monitoring of his school progress, provision of support during the most difficult times (as identified by his phrase 'no matter how hard we are down'), and guidance related to personal growth (becoming a better person). Another student, Sandra, identified something similar:

> They work with you one on one and give you a lot of example like real-world situation for problems to be solved. They provide extra help before school and after school. They give you challenging work because they believe that you can always do better than easy. (Sandra)

Sandra, like Ana, identified teacher effectiveness as having high expectations of students and both indicated that effectiveness is providing the necessary support needed to achieve at the level required. Delpit, (1992) among others, has noted that high expectations are often missing in the practices of those who teach students of color. Embedded in these students' comments is the combined notions of teacher-student relations and the strategies that are characteristic of good teachers such as having high expectations, providing challenging work, and helping with school work (Ladson-Billings, 1994; Nieto, 2003). Also important in Sandra's response is her belief that her teachers provide her with challenging work because they believe she is capable of doing it. Because teachers' assumptions regarding students' abilities in large part determine their teaching practices, behaviors and interactions with students (Brooks & Goldstein, 2008), it can be surmised that the teachers whose actions they describe firmly believe in the capabilities of students but also in their own self-efficacy around providing support (Ashton, Webb, & Doda, 1982; Payne, 1994). Other work, such as Valenzuela's (1999), while not specifically focusing on the resilience of students, shows how a high school that accepts low expectations for their students of Mexican descent threatens students' wellbeing and limits their capacities.

Students repeatedly offered concrete ways in which the teachers they nominated provided help, support, and encouragement to cope with their anxiety around school success (Howard & Johnson, 2000). Most seniors mentioned a combination of teacher practices and social interactions and relationships, emphasizing a connection between caring relations and positive

[1] All responses were replicated as written on the teacher nomination surveys.

influence on student outcomes (Nieto, 2003; Noddings, 1992; Valenzuela, 1999). For example, Natalia's response reads "They cared for my grades and helped me out when I needed them. Mr. L. helped me with a test." And Lupe comments "They are effective teachers because they helped me with assignments I didn't understand. Also they are very patient and outstanding teachers." Eduardo's response is more detailed:

> These three teachers are so effective teachers because the teachers connect with the students. These teachers don't give up on the students who have trouble understanding the curriculum. These teachers are dedicated to see their students pass their course, and to see they are prepared for the next level. (Eduardo)

Students repeatedly pointed out that they felt the teachers they nominated cared for them and taught them well. Students also emphasized teachers' help in trying to understand schoolwork and assignments. Further, their willingness to openly state that they did not understand certain work may indicate that the teachers they named were successful in lessening students' fear of failure and embarrassment. By showing that teachers are available and willing to help, teachers send the message to students that they can take risks in learning (Brooks & Goldstein, 2008). Students also seemed to include instructional techniques in their responses as part of how teachers provided help and showed they cared. Among them, students noted: clear class explanations, the push and motivation to work harder, making the subject interesting and teaching in a way that students enjoy. Students also nominated those that help them "work to their full potential," and who motivate them to do better and do not allow them to give up on school work. Their responses also highlight the importance they place on the seemingly small teacher actions and interactions that they interpret as important, such as being helped with tests and showing patience as Natalia and Lupe respectively indicate. These "small gestures" and "little things" have been noted by Brooks and Goldstein (2008) and by Johnson (2008) as promoting children's capacity to deal with stressors.

Student responses also indicate the influence of every day, ordinary, relational interaction in building student resilience (Johnson, 2008; Masten, 2001). It can be surmised that one of the stressors, at least for Mario, Natalia, and Lupe, is to make sure they are able to find help when they don't understand school-related work. Thus, their ability to cope with such challenge is to rely on those teachers who they feel provide them with the help they need. The fact that the students feel they can trust the teachers to be there when they need them, not only strengthens their capacity to deal with issues (MindMatters Consortium, 1999), it also further cements relatedness between student and teacher. However, help-seeking indicates student engagement but students may not persist in this effort if they continuously come across teachers not willing to provide such needed help (cf. Valenzuela, 1999).

Strengthening Sense of belonging

Another way that several students identified what made the teachers they named effective, was the ways that teachers nurtured their sense of belonging and showed concern for their individual experiences in the classroom. This type of positive and supportive classroom environment attends to students' social and emotional well being and provides students motivation to continue trying, builds trust in their abilities as students, and strengthen their ability to more effectively deal with daily hassles and stress (Brooks & Goldstein, 2008). Jason, Noel, and Debbie speak to

this. "They make a lot of class work, and make that the student participe in class unclusivilly even if they don't speak English. They help." (Jason). "They're very dynamic teachers, and they always do their best to feel comfortable in the classroom." (Noel).

> This teachers have helped me in my academic understanding, they have helped me how to be a better student and progress in my classes. They talked to me and understand my position as a bilingual student (Debbie)

Students' responses emphasize the connection between the social climate of classroom environments and academic engagement and learning (Rutter, Maughan, Mortimore, Ouston & Smith, 1979; Wang et. al 1997). Jason and Debbie's response suggests that the teachers they nominated make sure not to exclude students due to language differences. For many students whose first language is Spanish, language discrimination oftentimes becomes a secondary stressor that can potentially erode student resilience (Alva & de los Reyes, 1999). Jason's comment that the teachers he nominated have students participate even if they don't speak English speaks to how English language learners must be active members of classrooms and activities (as opposed to separated or excluded by having them work on something else) if they are expected to be engaged (Curran, 2003).

Acceptance of students' language and language status (as Debbie suggests by her term, 'bilingual student') also influences students' sense of classroom community. For example, studies suggest that teachers' practices and interactions with students whose primary language is other than English affect their participatory behavior (Miller, 2000; Yoon, 2008). Similarly, Valenzuela (1999) contends that the seemingly uncaring treatment of students in her study is in part due to teachers having a "culturally chauvinistic perspective" of the language and culture of students that is different than their own (p. x). In sum, if the classroom is an uncomfortable space, students may not do well in class (cf. Delgado-Gaitan & Trueba, 1991).

Several students were critical of what they perceived was the absence of caring, helpful teachers and their few or limited chances for connecting with other teachers. Erick was one of the most critical and outspoken respondents in the survey. He began by describing the teachers he nominated and then contrasting their care and support with that of other teachers.

> These teachers take time to care about our learning. They help a lot because they stay after school and give a chance to do our work and to catch up in class. They lecture me a lot and help me out with family problems and stuff. These are good people that when you ask them for help they give it! Other teachers are bullshit. They just care on getting paid and that's all! That's why this school doesn't get any better. Do something about these teachers who need to put more discipline and attention to students and provide more help. Stop worrying about uniform or bullshit like that. Care more about Education! (Erick)

Erick, who nominated four teachers instead of the requested three, related his admiration and gratitude for the teachers who he felt provided support while candidly providing his opinion of those who he felt failed to do so. His remarks suggest that the majority of his teachers have not provided the help, even when asked. He also suggests that other, less effective, teachers may be focusing on the practical aspects of teaching, such as making sure students are following the

uniform code. Erick's suggestion about teachers needing to provide more discipline, attention, and help to students highlight the provisions that are emphasized by practitioners and researchers as effective methods for building resilience and practices of successful teachers of students of color (Ladson-Billings, 994; Martin, 2009; Ware, 2006).

Another student, Gabriel, although more subtle in his critique, emphasized the absence of relationships with those other than the teachers he nominated. He explained why he nominated the teachers he did.

> Because they put attention to the students problems and they hear us not only they talk like others teachers they know that we are person who have needs and life and problems like them and that's pretty cool because that's make a really good relationship between student and teacher. (Gabriel)

Similarly, Lucy comments, "They care, they are one of the fewest teachers that help students and care about their grades and attendance. I know I can count on these teachers anytime." Jenny, like Lucy, underscores what she perceives to be a scarcity of caring teachers in the school.

> What makes these teachers effective among students is because they show "us" as students that they care, and they push us which I think it's great and there should be more teachers like that to influence students that anything and everything is possible. The problem is we don't have many teachers here at Alamosa. (Jenny)

Gabriel indicates that teachers who are willing to see students as individuals and to take into consideration what is going on in their life are those that are successful. Valenzuela (1999) and Pianta and Walsh (1998) suggest that when teachers need to deal with the realities of students' lives, they may be unable to do so because they have not been trained to recognize or prepared to cope with students' circumstances. In many cases, the teachers then rely on disconnected practices and management skills that further move teachers away from being able to respond to students holistically. By contrast, when learning is seen as the result of social interactions, students' knowledge and experiences become central in instruction and learning (McIntyre, Rosebery, & Gonzalez, 2001). Because instruction is contextually based connecting learning to students' everyday out of school experiences makes the context meaningful to students and academic engagement is supported (McIntyre, Rosebery, & Gonzalez, 2001).

Unfortunately, students' perceptions regarding a lack of caring teachers has been noted in other work that focuses on marginalized youth. Valenzuela's (1999) work convincingly argues that classrooms are uncomfortable places when there are 'dangerously low expectations' of students and teachers fail to know their students in any personal way. Just as damaging, the chronic implicit message that "no one cares" received by students in urban schools can have serious implications for their identity and academic success (Valenzuela, 1999). Similarly, Fine's (1991) work on students who have dropped out of school found that they attribute leaving to "'being bored', frustrated or 'not getting it'" (p. 70). Having such reactions to school, one can argue, may be due to the type of environment created by low expectations and lack of teacher connection with and support of students.

Even more subtle but just as powerful, are the survey responses of five students who only nominated two teachers, leaving the third space blank. What also may be telling are the nominations of faculty staff by 13 students. Among them, students nominated the school's senior counselor/college liaison, a member of a community organization that works with freshman students in the school, and a student teacher. The nominations of less than three teachers and those of school staff may be an indication that there are students who are not so lucky as to be taught by memorable teachers who they consider caring and supportive and who they learned from at the school. This may also highlight the lack of key resources of support largely helpful in buffering the possible stressful conditions of living in disadvantaged communities (Dubois et al., 1992; Stanton-Salazar & Spina, 2003).

Transition

The fact that the respondents are high school seniors places them at a critical decision-making moment in their lives. In fact, transition periods can be times of anxiety and stress for students (Knight, 2007; Newman, 2002; Winfield, 1994). Understandably, about a quarter of students in this study identified teachers who had helped them with advice, encouragement and information regarding their post-secondary options as the practices that made them effective.

> What makes them effective teachers is the fact that they have a unique style of teaching and interesting and mostly help us make the right decision and are very helpful when it comes to the topic of college. They are teachers when you don't understand something you aren't scared to ask them and are always willing to help you. (Linda)

Adam is more precise in defining how teachers help him with college-related matters. "They encourage me to go to college to go and accomplish my dream. Help me with my work and my college essay. And recommendation for a job."

For Ruben, the teachers he nominated not only helped him with his college choices, but also attended to his emotional wellbeing. "They helped me with my college choices, kept on pushing to work harder, told me not to stress out about it. Told me everything will be fine. They have also been very supportive."

The respondents emphasized how teachers provided advice and support regarding college, a very real and immediate issue they were facing as seniors about to graduate. Their responses may be pointing to the absence of adequate preparation and information about postsecondary requirements and options in urban schools (Winfield, 1994). Along similar lines, students may also see effective teachers as information providers, especially on matters related to financing higher education (O'Connor, 1997), the influence to pursue higher education based on the provision of strong support for academic success (Kenny et al., 2002), and those willing to become "institutional agents" (Valenzuela, 1999) offering important information and resources about colleges and the application process.

Discussion

The findings presented here suggest that this group of high school seniors identify teachers as effective based on the meaningful interactions and practices that are relevant to their engagement and success. Whether discussing the support provided to cope with the constant stress of "doing" school (providing tutoring, showing a connection with students, helping prepare for a test, etc.) or with transitioning from high school to college (providing information about colleges, writing letters of recommendation, providing guidance around school decisions, assuaging fears, etc.), students' accounts emphasized teachers' ability to attend to their social, emotional, and educational needs (Hargreaves, 1994; Ladson-Billings, 1995; Valenzuela, 1999). The relational aspects found in this work are especially important in supporting the academic achievement and social-emotional well being of marginalized youth. (DuBois et al., 1992; Kenny et al., 2002; Norris, 2003; Valenzuela, 1999).

For some students, however, the few perceived options in finding support and help may cause distress and weaken their resolve to cope with issues and circumstances over time (Knight, 2007; Winfield, 1994) and to adapt to challenges as adults (Dubois et al., 1992). Inconsistent support or lack of a school-wide focus on ways to strengthen student engagement and resilience diminishes the chances for positive influence on student success and overall wellbeing (MindMatters Consortium, 1999; Rutter, 1987).

By identifying and documenting concrete examples of students' notions of effective teachers, this work offers deeper understandings of the contextual and relational dimensions of educational resilience. For example, what the study participants deemed as effective in their senior year was, in part, help with focus on their future. Although this work is limited in making clear connections between teachers' interactions with students and their successful outcomes, it nonetheless makes a case for knowing students and speaking to their situations. In fact, survey responses may be pointing out that what these students are really advocating for is for teachers to know them better. A major criticism of how schools try to build student academic resilience is when they try additive or packaged-bought interventions rather than trying to help teachers understand the importance of the cultural and social contexts in persistence and learning (Pianta & Walsh, 1998). Student accounts seem to point out that teachers' support, help, and caring leads to their success, emphasizing Luthar and Zelazo's (as cited in Johnson, 2008) findings that "resilient adaptation rests on good relationships" (p. 386).

There are limitations associated with student surveys as the only source of data for this work. More concluding data about why students cited specific instances is lacking. Also, it cannot be assumed that students did not experience other means of teacher support that they did not define as effective practices and hence chose to not include them in their responses. However, this limitation also points to a need for further inquiry into difficulties students face and how their views of teacher "effectiveness" are related to the help they seek in coping with specific issues and circumstances at particular times during their school trajectory.

The current study has several implications for practice. Teacher training programs need to help pre-service teachers become self-reflective with respect to their actions, especially those involving students' social/emotional selves. It is important for pre-service teachers to understand the importance of their actions and interactions with students especially when seemingly

insignificant ones seem to be important (Howard & Johnson, 2000). Teacher pre-service and in-service training must include, as part of their programs, ways to help teachers develop the type of teacher-student relationships that attend to students' social, emotional, and educational needs (Hargreaves, 1994; Ladson-Billings, 1994; Valenzuela, 1999). Similarly, teacher training and in-service programs must include information regarding the value that students place on the support of and relationships with teachers which, although may seem "ordinary," may have the potential to strengthen student resilience. This requires that novice teachers be provided with strategies and practice in forming, improving, and sustaining beneficial relationships. This is important because schools are contexts in which resilience is largely influenced. Finally, schools need to provide time for struggling and beginning teachers to engage with and observe how effective teachers in the school develop and sustain beneficial caring relationships with students.

Looking forward, studies that include larger numbers of student voices are needed to detail how teachers can be sources of support for their school engagement. To this end, other modes of research, particularly interviews of students over time and especially during specific transition periods, (elementary to high school and high school to college) should be included in the corpus of data. In addition, future studies must include teacher and student interviews and classroom observations to document the important nuances of teacher and student relationships and also to understand more about how teachers develop their sense of support and understanding of students and in turn how students interpret such actions.

Although academic resilience is an important issue that has generated considerable research, little of this research has focused on high school students of Mexican descent regarding their views of effective teaching practices and teacher-student interactions. Even less attention has been given to the voices of this particular group in their last year of high school. We must advance discussions about the influence of teachers on students' continued academic engagement and commitment, especially in urban schools that are often largely underfunded and plagued with systemic and social issues if our goal is to help all students succeed.

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Understanding the World of Teaching: English Teaching Assistants' Journey to Role Realization

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Abstract

This study explored the role realization journey of 11 English Teaching Assistants (ETAs) in Hong Kong. Their journey is framed through the lenses of Shulman's (1987) teaching elements of content pedagogical knowledge, knowledge of learners and their characteristics, and knowledge of educational contexts. Data from four different inquiry methods were analyzed and triangulated to map out the journey of the ETAs. During this journey, the ETAs were faced with demands for content knowledge and teaching whilst encountering educational and cultural differences in terms of students' learning styles and working environment. The ETAs perceived these experiences as shaping their role as supportive teachers, but hoped for structured professional development to enhance their preparedness and credibility – an implication for teaching assistant training. Fundamentally, the ETAs' readiness to embrace their role as teaching assistants through the many faces of culture, experiences and challenges surmounts their journey to understand the world of teaching.

An increasing number of teaching assistants (TAs) have been placed in the learning environment of schools and tertiary institutions as part of the changes for constructive teaching and learning. This movement has dominated many learning environment in developed countries like the U.K. and the U.S. Wilson and Bedford (2008) pointed out that the main aim of recruiting teaching assistants in the U.K., for example, was to share the workload of the main teachers' classroom teaching and administrative work. Previously, Minondo, Meyer and Xin (2001) also identified contribution to student learning as one of the reasons for integrating teaching assistant into classroom learning environment.

Whatever the reasons were for integrating TAs into the learning environment, studies have suggested that TAs perform a variety of educational support roles (Blatchford, Russell, Bassett, Brown, & Martin, 2007). These roles ranged from a strictly classroom-based instructional assistance to school level administrative and liaison support.

In primary and secondary school classrooms, TAs had generally been found to be effective with student level instructions and support. The TAs' help in language instructions were found to be effective (O'Neal, Wright, Cook, Perorazio, & Purkiss, 2007), whilst not significantly affecting the overall student attainment and outcomes (Blatchford et al., 2007). On the other hand, the latter research found that TAs' interactions with students were positively related to their behavior management, particularly in connection with those students with special needs, lower ability or difficult behavior. TAs' have also been found to be instrumental in retaining students' interest in science (O'Neal et al., 2007).

The main class-teachers in schools commonly reported that they found TAs were effective in their supportive role. This effect was seen in their supportive role because the effect usually was indirect where the assistance given by TAs in the classroom helped maximize students' and teachers' attention to work. Therefore, students had more opportunities to interact with

the main teacher (Blatchford et al., 2007). It was also found that main teachers preferred TAs who were sensitive to their needs and those who were more proactive in planning and managing students' behavior (Bedford, Jackson, & Wilson, 2008; Wilson & Bedford, 2008). All these research demonstrate that TAs role is multifaceted, and is in line with the perspectives and demands of both students and teachers of the learning environment.

Teaching Assistants and Their Functions

Hence, TAs have to realize the specific functions that they must equip with in order to be effective in their position as teaching assistants. Specifically, Minondo et al. (2001) identified five role components for TAs, namely: (a) instructional; (b) school support; (c) liaison; (d) personal support; and (e) one-to-one in-class support. Within these kinds of functions, the TAs have to encounter many forms of interactions and challenges on route their understanding their role as a teacher. Chae, Lim and Fisher (2009) found such interactions or challenges existed in the transition period of international teaching assistants (ITAs) in a U.S. college. The ITAs lamented a strain caused by students' demand for ITAs' expert knowledge in certain disciplines and their lack of experience and understanding of those students. The ITAs also cited a lack of confidence in their own authority in classrooms in relation to the professors in attendance. However, the ITAs demonstrated a lack of belief in the need for professional development other than their classroom teaching experience. These findings show an obvious tension in TAs' own expectations and the demands of their working surroundings.

In an earlier study, Jenkins (2000) reported that ITAs generally failed to comply with the expectations of the faculty due to difficulty they experience in module content, comprehending students' assignments and lack of topical knowledge. Most of the ITAs had lesser than desired English proficiency to assist in an English learning environment, and this caused further complexities in their role as teaching assistants in an American tertiary setting.

Another study highlighted the impact that teaching content and context have on ITAs willingness to communicate in the classroom. Compton (2007) found that the ITAs in her study were more likely to communicate actively when the teaching content was close to their specialization or familiarity. The ITAs' communication in the classroom was also affected by the American tertiary context, which was different from their home country situation. The impact seemed to have originated from the way the ITAs carried out their teaching role based on their own upbringing and culture. Asian ITAs, in particular Chinese, had a tendency to be formal in the classroom causing an obvious constraint on an informal classroom that was dominant in the U.S. tertiary context. Parrish and Linder-VanBerschot's (2010) cultural dimension of learning, which incorporates individualism-collectivism dimension and conceptualized its application on learning environments, could be used to explain the different tendencies of the ITAs.

Table 1 illustrates the different approaches of teaching and learning that happens in contexts that consist of participants from multicultural backgrounds. The individualistic and uncertainty acceptance approaches shown in Table 1 are suggested to typically belong to persons from Western countries like the U.S. (Heine, 2001; Ma & Schoeneman, 1997). The collectivistic and stability approaches, on the other hand, are said to represent Asian persons such as the Chinese (Dahlin & Watkins, 2000; 1987; Wheeler, Reis, & Bond, 1989). When teaching assistants of different nationalities teach in foreign countries, they have to adapt to the 'new ways' of teaching and learning, and this fact impacts upon their function as a

teacher.

Teaching Assistants and The World of Teaching

The studies that have been reviewed predominantly came from the U.S. or other Western countries. In recent years, a generation of teaching assistants known as the English Teaching Assistants (ETAs) has worked in Asian countries. This development brings forth the question whether the ETAs face identical interactions and challenges as other Western-based ITAs or TAs in their role as teaching assistants. Therefore, this study aimed to explore the journey, which the ETAs working in an Asian tertiary setting, faced in their effort to realize their role as teaching assistants and to understand the world of teaching.

We look at their experience as a journey since the ETAs are foreigners who work within this Asian setting where the culture and context are different to that of their own background. Challenges as delineated in cross-cultural dimensions of teaching and learning practice (Parrish & Linder-VanBerschot, 2010) is anticipated in the ETAs' pathway to being a teacher. It is also a journey because the ETAs, like the students and teachers (professors) whom they support, have to go through a passage filled with interactions and challenges that a world of teaching would offer them.

In the world of teaching, as conceptualized by Shulman (1987), there are at least three main areas that relate to the ETAs' role realization. These are: a) content pedagogical knowledge; b) knowledge of learners and their characteristics; c) knowledge of educational contexts. Content pedagogical knowledge is central to the ETAs' role as instructors and their ability to adapt their existing content and pedagogical knowledge to the learning environment. Their effort to know students (learners) and their characteristics will help them with their instructional and support role. Assimilating and accommodating to the local educational context is imperative for the ETAs to blend in with the instructional methods and strategies employed by the main teachers and students. In order to investigate whether the ETAs in our study understand this world of teaching, we explore their journey to their role realization as teaching assistants in a Hong Kong tertiary institution.

Method

Research Context

The present study was conducted in a Hong Kong teacher-training institution, which comprises of over 400 academic staff members and approximately 7,000 students. With a strong emphasis on teacher education, vast majority of the programs lie within the education discipline, with a few on arts and social sciences. Students are predominantly Hong Kong Chinese with a sound number of Mainland Chinese students and some international students.

The English Teaching Assistants (ETAs) were recruited by the institute under a U.S.-based program. The institute employed 16 American graduates yearly, aiming to enhance language and cross-cultural opportunities for the local students. Unlike other international teaching assistants in the aforementioned literature, the ETAs were treated as staff members of the institute and not enrolled in any post-graduate programs. In general, they were tasked to provide study and language support for students in the institute, and also for affiliated institutes in Mainland China during teaching practice period of the local students. Prior to commencement of the academic year, all ETAs were supposed to have undergone a series of

orientation activities including campus tour, departmental orientation, language teaching course, basic starter Cantonese classes and cultural exchange activities.

Participants

The participants in this study were 11 ETAs (out of 16) during the academic year of 2008-2009 (Table 2). All participants were raised and educated in the U.S. and held bachelor degrees and a few with master's degrees; their academic disciplines were notably diverse, ranging from languages to sciences. Five of them were of Chinese descent and the other six were of Caucasian descent. Regardless of their heritage, they were all native speakers of American English.

Along with the ETAs, the program officer in charge of their on-going teaching and curricula assignments also contributed to this study. The program officer was a staff member in the institute who assisted the program director in implementing the program policies, briefing the ETAs, carrying out logistic and administration work. The program officer had a continuous contact and communication with the ETAs, and hence, was considered knowledgeable regarding the ETAs and their work.

A total of 294 students and five professors from the teacher education programs who experienced teaching and learning with the ETAs participated in this study as evaluators of the ETAs' function in course teaching. Although the ETAs worked with more than five professors, the others did not participate in this study mainly due to their own time constraints. All participants voluntarily took part after being fully informed of the nature of their involvement in this research.

Inquiry Methods

Four different inquiry methods were employed to obtain the data in conjunction with the aim of this study. The methods were focus group interview, individual interview, open-ended paper surveys and document analysis (Table 3). Since the ETAs were the central subject of this study, the focus group interview was considered as the main method of inquiry. The other methods provided multiple perspectives of the ETAs' role as teachers or teaching assistants, and therefore, presented opportunities for cross-validation between data. This approach ensured that the data obtained were of meaning and aligned with the aim of this study. All the interviews and open-ended survey were completed in English language.

Focus group interview. The ETAs were interviewed collectively through a focus group interview in order to solicit their views and feelings regarding their role realization as teachers in Hong Kong context. A semi-structured approach was taken during the interview to guide the discussion. The guiding questions in the semi-structured approach were related to the aspects of the ETAs' expectations, knowledge and experience of teaching and learning in Hong Kong. The focus group interview was done towards the end of the ETAs' teaching assignment at the tertiary institution.

A focus group approach was chosen primarily because it allowed the ETAs to express their thoughts and feelings through an interactive environment where "construction and reconstruction" of their role realization happened during the interview (Barbour, 2007, p. 42). The focus group interview also was convenient due to limited time and difficulty in arranging individual interviews with the ETAs. This interview session that lasted for nearly two hours

was video recorded from three angles in a large recording studio. This setting was intended to provide the ETAs a sense of neutrality from their work place pressures. The setting was also void of any extraneous sounds or interferences. Three cameramen and a sound engineer worked synchronously to ensure all contributions and responses during the focus group were captured on video. This resulted in a clear visual and audio recording of all of the ETAs' interactions and expressions.

Individual interview. A separate individual interview with the program officer was necessary to procure the relevant background and information regarding the participating ETAs' teaching and learning role. The interview was conducted after the completion of the focus group interview, in a quiet meeting room of the tertiary institution and took a total of 30 minutes to complete. A digital voice recorder was used to record the whole interview. This interview was structured according to the sets of information needed to supplement the data collected through the focus group interview. Basically, the questions in the interview asked for further details and clarification on the ETAs' preparation, orientation and the process of integration into their roles as teaching assistants. The program officer's knowledge and perception was important in further illuminating this research inquiry.

Open-ended questionnaires. Open-ended questionnaires were administered to students and professors who were involved with the ETAs. The questionnaires consisted of 4 items that explored students' and professors' respective views and opinions about ETAs' function in teaching and learning. These included their perspectives of ETAs' strengths, weaknesses and possible suggestions for improvement in their teaching and learning role. Students' and professors' views provided an evaluation of the ETAs' function of their teaching and learning capacity and performance.

Documents. A search was completed to find documents that contained personal and academic background information of the ETAs, and other factual information that linked to their role as teaching assistants. The documents were grouped according to the information they revealed about the ETAs' job description, pre-conceptions, expectations and motivations of their role as teaching assistants in Hong Kong. These documents were carefully read and analyzed for relevant data to further elucidate and supplement the other data obtained in this study. These documents gave a more lucid overview of the ETAs' role realization process.

Researchers' Roles

Both the researchers in this study had our distinctive but complementary roles in the research inquiry. The lead researcher was in charge of the open-ended surveys and individual interview, whereas the second researcher conducted the focus group interview. Both of us prepared the open-ended surveys in relation to the research question and read the related documents. During the whole process we constantly discussed and reflected on our own role whilst we checked and balanced each other's inquiry and analysis process. In the following paragraphs, each of us relates our roles in exploring the ETAs' journey.

As the lead researcher, I conducted the individual interview with the program officer. Unlike my fellow researcher, my non-involvement in teaching activities enabled me to approach the interview as an 'outsider' with limited internal knowledge of the ETAs' working lives. However, I was familiar with this study's setting due to my role as research staff in the institute. My take with the interview was to elucidate the knowledge I had gained from my discussions with my fellow researcher and also from the readings of the ETA documents. The

program officer, hence, made effort to explain many of the issues that would have been otherwise implied if she thought I had ample 'inside' knowledge.

As the second researcher of this study, I moderated and facilitated the ensuing discussions that happened in the focus group interview. As a moderator, it was imperative for me to initially reflect on my position in this study and the possible impacts that I may have on the ETAs' feelings and thoughts, and their contribution during the focus group interview. One critical fact to note; with some first hand experience of having ETAs assist with my own teaching and learning, I was able to discern a number of important issues related to ETAs' experience. Since I also had a working relationship with two of the ETAs, I took care to minimize any unnecessary pressure or influence over the dynamics of the focus group interview. Before the start of the focus group interview, I explicitly stated the role that I played in this research, i.e., as a moderator who had 'inside' knowledge and was interested in the journey that the ETAs experienced in their role realization. I iterated that my interest was in their honest and frank opinions and views regarding their working experience in their capacity as ETAs. This especially included the issue of any weaknesses in my role as a professor or any other professors (with no names mentioned) who worked with the ETAs. Yet, having some inside knowledge of the ETAs working dynamics seemed to contribute to the ETAs' ease in discussing issues that I simply understood not only from my perspective but also from their perspective. This made the focus group discussion interactive and productive.

Data Analysis

The focus group interview video recordings were viewed and transcribed to ensure all dialogues and discussions were taken into account for further analysis. The individual interview was transcribed. The transcriptions were carefully checked for their accuracy by both the lead and second researcher. The authenticity of the transcriptions was then double-checked by two other independent researchers (one academic staff and a research staff) by randomly selecting and verifying parts of the transcriptions.

The open-ended surveys data were inputted into an excel spreadsheet. These data was also carefully checked for their accuracy. Text on the documents chosen in this research was studied and only relevant portions of the text linked to the overall research aim were saved as text files.

All these data were imported into NVivo 8, a computer-assisted qualitative analysis software, which helped with the sorting and coding of data. To meet the purpose of this study, which is to articulate the role realization of the ETAs as teachers, we targeted the focus group interview as the main informing data. The other data: the individual interview, the students' and professors' perceptions and the documents relating to the ETAs' background provided support and corroboration to the focus group data. As such, the focus group interview data were sorted and coded by adapting the Kvale and Brinkmann's (2009, pp. 205-207) procedure of 'meaning condensation'. The method involved the following steps:

1. Reading of each source to obtain an overall sense of data. The first author read the focus group transcription to initially identify possible emerging patterns. This was done on purpose to eliminate potential bias of the second author in the analysis.

2. The "natural meaning units" within the data were ascertained in line with the

researchers' understanding. This procedure involved breaking the verbatim of transcription into smaller units based on the understanding of each researcher.

3. The sets of "natural meaning units" were taken as brief descriptions of arising themes. To achieve an overall understanding of the data, each "meaning unit" was condensed and rephrased into brief statements and were imported into a separate document for further examination.

4. Initial themes were then identified through linking of the brief descriptions to the specific purpose of the current research where ETAs' role realization as teachers took place within the context of Hong Kong. A 'peer review' (Johnson, 1997, p. 283) process was undertaken. To ensure the interpretation of the data was reliable and consistent, the two researchers of this study reviewed the initial themes and the corresponding data. The data were repeatedly reviewed and discussed until we reached a saturation point where both researchers were agreeable with the interpretation of the data. When there was doubt as to the consistency of the interpretation, the earlier independent researchers were invited to corroborate the data interpretation accuracy. The data sorted according to the emerging themes were further clarified and supported by the three other data sets to ensure consistency and reliability in the categorization of data.

5. The data were then sorted and categorized according to these initial themes to discern the process and experiences that the ETAs underwent to embrace their role as teachers in relation to the three elements of the world of teaching (Shulman, 1987). In linking the themes to the research question, we created broad categories based on the processes the ETAs had during their encounter with students, professors and the larger context of the institute.

6. The open-ended surveys were content-analyzed to identify emerging patterns from the written responses of students. Upon further perusal and agreement of both researchers, categories were created and the responses were linked to them based on the meaning of each response to provide an overall meaning to this dataset. Since we only had five professors responding to the open-ended survey, their responses were studied and coded in connection with the relevant comments of the ETAs.

Findings

The aim of this study was to map out the journey that the ETAs experienced in order to discover and understand their role as teaching assistants in Hong Kong. From the data we found three major recurrent themes to illustrate this particular journey that the ETAs went through in understanding their world of teaching. To aid us with our discussion of our findings within these themes, we refer to a concept map of the recurrent themes and the subthemes that show the journey in a visual form (Figure 1).

Preconceptions of Teacher Role and Expectations

Prior to their arrival in Hong Kong, the ETAs had a basic understanding of their role as an aide to professors and as English tutors to students. For example, Shawn stated that "we didn't have much information coming to Hong Kong, about what we're supposed to [do] besides that we were teaching assistants which has some kind of implication for what TAs are supposed to be like". When probed for further explanation of their understanding, a few of

them recalled their reliance on an information package provided to them concerning their teaching role in the institute. However, these ETAs found the information too vague for them to form more specific understanding of their role expectations.

The lack of perceptions of their expected role as teachers was evidenced by the documents and the interview with the program officer, which revealed their initial motivation to be ETAs. These data described the excitement of cultural and language experience as their main motivation for their embarkation on a journey to Hong Kong. Fewer of the ETAs referred to the aspects of teaching as part of this experience. Additionally, the Chinese American ETAs expressed a strong desire to reconnect with their heritage, whereas the Caucasian ETAs viewed the journey as a cultural immersion. The program officer supported this observation by stating the types of activities the ETAs were expected to be involved in:

> I think mainly is the language exchange, they need to enhance our students' English in our campus, also it's like a …culture exchange. Other than teaching, they also need to do a lot of activities in the campus, like in the dormitory … and [the Club], that brings a lot of American culture to our campus, so which is very meaningful

Experience as an ETA in Hong Kong

Preparation. All ETAs were supposed to have undergone a series of orientation activities including campus tour, departmental orientation, English as a Second Language instructional course, basic starter Cantonese classes and cultural exchange activities prior to commencement of the academic year. The participants were sent to various centers and departments in the institute to receive trainings concerning the culture and education system of Hong Kong and development of the institute. One important aspect to note during these activities was that the ETAs were given a broad description of what was expected of them as teaching assistants at the institute level. This description included their working hours and their teaching responsibilities such as working with students in class activities and providing English language support to professors' teaching and students' course work.

The ETAs were then allocated to different departments of the institute to assist in undergraduate and postgraduate classes. This allocation meant that the ETAs did not have a set of specific job description tailored for each department that they were assigned to. Athena who was allocated to the language center felt that the lack of specific job description was due to this exercise of department allocation. She stressed that

> …maybe it was done on purpose because this year we ended up getting split amongst different departments, so we were told…which very late in June or July when we're told which department you're in, but the job responsibilities weren't laid out.

The different departments had different working style and therefore, exposed the ETAs to different demands and experiences. As a result, only a few ETAs felt that they had clear directions in terms of their responsibilities as prescribed by their host departments whilst others felt that they had to make their own way in understanding their role as ETAs in their departments.

Content vs. language teaching. The ETAs found their duties in their new work environment to be fairly diverse. Their tasks included assisting students with module learning, facilitating group discussions, and in some instances, preparation of course materials. They were required to perform some administrative or technical work like preparing the physical setting of classrooms for lessons. Sometimes, the ETAs were asked to perform teaching duties that the professors felt was close to the ETAs' expertise. For example, Lilian lamented that she was overwhelmed with the task of organizing and carrying out a workshop on plagiarism, which was not well received by the students.

Depending on the department they were assigned to, some ETAs seldom had the opportunity to assist students in English language learning. Even though their title suggests they were English language teaching assistant, teaching content modules was inevitable especially to those who were assigned to professional-domain departments. Five ETAs had no strong concerns about content teaching, while the other six seemed to be overwhelmed with their content teaching load. Somewhat frustrated, Sophie expressed, "I'm attached to classes that aren't concerned with English at all, there's really no space for me to be working with English or with improving students' language". Conversely, according to an orientation program document, ETAs were expected to conduct module teaching. It was likely that they were aware of this task, yet they had a varying degree of acceptance towards the workload of content teaching.

Confrontation of students' learning style. Being exposed to classroom setting of the institute, the ETAs eventually discovered distinct learning behaviors of students that were different from theirs. Adaptation to the new teaching atmosphere contradicted some of their prior expectations in terms of learning styles, such as this comment of Angel, "we don't know if it's just [this institute's] students that are more... susceptible to wanting to spoon-feeding, or if it's a Hong Kong phenomenon in general". When Andrew experienced difficulty in eliciting response from students in a class, he asserted, "a very long wait time because... and they're just all be like... they're just look at each other, they're nervous, no seriously, do you have questions? And they don't expect that". These classroom phenomena left them an impression that Hong Kong students were generally passive learners.

Apart from classroom teaching, assignments and essay writing conventions of the local students made many ETAs feel apprehensive. Shawn recounted, "you know sometimes I think the focus was more on just you know going over the theories and stuff…" Recalling his experience in the U.S., he explained that, "for example in the States, I am also never... wasn't given an assignment agreeing with someone a statement or idea or whatever it was, an option was always like disagree, argue why this... things like that". This evoked a response from Athena, "when I was given a paper topic and go, I got to do my own research, I'm writing my paper and develop it in such and such a way, and I got good grade or bad grade on it", in which she emphasized her inclination towards independent research and learning when doing assignments.

These ETAs seemed to have compared their educational experiences in the U.S. with the local students. This comparison highlighted the differences in background and learning styles, and therefore caused some difficulties to the ETAs in adapting to the teaching of these students. The ETAs, thus, had to find their own equilibrium in response to the local students' passive way of learning. Some of the ETAs tried to incite the students to be more active in their learning especially through study groups' participation. In the open-ended surveys, it was obvious that the students welcomed study groups conducted by ETAs since they found

the ETAs support in the discussions as encouraging their learning process. However, there were a number of the ETAs who decided not to interfere with the students' learning styles, and instead provided as much feedback as they possible could.

Interpersonal relationships with professors. Faced with the difficulties in teaching the local students, the ETAs also had to juggle the teaching and working styles of the professors that they supported. The ETAs highlighted that this juggling process lied on how well the professors and the ETAs communicated with each other and attempted to synchronize their teaching styles.

Most ETAs acknowledged the lack of explicit communication between them and the professors. Hence, this led Cathy to suggest the following, "it's possible to have the professor from my department say what classes they want us for and what roles they have in mind for us before we're given to departments might help." On the other hand, Angel recognized the importance of having routine meetings with professors. She recalled her experience with an expatriate professor whom she worked with in the institute.

> And one thing that helps in the [CL] department was... just like meetings, you know when I was working with [Lara] … like she was very open to like meeting once a week you know for our human development class and that was good at least just have a human contact and to make sure you were on the same page, so then it looked like, it was more of a united front to the students as oppose to just like the professor saying okay, do this lecture now.

The foundation to the communication between the ETAs and the professors were to a certain extent affected by the lack of explicit set of guidelines in the respective departments. Keith saw himself adrift in his function within his allocated department that he "was just kind of floating there". Congruent to Keith's remark, Rosanna shared that, "well I think this is one of the biggest problems that happened this year is that there wasn't a clear set of guidelines given to the departments on how they're supposed to use us". The ETAs appeared to doubt whether the departments had any clear understanding of their role. Andrew, Sophie and Dora postulated that the institute held tenuous aims and noticed many inconsistencies among the departments regarding their positions. They attributed the problem to the conflicting interests of professors, faculties and authorities involved, hence pleaded for clearer guidelines among departments. This led to Sophie's comments:

> I think something that would be really helpful, this is just kind of a tangential claim, kind of an institute wide policy of like how much ETAs should help. I think one thing we started with is like how much we should be rewriting their papers. And how, and like, how and what do we do when we hit a plagiarized paper, like what is the policy. And I think something that telling all of us that at the beginning and giving us like a common guideline to use would be helpful.

Furthermore, the ETAs had mixed feelings towards the teaching styles of some of the professors. And these feelings paralleled with the difficulties the ETAs encountered in terms of the local students' learning styles. It seemed that the students' passive learning style impacted upon the professors' way of teaching as well. As a result, the ETAs observed that some of the professors were less inclined to challenge or question their students in order to match with the students' learning style. Andrew described his observation of a professor

inadvertently prohibiting interactive discussions in class, he mentioned, “it's interesting to see in the [IC] department that they ask question and they try to elicit responses but they do things like "do you have any questions?" "okay" darabarara... "is that clear? "okay" bararbara.” Dora also narrated her experience about a professor struggling to provide a creative learning environment, “the professor that I worked with... because her students really wanted that kind of structure, her struggle was that she's trying to allow room for creativity”. She added that this professor was susceptible to students’ demands and had to succumb to some of their requests on the structure of assignment they preferred. In general, these practices were foreign to the ETAs. Consequently, they hoped for more explicit communication with the professors that they believed to be helpful in preparing them for this teaching environment.

Through the open-ended survey, it was found that the professors participating in this study acknowledged the importance of ETAs’ supporting role in their teaching in, for example, leading class discussions and following up with students’ writing. Yet, one professor realized she needed “much more input on how to best use them according to their strength”. There were also concerns about the ETAs’ capacity as a teacher. One professor felt that she had to “spend time with the ETA to go over lesson plan” and another was worried about an ETA’s ability to manage a class.

Lifestyle in dormitory. ETAs had contact with students not only in classroom settings but also in their dormitories. Since they lived in the dormitories with the local students, they also provided language assistance to these students and organized various activities with them.

They all had different experience in dormitory owing to the differing mix of student groups, but generally praised the welcoming attitude of the residents and their unique experience in it. Their only major concern seemed to be their arbitrary working hours. Rosanna shared the following:

> But the thing we're available 24/7 that's also kinda tiring, 'cause I would like go from the bathroom to my door and some girl would be like "I have a paper due in two hours, can you read it?" And it's like ten o'clock at night, you know so that's a bit tiring, and it was hard to be like off duty 'cause they really was no such thing as off duty if you're living in the halls.

Despite there being prescribed help desk hours of ETAs in each dormitory, some ETAs found it difficult to reject students who sought help from them at night. This practice, of course, intervened into the ETAs’ personal time, an issue that they had to get used to in relation to the tertiary context of Hong Kong.

Realization of Teacher Role

Tension between expert and novice. Complexities of ETA role were fraught with tension of being an expert of content subjects. Even though their native command in English lent them confidence to teach English subjects, most felt that they were considered as experts of the content and language courses they taught. Thomas’ comment seemed to reflect this, “I think as well... the focal point should be our native speaking ability that's what our strength is and when we start to move away from that, that's when these problems occur.” Sophie’s case was similar with Thomas:

> You could say maybe we're engaged in the language, but I was teaching psychology and that was frustrating, because sometimes they felt like I didn't learn the psychology and that was being taught, and this wasn't my background, and I was being put in the position of being an expert when I actually wasn't.

Their experience as ETA brought Angel to an awareness to differentiate between teaching English as a second language and teaching English to native speakers, "…coming out of the TESOL class... okay like I'm qualified to teach English but English to native English speakers but when I got here I realized teaching English to speakers of other languages is completely different...". Here, Angel believed that ESL teaching was out of her expertise even though she was a qualified English language teacher in the U.S. Athena described another example of being seen as a content expert:

> Maybe I can develop a general outline, a structure of what I think a good speaking course should include, or like… Spanish or French curriculum, something that is very general, but in terms of specific lessons and day-to-day and developing pathways, I felt it was out of my expertise, the level of detail that was expected of me.

Andrew, who has academic background in education, empathized with Athena that he saw "the point of writing lesson plans for someone else is very difficult". The ETAs appeared to stress the extent of their expertise, which was resonated by Dora's exclamation, "We're qualified, but not that qualified".

Patterns emerging from the students' survey showed that the students strongly preferred ETAs to provide them with course support and accessibility, as illustrated in Figure 2. Students appeared to be satisfied with their ability to support and teach them the relevant concepts and knowledge in a content module. There were also instances where students appeared to be dissatisfied with their course teaching and this is exemplified in Figure 3 and 4 (The themes are defined in Table 4). Most of these comments referred to their accessibility of the ETAs outside class. Overall, these findings indicated the students' emphasis on ETAs' ability on course teaching and their support out of class.

Need for practical strategies. The ETAs felt that in order to meet students' and professors' demands, they needed a number of practical strategies that would help them become effective teaching assistants. In most cases, the ETAs found the orientation sessions did not fully prepare them for the work environment in the institute. Dora proposed to include more student-relevant information in the orientation. Thomas wished to have more weekly professional development sessions to receive feedbacks, and the others, mostly, recommended protocols in handling different teaching and learning situations across the board. Hence, many ETAs purported a number of ideas to remedy this perceived miscommunication by conducting more meetings, assigning a 'go-between' in the departments, and reminding the professors of their background.

The ETAs agreed that they generally had positive experiences as teaching assistants, though only a few attributed their language teaching and interaction with students to this favorable experience. More importantly, this positive experience seemed to have impact on some ETAs' pedagogical style. Dora shared the following:

> I was constantly comparing what a teacher would do in America or what... because... at least in English program, they're becoming future English teachers so that suggest ways in ((how we might)) do things differently and my students were really open to that, I think that was probably the biggest benefit of exchanges here for them to consider new ways of doing things, for me to consider new ways of learning and teaching.

The experience was eye-opening to Dora that she would rethink her teaching strategies. While the acculturation process in the workplace haunted many of them, two ETAs somehow realized that it was a blessing in disguise. Thomas recalled his experience with Shawn in preparing a debate for a lecture:

> One example was [Shawn] and I had to do a speech about Obama or debate, about Obama versus McCain, the day after Halloween, so we really wanted to go downtown to sort of... and we had to do it the next day, and it was in front of a hundred and twenty Hong Kong students, but we weren't given the questions, and we're not experts on their own views and they changed the format the last moment to what the democratic party would do and what the republican party would to. And that's one example of the things we do here. It's been a fantastic experience.

This led Shawn to conclude that he gained confidence with his capabilities as a teacher because they were expected to perform such tasks on a regular basis, with no expertise on the subject and little preparation time.

It was found that students' responses in terms of their learning experiences with the ETAs aligned that of the ETAs' own experiences (Figure 5). Responses like "very good", "I like her" and "friendly" were not uncommon. On the other hand, these responses were counter-indicated by other 'negative' comments on ETAs, which included "he should participate more in class" and "aid us more out of class".

Discussion

We discuss the findings that we have presented based on Shulman's (1987) dimension of teaching, which were used as a framework of analysis. The ETAs' journey could be seen through the three lenses of the world of teaching: their knowledge of teaching content and struggles with pedagogical methods; their implicit and explicit efforts to gain understanding of their students and their learning characteristics; and their adaptation to the educational context of the institute in Hong Kong.

Pedagogical Content Knowledge

The ETAs generally had managed to cope with the content subjects assigned to them and demonstrated a supportive role to the professors. The ETAs who were allocated to teach content subjects gained insights in the respective disciplines they taught, but not all welcomed the arrangements of the institute. Some coped well to an extent that they were able to support their students in those subjects, especially within the environment of study groups, and a few were able to employ new teaching strategies that were favored by the students. These findings somewhat reflect studies that have found ITAs supporting professors in their classrooms, having to balance between the demand of content teaching and teaching

strategies (Chae et al., 2009; Compton, 2007). Parallel to Compton (2007) in particular, the ETAs with relevant qualification and expertise were far more comfortable in teaching in the courses that were assigned to them. There were ETAs whom students rated as lacking confidence in teaching, and these ETAs fell within the caveat of those who had less relevant expertise in content or experience in teaching.

ETAs who were assigned to language-related departments expressed no major concern on their teaching abilities. They tended to be more confident than those who taught professional-domain subjects, perhaps due to their native-speaking ability of English. Then, does such ability make them an expert English teacher? This notion was questioned when an ETA made a distinction between teaching native and second language speakers of English. Some of them had academic background in English, but their knowledge seemed to misfit the pedagogical skills required in this particular context. It became questionable whether the ETAs had received sufficient training to teach Hong Kong students to accommodate to their learning needs in English language. This situation was in contrast to the findings in Jenkins (2000) where the professors in the study complained of ITAs who were non-native English speakers having less than desired proficiency to teach in the American tertiary classrooms.

These findings though highlight the importance of proper training of the teaching assistants in relation to the medium of instructions and the content pedagogical knowledge. Unlike the ITAs found in Chae et al. (2009) study, the current ETAs hoped for better orientation of the local students' needs and provision of relevant professional development to prepare them for their supportive role. This point is crucial for the ETAs in their journey to be teachers, where content and pedagogical knowledge are inevitably linked with the ability to effectively communicate and instruct in the language of delivery.

Knowledge of Learners and Their Characteristics

Possessing adequate knowledge about students' characteristics was essentially fundamental to the ETAs' role realization in the Hong Kong context. Many ETAs were initially quite oblivious about the local students' characteristics. As found in Chae et al. (2009), the lack of understanding of students' characteristics could be detrimental to the teaching assistants' efforts in meeting their teaching obligations. The ETAs were faced with this challenge but were able to overcome it by having constant contact with the students in and outside of classrooms. However, there were some behaviors like students' less autonomous attitude to learning and lack of critical thinking that went against the ETAs' own educational background. The ETAs efforts to counteract this situation could be seen in their engagement of the local students' study group discussions where active participation was encouraged. Such engagement was seen by other studies that researched teaching assistants' effectiveness as being instrumental in managing behaviors or retaining interest in subjects like science (O'Neal et al., 2007).

In this journey, the ETAs' role realization was mainly impacted, not by the learning habits of the students per se, but by their lack of prior knowledge of the students. This might be as well an indicator that the ETAs were not well prepared for this instructional environment, which appeared to be a barrier to their assimilation process. Hence, it explains the reasons for the ETAs' request for more specific and realistic information of students. They also welcomed related practical strategies in their effort to become effective teachers. Accordingly, teaching assistants who had sufficient knowledge of students and their learning characteristics were found to be effective in their supportive role (Bedford et al., 2008; Blatchford et al., 2007;

Wilson & Bedford, 2008). Nevertheless, those challenges that the ETAs faced regarding their students were not insurmountable and the overall outcome of their experience was perceived to be fruitful in shaping their role as teachers.

Knowledge of Educational Contexts

Although the documents showed that the ETAs underwent a series of orientation sessions, which supposedly had prepared them for their work environment and culture, intricacies occurred when the ETAs were allocated to different departments. While some departments had accommodated their ETAs well, a few ETAs had to work more independently in understanding their department's surrounding and working culture including the professors. The ETAs' own educational training and cultural preferences clashed with some professors' ways of teaching. The ETAs also felt that there was a prevalence of professors' superior role in the workplace. As a result, the ETAs experienced tension in relation to the conflicting pedagogical and communication style. On the contrary, ETAs who had regular communication with the professors had no great difficulty in coping with the new environment. In other words, they found such mode of collaboration to be effective. This finding echoed Compton's (2007) experience with ITAs in his American classroom where pedagogical styles and communication issues were constrained by the ITAs' cultural background.

It is apparent that there were many complexities in the ETAs' role realization process. Nevertheless, the cultural differences and the ability to recognize these differences determined their role realization. The cultural differences could be explained using Parrish and Linder-VanBerschot's (2010) cultural dimensions of learning framework. Many characteristics of the American ETAs seemed to be consistent with the characteristics described in the individualistic and uncertainty acceptance dimensions (e.g., expectation that students speak up) (Heine, 2001; Ma & Schoeneman, 1997), whereas their perception of Hong Kong students were seen to reflect the characteristics in the collectivistic and stability dimensions (e.g., structured learning activities) (Dahlin & Watkins, 2000; Wheeler et al., 1989). Accordingly, Parrish and Linder-VanBerschot (2010) suggested that educators should not overlook their cultural predispositions and be aware of the culture of their learners in different stages of their teaching in both planning and execution. This perhaps could serve as an implication for the ETAs, professors and the institute in (re)considering the ETA role in the institute.

Conclusion

This study explored the ETAs' journey in their role realization as teaching assistants. We however, recognize that more in-depth reflections from the ETAs regarding their journey would have made this exploration more interesting and insightful in terms of the individual ETAs' intrinsic feelings and skills. Furthermore, a bigger sample of professors would have been desirable for a representative perspective of the ETAs' supportive role to them. The evidence that we have presented in this study, nonetheless, provided a multi-faceted view of the ETAs' experience.

The ETAs' experiences raise some key questions: To what extent then should the ETAs teach? What level of expertise is expected out of them? How much should the ETAs support professors? Answers to these questions will shape an ETAs' function as a teaching assistant within the framework of Shulman's world of teaching and hence, are important to be

answered. A precise prescription the ETAs' role will help them understand their functions in content pedagogical knowledge, knowledge of learners and knowledge of educational contexts. In contrast, a vague understanding of the ETAs' functions may be detrimental to the ETAs' role realization and acculturation process. It is also important for the professors to understand and integrate the diverse and supportive role of an ETA within their own world of teaching. Clearly, the success of the ETAs' role realization lies not only on the provision of the institute, but also their preparedness, awareness and willingness to actively participate and adapt to their teaching and learning functions. Fundamentally, the ETAs' readiness to embrace their role as teaching assistants through the many faces of culture, experiences and challenges surmounts their journey to understand the world of teaching.

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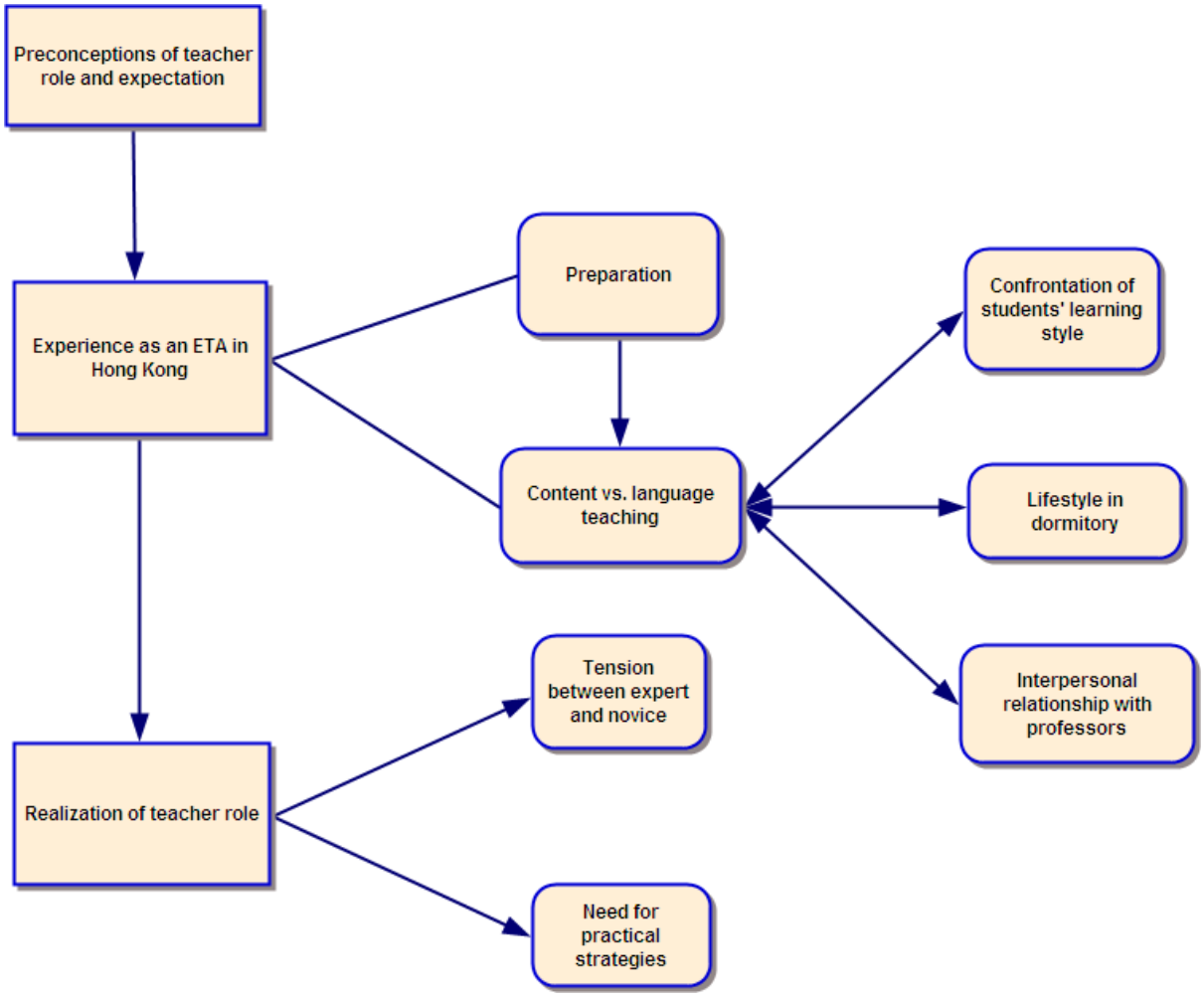

Figure 1. Concept map of the ETAs' journey of teaching in Hong Kong.

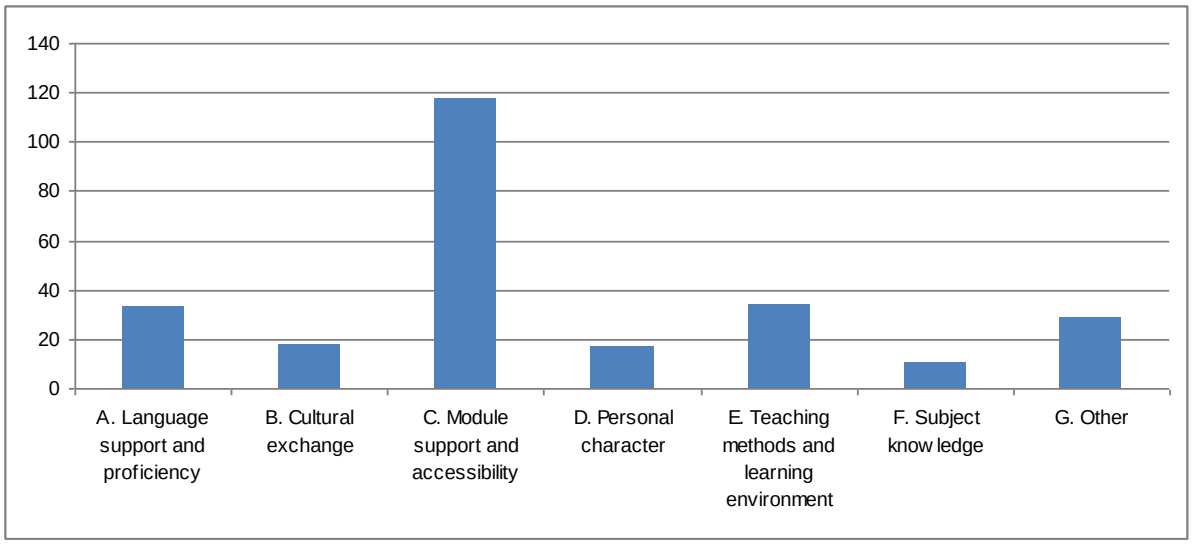

Figure 2. Students' preferred functions and qualities of the ETAs.

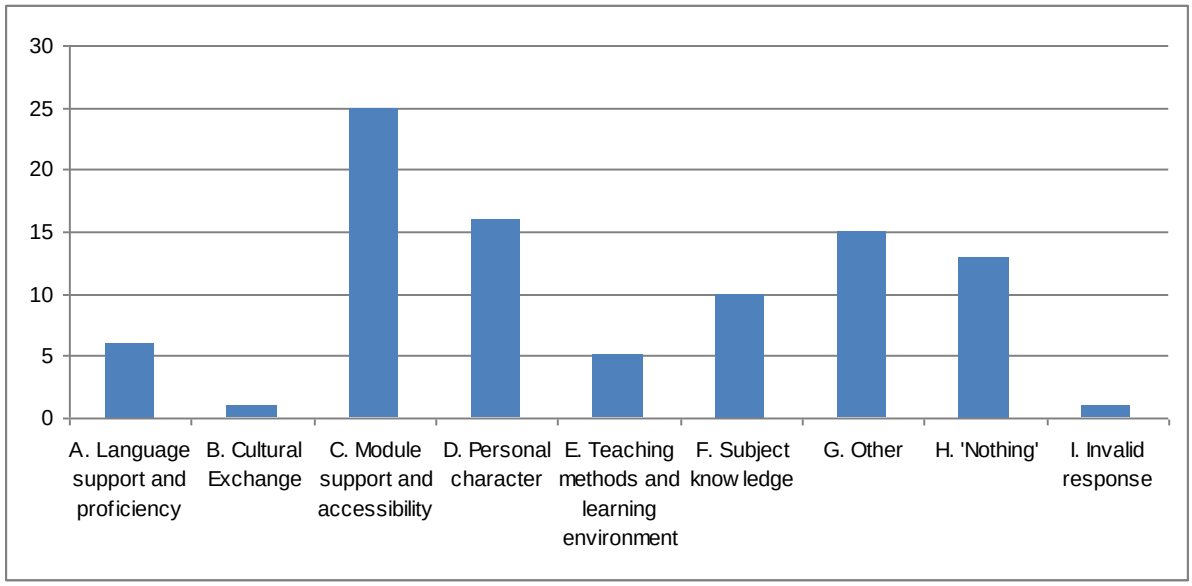

Figure 3. Students' perceptions of ETAs' weaknesses.

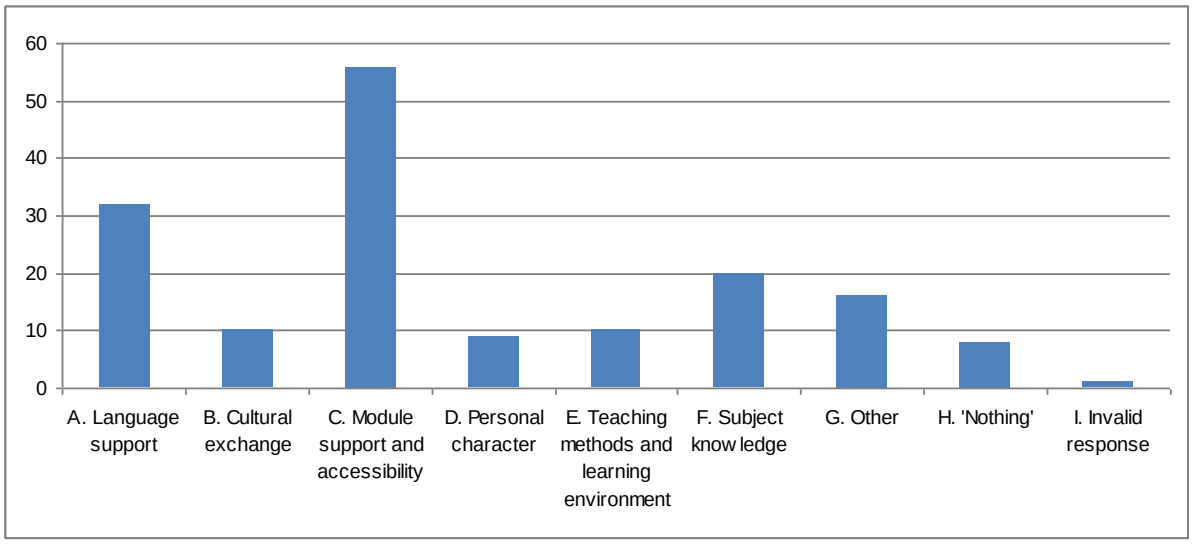

Figure 4. Aspects needed for further improvement of the ETAs – students' views

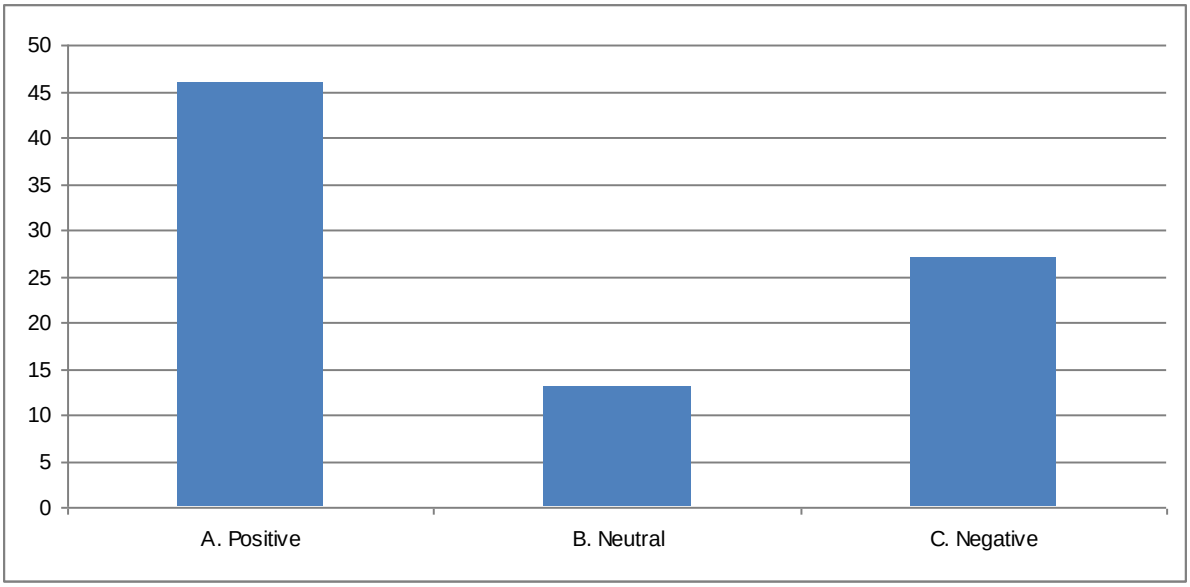

Figure 5. Students' overall learning experience with the ETAs.

Table 1

The Cultural Dimensions of Learning Framework (Individualism-Collectivism and Stability Seeking and Uncertainty Acceptance Dimensions) (Parrish & Linder-VanBerschot, 2010, pp. 7-8)

More individualistic	**More collectivist**
Expectation that students speak up	Students speak up in limited situations
Learning how to learn (cognitive skill) is primary (individual growth)	Learning how to do (content knowledge) is primary (social growth)
Expression of students' point of view is valuable component of learning	Student expected to accommodate teacher's point of view
Expression of student's point of view is valuable component of learning	Student expected to accommodate teacher's point of view
Hard work is motivated by individual gain	Hard work is motivated by the greater good

More stability seeking	**More uncertainty acceptance**
Structured learning activities	Learning activities more open-ended
Focus on getting right answers	Focus process and justified opinions
Ambiguity tend to be avoided	Ambiguity is a natural condition
Teachers expected to have the answers	Teachers can say "I don't know"
Single textbooks or teacher authority	Many resources used
Luck is a factor in student success	Demonstrated ability to think is the key to academic success, not right answers
More stressed	Less stressed

Table 2

Focus Group Participants Characteristics

Gender	**Highest degree attained**	**Discipline**	**Race**
F	Bachelor's	• Spanish • Psychology • Chemistry	Chinese
M	Bachelor's	• International Studies • Political Science	Caucasian
F	Master's	• Curriculum and Teaching • English ,French ; Culture & Politics	Caucasian
F	Bachelor's	• English • Philosophy	Caucasian
M	Master's	• Cinema and Media Studies • English, Communication/Culture Music	Caucasian
F	Master's	• TESOL • East Asian Studies	Chinese
F	Bachelor's	• Neuroscience	Chinese
F	Bachelor's	• English, Music	Chinese
M	Master's	• Higher Education Leadership • History and Classical Studies	Caucasian
F	Bachelor's	• Secondary Education • Magazine Journalism	Chinese
M	Bachelor's	• Chemistry • Classics	Caucasian

Table 3

Summary of Empirical Material

Data type	**Materials**
Focus group interview	• Approximately 100 minutes of video recording of 11 ETAs
Individual interview	• Approximately 30 minutes of audio recording of 1 program officer
ETA evaluation survey	• 4 open-ended items from 294 students • 4 open-ended items from 5 lecturers
Document archive	• ETAs' short biography from their website • ETA handbook 2008 • ETA orientation program 2008 (PowerPoint slides)

Table 4

Student Survey Theme Definitions

Themes	**Definition**	**Example(s) of responses**
Language support and proficiency	The assistance and ability of ETA in terms of the writing, proofreading, etc.	'have a chance to talk listen with native speaker', 'Correcting my English'
Cultural exchange	Interactions and conversations that entail information about the ETAs' cultural experience.	'sharing culture difference in their learning', 'about her background and culture'
Module support and accessibility	The assistance of ETA in terms of students' learning in the content modules.	'they could help us to making clear the points that sometimes we may confuse in the lecture', 'hard to reach not always around'
Personal character	Behavioral aspects of ETAs	'he is helpful and funny nice to talk with, willing to answer our questions', 'not active enough during class'
Teaching methods and learning environment	Students' description of their classroom learning experience with the ETAs.	'they make the classroom atmosphere more relaxed and their sharing of their experiences', 'they don't correct our mistakes that often'
Subject knowledge	The depth of ETAs' knowledge on a module.	'she is good in explaining the definition of term', 'they do not have enough subject knowledge'
Other	Miscellaneous categories	'helping the professor do the teaching and make the class go smoothly', 'the eta and the tutor share different ideas'
'Nothing'	Some students intentionally wrote 'nothing' in the questionnaire	/
Invalid response	Responses that were inappropriately answered (e.g. a response belong to question 1 had been written on question 2)	/
Positive	Praises and positive comments about ETAs	'very good', 'I like her'
Neutral	Comments that have no strong view	'I think it important to have the role of ETAs, 'nil'
Negative	Criticisms and negative comments about ETAs	'participate more actively by engage his culture in', 'may be can clarify ETA roles at the very beginning of the module'

A Re-Examination of the Argument Against Problem-Based Learning in the Classroom

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Abstract

The primary purpose of this study is to examine Kirschner, Sweller, and Clark's (2006) argument against problem-based learning (PBL) by analyzing research used to support their stance. The secondary purpose is to develop a definition of PBL that helps practitioners use this technique. Seven studies were analyzed to determine whether the PBL instruction included three key components: an appropriate level of guidance, a well-constructed problem, and an appropriate amount of debate and discussion. Upon analysis, these articles do not support Kirschner et al.'s claim. Results also showed that all of the three key components are necessary for quality PBL instruction.

Problem-based learning (PBL) has become more popular in recent years, but the usefulness and effectiveness of this instructional technique is still being determined. Research on PBL has resulted in mixed findings in that some researchers have reported successful learning through PBL (Hardiman, Pollatsek, & Well, 1986; Moreno, 2004; Samuelsson, 2008; Schauble, 1990; Warren, Dondlinger, & Barab, 2008), whereas others have reported the superiority of traditional teaching methods (Kalyuga, Chandler, Tuovinen, & Sweller, 2001; Klahr & Nigam, 2004; Kirschner, Sweller, & Clark, 2006; Tuovinen & Sweller, 1999).

Through the use of a content analysis, Kirschner et al. (2006) presented an argument against PBL titled, "Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching." The researchers cited seven articles as empirical evidence to support their claim that PBL does not work. To examine the strength of this argument, it is first necessary to determine whether or not these sources are accurate representations of quality PBL instruction. This is problematic in that learning theorists are still in the process of defining what is necessary for the successful use of this technique. For this reason, the first goal of this paper is to examine the argument against the use of PBL techniques made by Kirschner et al. (2006) and the research they used to support this argument. The second goal of this paper is to use this content analysis to work toward a definition of PBL that is more descriptive in terms of appropriate and effective use of this technique.

The Argument for Problem-Based Learning

Problem-based learning has evolved from constructivist theory, and its proponents argue that it is more likely than traditional teaching methods to involve the learner and lead to deeper levels of understanding (Hmelo-Silver et al., 2007). Whereas traditional methods of teaching (e.g., lecture) encourage learner passivity, PBL requires learner engagement in the learning event. PBL involves the use of self-directed learning, as well as the development of critical thinking and problem-solving skills (Mauffette, Kandlbinder, & Soucisse, 2004). The underlying rationale of PBL is that "students take greater responsibility for their own learning, with the

benefit that they develop a wider range of transferable skills such as communication skills, teamwork and problem-solving" (Mauffette et al., 2004, p. 11).

Slavkin (2004) stated that PBL has four basic goals. The first is the redefinition of the role of teachers from transmitters of knowledge to facilitators or guides. The second goal is that students develop an awareness of their own role within the classroom and begin to examine that role, moving from a passive approach to learning to a more active one. Third, PBL involves more formative evaluation of student learning, because it involves constant feedback between the facilitator and the learner. This is contrary to traditional teaching methods, which often involve a summative approach to evaluation. Fourth, PBL redefines the roles of parents and community, as they begin to serve as resources for the learner. In this way, the parents and community are also moved toward a more active role in the learning of the student. These four goals align with constructivist theory in that they encourage the engagement of the learner in constructing knowledge in a way that is personally relevant and is influenced by the learner's community.

In addition to developing valuable critical thinking and teamwork skills, it has been suggested that students of PBL also perform equally as well as, or better than, students who have received traditional instruction on examinations and report higher levels of satisfaction, (Mauffette et al., 2004). Samuelsson (2008) reported that, when compared to traditional teaching methods, there was no significant difference in achievement scores between PBL and traditional techniques. However, PBL did prove to be more effective in motivating learners (Samuelsson, 2008). In a study comparing students in a PBL and traditional physics class, Bowe and Cowan (2008) found that students in a PBL physics class were more actively engaged than their counterparts and developed group work skills throughout the course. They also reported that students in the PBL course scored significantly higher on the end-of-term exam than their counterparts in the traditional physics class. Although such findings argue persuasively for the use of PBL, there is still debate about its effectiveness.

The Argument against Problem-Based Learning

Opponents of PBL argue that this technique is less effective and less efficient than traditional teaching methods using heavy guidance (Kirschner et al., 2006) and there is research to support this claim (Kalyuga et al., 2001; Klahr & Nigam, 2004; Tuovinen & Sweller, 1999). According to Kirschner et al. (2006), proponents of PBL ignore the issue of cognitive overload; for this reason, PBL is likely to be ineffective, especially with novice learners, because the learners' working memory will be overwhelmed (Kirschner et al., 2006, p. 77). PBL is also argued to be an unrealistic enterprise in the classroom, because of the extra time required to allow learners to construct knowledge on their own instead of through direct transmission (p. 75). Kirschner et al. cited several sources to support their claims: Klahr and Nigam (2004) found that students who were taught with traditional techniques out-performed students taught using PBL instruction. They also found that students of traditional techniques were more likely to retain their new knowledge. When Tuovinen and Sweller (1999) investigated cognitive load and PBL, they documented that the PBL learners' working memories were overwhelmed. Altogether, Kirschner et al. cited seven articles to support their argument that PBL has been proven ineffective.

Concerns about the Kirschner et al. Argument

Although the use of cognitive load theory and the presentation of such research make the Kirschner et al. argument strong, there are two important weaknesses within their argument: their definition of PBL and the nature of the PBL used within these supportive studies. With regards to definition, Kirschner et al. make the mistake of grouping inquiry learning and PBL together with a method called "pure discovery," (Hmelo-Silver, et al., 2007). Pure discovery involves presenting the learners with a problem that they must engage with, and then offering minimal to no instructional guidance throughout the learning process. Hmelo-Silver et al. (2007) argue that this is a misrepresentation of PBL, which actually involves a great deal of scaffolding and guidance on the part of the teacher (p. 99). According to Abrams et al. (2008) this is a common misconception of PBL which they sought to address, explaining "We would expect the nature of the support that is needed in inquiry activities will vary as the level of the inquiry is shifted" (p. xxxiv). In other words, in PBL, support is needed at varying levels depending upon contextual factors. This differentiates PBL from pure discovery learning.

Hmelo-Silver et al. (2007) have already sufficiently addressed Kirschner et al.'s problematic definitions, and have offered their own research supporting the use of PBL. They addressed the theoretical soundness of PBL and provided examples of its successful application in a classroom context. As the issue of definition has already been debated, this is not the purpose of this paper. The aim of this paper is to take the analysis one step further, and examine the sources used by Kirschner et al. to buttress their argument. The underlying idea is to determine whether the studies used a definition of PBL that is in line with Kirschner et al. or Hmelo-Silver et al.

A Definition of Problem-Based Learning

Despite the continued use of PBL in classrooms and the evidence of its effectiveness, a common definition of PBL has not been realized. There are many definitions of PBL, and they do not all agree. PBL has also been referred to as inquiry learning or problem-based instruction. For the purposes of this paper, these techniques will be referred to as PBL. Establishing PBL as common practice in classrooms without a concrete definition is problematic, as it leaves teachers with little guidance on how to use PBL effectively and appropriately (Abrams et al., 2008). Through a review of the literature, I found numerous definitions. Savin-Baden (2004) defines PBL as:

> an approach to learning that is characterized by flexibility and diversity in the sense that it can be implemented in a variety of ways in and across different subjects and disciplines in diverse contexts. As such it can therefore look very different to different people at different moments in time depending on the staff and students involved in the programmes utilizing it. However what will be similar will be the focus of learning around problem scenarios rather than discrete subjects. (p. 3)

This is a more general way to define PBL and its over-arching goals. Although this is useful when discussing PBL and its groundings in learning theory, it is not as useful to teachers and instructors who are attempting to use PBL in a classroom setting. According to Hmelo-Silver et al. (2007), "In PBL, students learn content, strategies, and self-directed learning skills through

collaboratively solving problems, reflecting on their experiences, and engaging in self-directed inquiry" (p. 100). Slavkin (2004) defined PBL as involving a problem, wherein, "Students explore the problem and also investigate the strategies necessary to resolve the issue, strengthening their problem-solving skills, inductive reasoning skills, and creativity" (p. 77). These definitions of PBL express the centrality of the problem in PBL and the goals that PBL is meant to achieve, but if PBL is meant to be useful in practice, a more detailed definition is required. Synthesizing Abrams et al.'s (2007) discussion of crucial components of PBL and Mauffette et al.'s (2004) discussion of the quality of problems in PBL, three necessary components of PBL are identified: (a) an appropriate amount of debate and discussion is used, (b) a well-constructed problem is used, and (c) an appropriate level of guidance is used.

Level of guidance refers to the amount of scaffolding and instruction that is provided throughout the learning exercise by the teacher/facilitator. A well-constructed problem is clearly stated, developmentally appropriate, and identifies the goal the learner must obtain or the action the learner must demonstrate. In PBL, it is also crucial that learners be required to formulate explanations, and then communicate and justify those explanations through the use of debate and discussion. This is one aspect of PBL that is often overlooked, even though it is just as important as the activity itself (Yore, Henriques, Crawford, Smith, Gomez-Zweip, & Tillotson, 2008, p. 48).

Purpose

The aim of this study is to add to the PBL body of knowledge by examining the argument against PBL through a content analysis of seven research articles cited by Kirschner et al. (2006) to support their stance. This content analysis will assess the PBL instruction used within these studies for three factors: level of guidance, quality of the problem, and the presence of debate and discussion. The sample used for this study was taken directly from the reference list of Kirschner et al. (2006) and was cited in direct relation to the statement that PBL is an inefficient and ineffective method.

The following research questions will guide this analysis:

1. What articles from the sample report successful outcomes using PBL instruction?
2. What articles from the sample use an appropriate level of guidance?
3. What articles from the sample use well-constructed problems to drive the instruction?
4. What articles from the sample use debate and discussion as an integral part of the learning activity?

Method

The Instrument

The instrument I compiled for this analysis had four components from two sources, (i.e., Abrams et al., 2008; Mauffette et al., 2004). First, it was necessary to determine whether or not the article reported a successful outcome. I considered articles to have reported successful outcomes if they self-identified as having successful outcomes using the PBL instruction as I have defined

it in this paper: a learning event that presents a well-constructed problem with which the learners must actively engage, and that uses appropriate levels of guidance, debate, and discussion.

For the second component, it was necessary to identify whether or not PBL in the research had used an appropriate level of guidance. Abrams et al. (2008) provided Schwab's (1962) *Levels of Inquiry* as a "way to understand the various ways in which inquiry can be enacted in the classroom" (p. xx; see Table 1). Schwab's *Levels of Inquiry* identifies four levels of guidance in an inquiry situation. First is Level 0, in which the question, the data collection methods, and the interpretation of the results are provided by the instructor. This aligns with more traditional methods of teaching. In level 1 inquiry, more responsibility is given to the learner, in that the interpretation of the results is provided by the student using evidence collected as directed by the instructor (Abrams et al., 2008, p. xx). In level 2 inquiry, the question is provided by the instructor, but the data collection methods and the interpretation of results is the responsibility of the learner. Level 1 is appropriate for novice learners being introduced to a new body of knowledge or skill, whereas level 2 is more appropriate for learners with some experience with the material. Finally, level 3 inquiry places the responsibility of identifying the question, choosing data collection methods, and interpreting the results in the hands of the learners (Abrams et al., 2008, p. xx). According to Abrams et al., an example of level 3 inquiry would be a students' science fair. This construct was used to determine the level of guidance provided in the PBL within the research articles and whether or not it this level was suitable.

For the third component of the analysis instrument, the quality of the problems used in the PBL instruction needed to be judged. Mauffette et al.'s (2004) *Criteria for Motivational Problems* was used to evaluate the problems driving the PBL instruction (see Table 2). These criteria evaluate seven aspects of PBL problems on three different levels: introductory, intermediate, and advanced. The introductory criteria were used for PBL where learners were described as novices or having no prior experience with the material. The intermediate criteria were to be used for articles where learners were described as having some prior knowledge of the material, and advanced criteria were to be used if learners were described as experts. PBL instruction within the research had to satisfy six of the seven criteria in order to be labeled as having a well-constructed problem.

For the fourth component of the instrument, it was necessary to determine whether the PBL instruction had incorporated the necessary amount of debate and discussion. Abrams et al. (2008) presents the National Science Education Standards' *Essential Features of Classroom Inquiry* as a method for examining how inquiry is enacted in the classroom (p. xiv; see Table 3).

As these five features evaluate how the learner was required to formulate, communicate, and justify explanations, this construct was appropriate for determining whether an appropriate amount of debate and discussion was used within the PBL instruction. PBL instruction had to satisfy all five of the essential features before it was labeled as using an appropriate amount of debate and discussion. The final instrument was comprised of the four following questions:

1. Does this article report successful outcomes?
2. Where does the instruction fall on Schwab's (1962) *Levels of Inquiry* and was this level appropriate?

3. Does the instruction fulfill Mauffette, Kandlbinder & Soucisse's (2004) *Criteria for Motivational Problems* according to the appropriate level (introductory, intermediate and advanced)?
4. Does the instruction fulfill the NSES (2008) *Essential Features of Classroom Inquiry*, demonstrating an appropriate use of debate and discussion within the instruction?

The Sample

Seven articles were chosen from Kirschner et al.'s (2006) article, "Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching." These articles were chosen because they were used as examples of unsuccessful outcomes using problem-based learning. This sample is appropriate for this analysis because the purpose of this study is to gain a deeper understanding of the argument against the use of PBL. Kirschner et al's work is meant to serve as a summary of findings supporting this argument, so it was logical to use these articles as the sample for this study.

The Process

The seven articles were analyzed using the developed instrument for the each of the previously defined components: report of successful findings, appropriate level of guidance, use of a well-constructed problem, and appropriate use of debate and discussion. According to discussions by Abrams et al. (2008) and Mauffette et al. (2004) an example of quality problem-based learning instruction should involve, at minimum, all of the last three components of the developed instrument. Studies successfully addressing these last three components were considered examples of quality PBL instruction.

Results

The overall results of this analysis are presented in Table 4.

Research Question 1

The first research question was: What articles from the sample report successful outcomes using PBL instruction? My analysis revealed that three of the seven articles reported successful outcomes using instruction that was identified under the definition of PBL instruction used in this analysis. None of the articles reporting unsuccessful outcomes satisfied the last three components of the instrument. Three of the articles reporting unsuccessful outcomes did not use an appropriate level of guidance, a well-constructed question, or debate and discussion. One of the articles reporting unsuccessful outcomes did use an appropriate level of guidance and a well-constructed problem, but failed to use debate and discussion. Of the articles reporting successful outcomes using PBL instruction, all three satisfied the final three components of the instrument and were considered examples of quality PBL instruction.

Research Question 2

The second research question was: What articles from the sample use an appropriate level of guidance? Four of the seven articles used an appropriate level of guidance. Of the three articles that did not use an appropriate level of guidance, one study involved pure discovery instruction in which learners experienced the instruction "without any instruction on CVS [control of variables strategy] or any feedback from the experimenter" (Klahr & Nigam, 2004, p. 663). In another study, level 2 inquiry was used despite the fact that learners were identified as having no previous exposure to the material: "participants were familiar with simple electrical diagrams (including parallel and serial conditions of elements) and basic algebraic functions, but they had not been exposed to any training materials on relay circuits and PLC programming" (Kalyuga et al., 2001, p. 581). Level 2 inquiry was also used in the third study despite learners have no prior experience with the software used in the instruction: "None of the participants had used the FileMaker Pro database program previously" (Tuovinen & Sweller, 1999, p. 336).

Research Question 3

Research question 3 asked: What articles from the sample use a well-constructed problem to drive the instruction? Four of the seven articles used a well-constructed problem to drive the PBL instruction. One of the articles using a poorly-constructed problem presented the learners with a problem that was unrelated to the final goal of the instruction. In Klahr and Nigam's (2004) study, students were supposed to learn the control-of-variables strategy (CVS) through the instruction. The researchers described the problem presented to the learners as follows: "They were asked to set up four experiments: two to determine the effect of steepness and two to determine the effect of run length on how far a ball rolls" (p. 663). This problem satisfied only one of the seven *Criteria for Motivational Problems* (Mauffette et al., 2004).

In the Kalyuga et al. (2001) study, the problem presented was clearly defined, however no content or self-contained resources were provided despite the fact that learners had no previous exposure to the material. In addition, the problem was presented using specialized vocabulary and incomplete information was given. Three of the seven criteria were satisfied by the problem in this study. In the Tuovinen and Sweller (1999) article, the goal was not clearly defined, no resources were provided, and the problem was not clearly defined. Only four of the seven criteria were satisfied.

Research Question 4

The fourth research question asked: What articles from the sample use debate and discussion as an integral part of the learning activity? Three of the articles in the study used an appropriate amount of debate and discussion. In the Carlson et al. (1992) article, learners were never required to connect their explanations to scientific knowledge or to communicate and justify their explanations. As previously explained, the Klahr and Nigam (2004) article states that learners went "without any instruction on CVS or any feedback from the experimenter" (p. 663). Learners were not asked to communicate their explanations in any form. In the Tuovinen and Sweller (1999) article, the learners were not encouraged to formulate their explanations given the

relevant evidence, they were not encouraged to connect their explanations to scientific knowledge, and they were not asked to communicate or justify their explanations.

Discussion

The primary purpose of my analysis was to investigate Kirschner et al.'s (2006) argument that PBL instruction is ineffective. The secondary purpose was to work toward a definition of PBL that will make it more useful to practitioners. I addressed the secondary purpose through the development of the instrument used in this study, which led to the identification of three essential components of successful PBL instruction within the literature. I addressed my primary goal by using the instrument to assess the studies used by Kirschner et al. to support their claims about the ineffectiveness of PBL.

Kirschner et al.'s argument against PBL cannot support itself using the seven articles chosen for his content analysis. My analysis revealed that three of the articles used to support Kirschner et al's argument actually reported successful outcomes when a more accurate definition of problem-based learning was applied. Articles that applied a "pure discovery" definition to PBL instruction were determined to be poor examples of PBL.

Articles that reported unsuccessful outcomes were determined to be poor examples of PBL, and using a more updated definition, many of the articles reported successful outcomes. For example, in a study done by Moreno (2004), two different forms of instruction were used. One form qualified as an example of effective PBL, while the other form failed to use an appropriate level of guidance or debate/discussion. The instruction that qualified as effective PBL reported successful outcomes. Kirschner et al. (2006) reported that this article had unsuccessful outcomes with PBL because the "pure discovery" instruction was unsuccessful. This supports the idea that there is a place for problem-based learning instruction if it is constructed well and used appropriately.

My analysis also supported the argument for the importance of debate and discussion in PBL. Of the three articles reporting successful outcomes (i.e., Hardiman et al., 1986; Moreno, 2004; Schauble, 1990), all three used debate and discussion within the instruction. In addition, the Carlson et al. (1992) article used an appropriate amount of guidance and a well-constructed problem, but without debate and discussion, this study still reported unsuccessful findings. When applying PBL in practice, debate and discussion should be viewed as an integral part of the instruction, instead of simply as a way to "wrap up."

The importance of a well-constructed question was also revealed. Of the three articles lacking a well constructed question (i.e., Kalyuga et al., 2001; Klahr & Nigam, 2004; Tuovinen & Sweller, 1999), none of them reported successful outcomes. The question aspect of PBL is what engages the learner, activates prior knowledge, communicates what performance is expected, and tells the learner what goal they are working towards. Without a well-constructed problem, students can become frustrated or lose their motivation (Mauffette et al., 2004, p. 12). Without motivation, students will take a more passive approach to their learning, and "research has shown that the quality of learning depends on the approach students take to their studies" (Mauffette et al., 2004, p. 12).

The necessity of an appropriate level of guidance is also evident. The three articles lacking appropriate guidance (i.e., Kalyuga et al., 2001; Klahr & Nigam, 2004; Tuovinen & Sweller, 1999) also reported unsuccessful outcomes. The prior knowledge and experience of the learners must be taken into account in learning situations because it will determine what level of guidance is appropriate. PBL does not indicate a lack of guidance, and level 3 inquiry is not always appropriate (Abrams et al., 2008).

One of the main concerns about the use of PBL raised by Kirschner et al. is that it can lead to cognitive overload for students. I argue that the use of the components of PBL instruction I described in this paper can be used to reduce students' cognitive overload. When students are given an appropriate amount of guidance, are provided with a question that informs them of what they are expected to accomplish, and when debate and discussion is used to scaffold students' understanding, cognitive load may be reduced. Some evidence for this claim is that all the studies in the sample that reported the use of these three components reported successful outcomes.

As addressed by Hmelo-Silver et al. (2007), the major weakness of Kirschner et al.'s argument is related to their definition. There is a lot of research to support the use of PBL in the classroom, and some of it presented by Kirschner et al. Their argument was correct in one respect, that instruction with minimal or no guidance does not work with non-expert learners. This, however, is not problem-based learning, it is just bad pedagogy.

Limitations and Conclusion

The scope of this study was to analyze the sources used by Kirschner et al. (2006) to argue against the use of PBL. When a more accurate and descriptive definition of PBL is applied to these sources, they no longer support Kirschner et al.'s argument. In fact, my analysis revealed that a few of these sources even refute their claim.

The low number of articles analyzed in the present study is a limitation to the generalizability of the findings. An examination of more articles would allow for greater generalizability of my finding that PBL can lead to successful outcomes in the classroom. In addition, much of the research analyzed in this study focuses on novice learners for whom level 1 inquiry is appropriate. Even in studies using college students, the instruction involved material to which the learners had not been previously exposed. Although this sample is limited, there appears to be a gap in the research on how PBL is used effectively with intermediate and advance learners outside the medical field. Research conducted on intermediate and expert learners would fill this gap and add to the body of knowledge on PBL at inquiry levels 2 and 3. Finally, for PBL to be used successfully on a wider scale, it is necessary to define it in such a way that makes it more useful and accessible to teachers and educators. My hope is that the three components of PBL identified in this paper can provide specific guidelines for the use of PBL in the classroom.

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Table 1

Schwab's Levels of Inquiry (from Abrams, Southerland, & Evans, 2008)

	Source of the question	Data collection methods	Interpretation of results
Level 0	Given by teacher	Given by teacher	Given by teacher
Level 1	Given by teacher	Given by teacher	**Open to student**
Level 2	Given by teacher	**Open to student**	**Open to student**
Level 3	**Open to Student**	**Open to student**	**Open to student**

Table 2

Criteria for Motivational Problems (from Mauffette, Kandlbinder, & Soucisse, 2004)

	Introductory	Intermediate	Advanced
Educational goals	Goals are clearly stated relating to specific student actions	Goals are identified and relate to suggested approaches for learning	Goals are not identified in the problem
Background information	Draws on one source of data	Draws on two or more sources of data	Draws on many sources of data from current practice
Setting	Complete information provided without any details omitted	Most information provided with some details omitted	Information provided with key details omitted
Problem	Clearly identifies and summarizes the problem	States the problem and places it in a wider context	Does not clearly state the problem and emphasizes the wider context
Content	The content is sharply focused, supported with a variety of significant details	The content is structured with a clear focus and supported by relevant details	The content covers a number of areas and is supported with a few general examples
Resources	Includes self-contained independent materials like handouts and worksheets	Includes list of bibliographic references	Includes vocabulary and key concepts
Presentation	Tightly written with limited specialist vocabulary	Clearly written with a range of vocabulary used	Fluid writing style using extensive specialized vocabulary

Table 3

The National Science Education Standards' "Essential Features of Classroom Inquiry" (from Abrams, Southerland, & Evans, 2008)

Essential Feature	Variations			
1. Learner engages in scientifically oriented questions	Learner poses a question	Learner selects among questions, poses new question	Learner sharpens or clarifies question provided by teacher, materials, or other source	Learner engages in question provided by teacher, materials or other source
2. Learner gives priority to evidence in responding to questions	Learner determines what constitutes evidence and collects it	Learner directed to collect certain data	Learner given data and asked to analyze	Learner given data and told how to analyze
3. Learner formulates explanations from evidence	Learner formulates explanation after summarizing evidence	Learner guided in process of formulating explanations from evidence	Learner given possible ways to use evidence to formulate explanation	Learner provided with evidence
4. Learner connects explanations to scientific knowledge	Learner independently examines other resources and forms the links to explanations	Learner directed toward areas and sources of scientific knowledge	Learner given possible connections	
5. Learner communicates and justifies explanations	Learner forms reasonable and logical argument to communicate explanations	Learner coached in development of communication	Learner provided broad guidelines to sharpen communication	Learner given steps and procedures for communication
	More----------Amount of Learner Self-Direction----------Less			
	More----------Amount of Direction from Teacher or Material----------Less			

Table 4

Article Use/Non-use of the Three Necessary Components of PBL

Article	Appropriate level of inquiry	Well-constructed problem	Use of debate and discussion	Report of successful outcomes
Tuovinen & Sweller (1999)	No	No	No	No
Klahr & Nigam (2004)	No	No	No	No
Kalyuga, Chandler, Tuovinen & Sweller (2001)	No	No	No	No
Moreno (2004)	Yes	Yes	Yes	Yes
Hardiman, Pollatsek, & Well (1986)	Yes	Yes	Yes	Yes
Carlson, Lundy, & Schneider (1992)	Yes	Yes	No	No
Schauble (1990)	Yes	Yes	Yes	Yes

Research in Brief

Taking on Leadership Roles: Community College Student Government Leaders Transition to Formal Positions of Elected Authority

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Community colleges have traditionally served underrepresented populations of college students, including first-generation, minority, adult, and academically under-prepared students (Miller, Pope, & Steinmann, 2005). As gateway institutions, they have built an infrastructure to support students with certain needs. As these colleges change their enrollment patterns, as Wolgemuth, Kees, and Safarik (2003) asserted, they must, too, change their infrastructure. Specifically, services designed exclusively for non-traditional, at-risk, first-generation students may be woefully inadequate for a new generation of students who are most interested in a traditional academic environment, have strong academic credentials, and who are using the community college as a gateway to a traditional four-year college.

Facilitating student needs in a community college has traditionally taken on the functional title of "student services." Yet, as student characteristics, needs, and demands change, these services may be evolving to more contemporary versions of "student affairs." This means that community colleges are embracing activities such as athletics, honors programs, residential education, and other student organizations. One activity in particular that is important to these colleges is student government (Miles, 2010).

Student government is important to community colleges for a variety of reasons, well beyond simply providing students an opportunity to be involved in charting the direction of the college. Student governments provide opportunities for students to learn about the democratic process, how to represent the interests of others, the responsibility of civic participation, and even how to interact with senior institutional leaders on important topics (Bray, 2006).

The current study was designed to explore how community college students transition to their roles as elected student government representatives. If community colleges are indeed enrolling more traditional and academically focused students, the transition process should be relatively easy; if they continue to enroll and are attempting to engage at-risk or first-generation students, however, the transition could possibly be quite difficult.

Student Government as an Opportunity

Student governing bodies have been an historical part of higher education from the early beginnings of the academy. Since the inception of student governance, coordinating bodies of students have helped to protect the interests of students while advocating for policies and procedures that respect and enhance the student experience on campus. Student governance in its current form evolved in just the past 40 years, driven largely by the student activism of the 1960's and 1970's. Student activism led in at least part of the creation of student trustees and the delegation of responsibilities and rights to student groups (Davis, 2006).

Research into student governance has fallen into two distinct categories: operational issues and substantive issues (Miller & Nadler, 2006). Operational issues surround how governance bodies work, how to get students involved, how they participate, and what students get out of participating in representative bodies. Substantive issues include the realm of issues student governments face, encounter, and choose to undertake. Recent research in this area has shown student governments involved in fighting tuition increases, assuring student safety on campus, challenging transfer policies, and even questioning institutional funding of certain programs.

Although there has been a significant and consistent literature framework, little has been directed to students in two-year colleges (Miles, 2010). Most research on community college students has focused on the at-risk populations enrolling in these colleges, transfer issues, career and occupational education, and the provision of basic student services in the college. One exception was Miles (2010) recent qualitative description of community college student leaders that revealed a varied set of experiences and motivations related to serving as an elected leader, including strong institutional pride, the need to develop relationships on campus, and finding and using the support of institutional administrators to make student governance effective.

The current research project is exploratory in describing both who community college student governance body leaders are and how they transitioned into their role. Findings are important for a variety of reasons beyond establishing a unique knowledge base for community college student governance. These findings can be used tohelp these students explore the democratic process, represent others, manage conflict, and encourage discourse in an academic environment. Study findings are particularly important to community college leaders who must continue to try and serve the student populations.

Research Methods

Data were collected from seven community colleges in the mid-west and mid-south regions of the U. S. using a research-team developed pencil-and-paper survey instrument. Institutions were selected purposefully by finding administrator support and cooperation for collecting data by either attending a meeting of the community college's student senate or by inviting student senators to a meeting and to complete the survey. An average of nearly ten surveys were collected at each institution, with a range of 8 to 14 surveys returned from each institution. The instrument was adapted from research on community college faculty senates and the original work by one of the research-team member's doctoral dissertation. The instrument was pilot tested and validated with a panel of non-respondent students. The instrument was comprised of

three sections: background information on the respondent section that had seven questions, a section of 15 questions on how the student transitioned to the elected leadership position, and a 14 question section on strategies to increase participation in student government. The two sections on transition and increasing participation made use of 5-point Likert-type scale, where 5=strongly agree, progressing to 1=strongly disagree. Data were collected in the spring term of 2011.

Findings

A total of 67 students completed usable surveys, including 26 males (39%) and 40 females, and over half of the respondents were of a traditional age (58%; n=38). Over two-thirds of the respondents were Caucasian (68%; n=45). The respondents self-reported an earned grade point average of "B" (between a 3.0 and 3.49 on a 4-point scale). Respondents reported that they relied most upon mentoring from a student government advisor (mean 4.42, SD .6339).

Respondents: As shown in Table 1, nearly two-thirds of the respondents were female (61%), and nearly 90% of the respondents were under the age of 23. Students participating in the study were generally strong academically (83% selfreported at least a "B" grade point average), and more than half of the responding students were an officer in at least one other student organization (52%). The majority of respondents were Caucasian (68%), although there was significant minority representation, including 12% African American students and 11% multi-ethnic students.

Transition Strategies: Students were asked to rate their level of agreement regarding 15 transition techniques. Transition was intended to be the descriptor of how the student moved from being a member of the student body at the community college to being an elected student government leader. The ratings were on a five-point Likert-type scale, where 5=strongly agree with the transition strategy progressing to 1=strongly disagree. The overall mean rating for the 15 items was 3.78, indicating that as a catalog of strategies for transitioning to a student government leadership position, there were neutral perceptions leaning toward agreement that they were used. As shown in Table 2, respondents agreed most strongly with *learning to balance multiple roles* (mean 4.42; SD .6339), following by *taking time to learn how to become a leader* (mean 4.31; SD .7051), and *focusing on the personal benefits gained from serving on student government* (mean 4.25; SD .7298).

Also shown in Table 2, responding students agreed least with the transition strategies of *applying what was learned in classes to serving as a student government member* (mean 2.77; SD 1.25), *taking time to build relationships with fellow student government leaders* (mean 2.32, SD 1.231), and *receiving transition reports or documents from the outgoing student government members* (mean 3.37; SD 1.23).

The variables of gender and age distribution were explored as possible variables that might be reasons for different reliance on transition strategies. This possible differentiation was based on previous research. An ANOVA comparing mean ratings of transition strategies based on gender, age, or GPA indicated no significant differences (*f*=1.023; Sig. .316).

Discussion

Findings suggest that the profile of student government leaders in community colleges are indeed the traditional college students observed by Wolgemuth, Kees, and Sfarisk (2003). These students are primarily of a traditional age, non-minority, and non-first-generation student. This might mean that community colleges are indeed drawing a more traditional student body to their campus, or conversely, it might mean that the notion of a student government is attractive to traditional students, and that student government is a strong conduit to involve and engage students on campus.

If a community college population includes a large segment of students seeking a traditional college experience, programs and activities can be designed to be part of that experience. Many community colleges already have traditional student affairs programs in place, including clubs and organizations, athletics, career services, and campus media. Students may just need to know that the programs are available and that their participation is welcomed in order to become involved.

If students want to become part of the decision-making structure of colleges and universities, student government is an effective mechanism for that involvement. Advisors of student governments, including faculty, staff, and administrators will benefit from learning more about their current students, including what those students hope to gain from their college experience. Advisors can take steps to promote student government as a way to become involved on campus. Having a greater understanding of their student population will help them reach out to students and invite them to become part of student government.

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Table 1
Background Information of Participants

Characteristic	Frequency	Percentage
Gender		
Male	26	39%
Female	40	61
Age Range		
17-19	38	58
20-23	19	29
24-27	2	3
Other	7	4
Self Reported GPA		
3.5-4.0	34	51
3.0-4.9	21	32
2.5-2.99	7	11
Below 2.5	2	3
First Generation Student		
Yes	31	47
No	35	53
Officer in at least one other student organization		
Yes	34	52
No	31	47
Racial Self-Identification		
African American	8	12
Hispanic/Latino	3	4
White/Caucasian	45	68
Multi-ethnic	7	11
Other	3	4

Table 2
Transition to Leadership Strategies

Transition Strategy	Mean	SD
Student government advisor mentored me.	3.48	1.255
Student government advisor guided all elected students.	3.68	1.054
I took the time to learn how to be a good leader.	4.31	.7051
I learned to balance multiple roles.	4.42	.6339
I developed relationships with other more senior students.	4.09	1.105
I learned from my experiences in other student organizations.	4.12	1.045
I was clear in focusing on serving my fellow students.	4.09	1.091
I focused on the personal benefits I gained from serving on student government.	4.25	.7298
I learned from the difficult challenges I had to face.	3.60	1.107
The transition to student government was facilitated by others.	4.24	.8238
I received transition reports or documents from the outgoing student government members.	3.37	1.237
I applied what I learned in my classes to serving as a student government member.	2.77	1.250
I used the student government constitution as a resource.	3.60	1.093
I took time to build relationships with my fellow student government leaders.	3.25	1.231
I attended retreats with my fellow new student government members.	3.48	1.0443