Journal of Contemporary Research in Education

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Journal of
Contemporary Research In Education

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Journal of Contemporary Research In Education

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Factors that Impact Successful Reading:
Student-Related, School-Rated, and
Text Related

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Guest Column

When we are reflecting on those many factors that impact the ability to be a successful reader, and to develop other literacy skills such as writing, listening, and oral communication, it is important to note that not all students learn at the same rate or in the same way. Why you may ask, do all students not learn at the same rate or the same way? This is a question that has frustrated educators, and in particular, reading specialists, for many years. It is a difficult question to answer, but one to which many stakeholders and other constituents, such as parents, need to know the answer.

The emphasis on accountability at the national level has become so pronounced that many school districts and teachers are almost to the point of desperation in their efforts to improve performance in the classroom, and increase reading scores on high-stake assessments. Several stakeholders are unaware that many factors impact a student's ability to become a successful reader, because quite often the more vocal and engaged stakeholders were successful readers during their school experience, and their own children are successful readers. Other stakeholders may not have experienced as much success as they would have liked, but are now focused on their own children's needs and want them to be successful. Stakeholders are especially concerned that students may not gain necessary skills in school to become successful in the global marketplace. The emphasis on turning out students who can

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compete at high levels as adults has created an environment where the product outweighs the process, and the product is evaluated on test scores that meet a level of success mandated by certain stakeholders, such as legislators and the federal government. An example of an attempt to more or less standardize learning is the Common Core State Standards, an idea with merit, but which has been misinterpreted by some stakeholders as a mandated curriculum, rather than a guide to learning, as it was originally intended. Most of the states adopted CCSS, but now backlash against its use has begun in some states and is spreading to others. Some of its earliest supporters now contend that it is an attempt by the federal government to supersede 9 state's right to mandate educational policy. Now you may be asking yourself what does this have to do with the factors that impact learning to read? The simple answer is that this brief national discussion of CCSS illustrated our inability to agree on specific measures to eradicate illiteracy in this country. This brings us back to our primary focus on factors that impact the ability for students to be successful readers. It is our contention that by focusing on those factors, we can develop more effective learning environments for students. The factors we want to explore are student-related, school-related, and text-related.

In examining student-related factors that impact reading success, it is important to note that most of these factors are outside the purview of the student. There are many factors that cannot be controlled by students, some of the more critical ones are home environment, socio-economic status, parental support, engagement with print, and the opportunity to engage in a myriad of experiences. The importance of environment cannot be understated. Environment impacts both home and school in ways that can either nurture the student's learning, or negatively impact the student to the extent that it is injurious to their ability to be a successful reader. Elements of a student's environment that can adversely affect learning are parental support that is not adequate to support a positive learning environment, physical and psychological abuse, instability in the home and poverty (where a student's nutrition and daily routines of life are disrupted). These factors further impact the availability of print in the home and the opportunity to expand knowledge through experiences, both concrete and vicarious. Because experiences enhance prior knowledge, a positive environment where students have the opportunity to interact with print and build background knowledge is crucial.

School-related factors revolve around effective instruction in the classroom. What is the teacher's role in assisting students to become successful readers? The teacher is responsible for providing instruction that encourages learning by providing a positive environment that motivates students to want to learn. Some key ingredients in a successful classroom are that it is well organized and managed effectively, and that all students' reading levels are accommodated by analyzing assessment data and matching materials to each student's instructional and independent reading levels. There should be a variety of reading materials available to students, and every effort should be made to determine students' interest so appropriate materials are provided in order to motivate them to become more active readers. The goal of effective instruction is to engage the students as active participants in reading through a collaborative process that involves maintaining a high level of interest and motivation

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Although students may be highly motivated and engaged in school learning activities, there are many variables of text-related factors that can impact their efforts to become successful readers. The primary objective in becoming a successful reader is to understand text. To understand text, comprehension is critical. When engaging with text, the instructional process must include appropriate vocabulary (technical, specialized, and general).

Understanding text is not only dependent on vocabulary development, but the activation of critical thinking skills in understanding the nuances involved in interpreting text, as well. In addition to the actual engagement of the text and readers as a cognitive process, other purely text-related factors can impact the reading process. These involve a variety of issues that emerge as the materials with which students are engaged become more complex. This is particularly relevant in the transition from narrative to expository text. These issues include the number of concepts that students encounter as materials become more complex, dealing with numerous reading sources, organizational patterns of text structures, compare-contrast, cause and effects, and readability level. Certainly, there are other text-related issues that impact reading success, but this brief discussion serves as a reminder that interaction between the student and text is significantly crucial to successful reading.

Our intention in this column was to briefly highlight those factors that we believe are relevant to a student's understanding of text. We believe that these factors can be categorized as student-related, school-related, and text-related. Furthermore, we believe that the awareness of these factors will strengthen the

instructional process, resulting in a more actively engaged and successful reader.

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Abstract

This paper is aimed at addressing some of the main issues with regard to use of neuroimaging (i.e., fMRI) in educational settings; such as the issue of equating structure with function; the issue of finding an accurate reference point for normal brain structure and function; issues due to brain plasticity; and issues related to the interpretation of neuroimaging findings. In addition, the implications of such concerns were addressed. It was concluded that the lack of research on the issues regarding the use of neuroimaging jeopardizes the possible use of such unique technology and any educational practice based on neuroimaging would be at best prematurely done unless such issues are satisfactorily addressed. We should leave open the possibility and viability that neuroscience (inclusive of neuroimaging) can, and perhaps should indeed be used to develop educational programs, but if (if and only if) pragmatic assessment of both the science/technology and its ethical, legal and sociocultural implications and manifestations are thoroughly engaged and leveraged.

Functional magnetic resonance imaging (fMRI) has transformed the empirical study of the human mind in the 21st century in a fundamental way. The groundbreaking research involving the use of fMRI brought a variety of arguments on what fMRI can and cannot tell to ethical, legal, social issues and the implications of use of such technology in many domains including education (see Berker, 2009, Celone & Stern, 2009; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001 and Raizada, & Kriegeskorte, 2010). Despite the abundance of studies either utilizing fMRI or addressing fMRI, the issue of the use of fMRI is continuing to be a vigorous area of research.

fMRI is a non-invasive brain imaging technique that does not involve radiation (Byars, Holland, Strawsburg, Bommer, Dunn, Schmithorst, & Plante, 2002). fMRI has opened a new window into neuroimaging by attempting to provide real time information on the functions of the brain. It is based on a technology, which provides functional maps of the working brain by tracking changes in the magnetic signals resulting from oxygenated and deoxygenated hemoglobin (Gligorov & Krieger, 2010; Ogawa, Lee, Nayak, & Glynn, 1990; Vanmeter, 2010). This method is known as BOLD (Blood Oxygenation Level Dependent). Neural activation produces a physical effect on red blood cells by moving them from a state of oxygenation to deoxygenation (Cumming & Ramsey, 2009). While the magnetic field produced by oxygenated hemoglobin has almost no effect (or no effect) on the MRI signal, deoxygenated hemoglobin has a weak effect on the MRI signal (Vanmeter, 2010). Even though changes in such signals are very small, they can be detected while the subject is performing cognitive tasks (Celone & Stern, 2009; Ogawa, Lee, Nayak, & Glynn, 1990). Here, fMRI attempts to pair the neural activity with local cerebral blood flow. The changes in the blood flow are associated with the task the individual is engaged in (Craighead & Nemeroff, 2001).

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The groundbreaking research involving the use of fMRI has brought a variety of arguments from what fMRI can and cannot tell, the implications of the use of such technology in many domains including education, and to the ethical, legal, and social issues with regard to fMRI. Such possible implications of the use of fMRI are under question due to the validity issues regarding fMRI findings.

1. Concerns with regard to the validity of fMRI

1.1. *Equating structure and function*

Just because there is some activity in the certain structure of the brain, does this really mean that specific parts of the brain are involved in the function? Another question being raised is: "Does this activity mean that the certain structure of the brain alone is responsible for such function?" (Racine, Bell, & Illes, 2010; Rosen & Gur, 2002; Illes, Racine, & Kirschen, 2006). A false activation which can be caused by ordinary things like eye-blink (see Desmond & Chen, 2002) or movement during fMRI scanning can pose a problem to the validity of fMRI findings. Special types of statistical analysis are required to eliminate such distortion of the fMRI results (see Racine, Bell, & Illes, 2010 and Vanmeter, 2010) otherwise the validity of the result would be questionable.

1.2. *Accurate reference point for normal brain structure and function*

Due to the non-quantitative nature of fMRI results, comparison of the results obtained from more than one task is required (VanMeter, 2010). The accuracy of the reference point is a necessity for any comparison, intrapersonal and interpersonal. The question is "do we have an accurate

reference point for normal brain structure and function?" For instance, functional imaging can produce different results based on the technique it utilizes; oxygen consumption (fMRI) versus glucose utilization (PET) (see, Fox, & Raichle, 1986; Fox, Raichle, Mintun, & Dence, 1988). "The BOLD contrast mechanism reflects the input and intracortical processing of a given area rather than its spiking output" (Logothetis, Pauls, Augath, Trinath & Oeltermann (2001, p.150). Namely, while an fMRI signal detects the input in the local field, it does not detect total output with regard to the stimulus (Kosik, 2003). There is vagueness concerning reference point information when attempting to address this issue (Santosh 2000 and Wilke et al. 2003 as cited in Fenton, Meynell, & Baylis, 2009). Without a solid reference point, the validity of fMRI findings would be questionable.

1.3. *Brain plasticity*

Given the fact that the brain has plasticity, meaning lifelong capability of the brain (1) to adjust itself (i.e., physically, chemically or physiologically) to the changes that occur in the environment and (2) to recompense for brain trepidation, including damage. One thing to remember about plasticity is that it takes place in ways that are not foreseeable. This means, the same experience may affect the brain in different ways (Kolb & Teskey, 2011) intrapersonal and interpersonal. This raises a question of the validity of the fMRI results obtained from children (in terms of making function-structure association) due to rapidly changing characteristics of a child's brain.

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1.4. *Subjective perceptions of qualitative data*

The question raised by Hanan A. Alexander (2006) needs serious attention as we make further moves with fMRI and its educational implications: "how educational researchers can believe the subjective perceptions of qualitative participant-observers given the concern for objectivity and generalisability of experimental research in the behavioural and social sciences" (p. 205).

1.5. *Post hoc ergo propter hoc*

Just because there is activity in certain parts of the brain immediately after the cognitive task has been performed, can we say that task and activation are related or have a causal relationship? The answer to this question is "not always," which brings us the fallacy of *post hoc ergo propter hoc* issue (J. Giordano, personal communication, July 2011). *Post hoc ergo propter hoc* means "after this, therefore because of this" in Latin, which refers to an erroneous logic of causation between two events by the faulty conclusion that an event is caused by another event simply because it came after it. Namely, if X occurs after Y, then Y is the cause of X. Just because something is followed by something else, does not necessarily mean the former caused the latter (Copi & Cohen, 1990; Lerner, 2002; Schmookler, 1999). Even though there are statistical techniques for preventing such fallacy of indicating a cause-effect sequence, yet, "unfortunately the number of variables involved usually vastly exceeds the number of equations to be worked with, which means that analysis can yield no certain answers" (Hardin, 1993, p.192).

1.6. *Uniqueness of cognitive strategies*

Because each individual is unique, individuals may use their brain in different ways. This means, the activation in the brain of one individual might be quite different or take place in different parts of the brain compared to another individual who is involved in the same cognitive task.

1.7. *Statistical analysis of fMRI data*

Statistical analysis employed to correct the motion artifacts, setting the threshold for a general linear model regression, comparison of several tens thousands of statistical analysis, and obtaining false negatives and/or false positives pose a serious concern with regard to the accuracy of mapping brain function attained from such complex analysis (Racine, Bell, & Illes, 2010). The changes in results of fMRI not related to the cognitive task the individual is experiencing (i.e., number of hours of sleep before the experiment, Habeck et al. 2004 as cited in VanMeter, 2010) can pose a problem with regard to the interpretation of the data.

2. Issues with regard to use of fMRI in education of children

What are the possible uses of fMRI in education? Some possible uses of fMRI in the educational system are (1) to identify students whose education could be promoted by offering additional resources that are more appropriate to their 'perceived' cognitive abilities (i.e., exceptional learners); (2) to channel students into more appropriate programs based on their cognitive abilities; (3) to identify children with potential troublesome dispositions (i.e., violent) (Celone, & Stern, 2009; Fenton, Meynell, & Baylis, 2009). The question here is whether or not fMRI can provide more

accurate results than what is currently done with psychological and behavioral testing for diagnosing purposes. Even though, currently, the answer to this question is unclear, in the near future, validity and interpretative issues with regard to fMRI may be improved.

One of the main issues regarding the use of fMRI in education is that the use of such technology may lead to categorization of children based on their neural mechanism. Such categorization relies on the assumption that all children use the same neural process when they are learning. This assumption simplifies the learning process as there is more than one way of learning the same subject/topic. Focusing on a single component that is involved in learning (i.e., memory), reduces learning process to a component of learning (Pierce, 2009). This brings the issue of *mereological fallacy* (J. Giordano, personal communication, July 2011), which refers to the logic of establishing a relationship between parts and the whole in a way that regards a part as if it is the whole (Maslin, 2007). Referring to a study skills booklet, Maslin (2007) gives an example for such fallacy. According to this booklet, the left hemisphere of the brain thinks with words, while the right hemisphere thinks with images and pictures. Maslin argues that such claims are meaningless as they attribute cognitive activities to "the brain considered as a whole, much less to parts of brains" (p. 211). This fallacy becomes especially problematic in studies dealing with neuroscience. [1] Similar to this fallacy,

reductionism as labeled by Bennett and Hacker (2003), also poses a problematic view on the learning process. For instance, according to Francis Crick (1995):

> "The scientific belief is that our minds—the behavior of our brains—can be explained by the interactions of nerve cells (and other cells) and the molecules associated with them.* This is to most people a really surprising concept. It does not come easily to believe that I am the detailed behavior of a set of nerve cells, however many there may be and however intricate their interactions" (p.7).

Along with these simplifications with regard to neural/cognitive process, categorizing children based on their neural mechanism, these assumptions disregard individual differences in learning. As it is clear for educators, individual differences in learning varies greatly; while some are visual learners others are auditory learners or kinesthetic learners, to name a few. Based on their learning style, individuals may use different neural pathways in the process of learning.

Would categorizing children based on their neural mechanism lead to biological determinism? To answer this question we need to answer the following question "what does such categorization entail?" It entails the idea that the biological process alone shapes neural mechanism. This brings us the definition of biological determinism. Biological determinism, sometimes called *genetic determinism*, refers to the idea that

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[1] According to Bennett and Hacker (2003), assigning psychological attributions, (i.e., thinking, believing, interpreting, inferring, knowing, reasoning, deciding), to the brain or a part/section of a brain (i.e., the hemispheres or even neurons) are rooted from Cartesianism, and are far from scientific claims, rather philosophical claims. For a detailed discussion

of the mereological fallacy in neuroscience, see M. R. Bennett and P. M. S. Hacker's (2003) Philosophical Foundations of Neuroscience. Malden, MA: Blackwell Publishing.

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human characteristics and behaviors are shaped only by genes (De Melo-Martin, 2005). It is well known that biology is not the only factor affecting the structure of the brain. Experience also shapes the biology of the brain. For this reason, neuroscience cannot or should not lead to a biological determinism (Farmer, 2010). If the brain is changing based on the factors rooted in the environment, then, the idea that genes alone are responsible for human behaviors become meaningless.

Even though embracing neurotechnology does not necessarily lead to biological determination, this does not mean that neurotechnologies (including, but not limited to fMRI) will not be used to categorize children or adults. Neurobiological determination of social/practical categories, namely "neural norming," may lead to "Euneuromics,"[2] meaning neurologically based "good" or "well."

Another issue regarding the use of fMRI in education involves the economical feasibility of utilizing such technology in educational settings. Given the economical difficulties facing today's educational system, how feasible is it to utilize such technology in educational settings? The answer to this question is tied closely to the validity, reliability and usefulness of fMRI. The more studies conducted to address and eliminate such issues, the easier and more acceptable it would be to use fMRI in many different settings including educational settings. Once the main issues with regard to the interpretative difficulties are addressed properly and solutions are provided, the doors to common use of fMRI would be opened.

2.1. *Parental consent issues*

Parent consent issues mainly revolve around health, safety, and privacy concerns. Because fMRI is a relatively new technology, its long terms effects on the brain are simply unknown. Just because this technology does not involve ionizing rays, does it make it safe, especially for children whose brains are rapidly changing? Because of the possibility that children's forming brains might be at danger, it raises ethical concerns. Would it be ethical for parents to give consent for non-clinical use of fMRI on their children given the possibility of negative effect(s) of such technology? Another issue regarding the parental consent is if it is ethical for parents to not give consent for non-clinical use of fMRI on their children, which may limit their children's access to the best educational/health practices. Do parents have rights to deprive their children from a technology that could benefit their children's education? What is the future of parental consent if fMRI becomes a widely used technology? Would we still need parental consent? Considering that parental consent is not needed to test children in school because it is a widely used practice, will fMRI be perceived as a common practice in the near future (J. Giordano, personal communication, July 2011)?

Use of fMRI can also be perceived as invasion of privacy of young children who are unable to make a judgment about such technology. Do parents have the right to let their children be brain-scanned even if it involves invasion of privacy? Would we, adults, mind that our brain be scanned knowing the possibility of invasion of privacy? If our answer is no to this question, then we have some thinking to do.

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[2] This term was generated by Dr. James Giordano.

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2.2. *Information sharing*

If fMRI becomes a commonly used technology, who should have access to the information obtained from fMRI? *School systems?* In the case that abnormalities having some possible educational implications were discovered during non-clinical use of fMRI, should the school system be involved? *Insurance companies?* Should the information with regard to the unexpectedly discovered abnormalities be shared with insurance companies? If so, now should the child be considered to have a pre-existing condition (J. Giordano, personal communication, July 2011)? What is the acceptable practice for accessing such information? What are the possible issues with regard to sharing such information with the child? How is this going to affect the perception of the self? (Psychological effects): Known self vs. newly constructed self, based on the results of *f*MRI. How is this going to affect the perception of others? (Sociological effects): Am I superior to the other kids? Do I deserve better than what I am offered? or "I knew there was something wrong with me, now I have the proof."

How would information sharing affect the child's school performance? "The more I know about how my brain works, the more I can adjust my strategies (and/or my environment) to learn" (*positive effect*). "If I am the brightest, do I really have to work hard anymore?" "I knew there was something wrong with me, I shouldn't even try anymore!" (*Negative effect*). There is also a possibility that sharing such information would not affect the child's school performance (*no effect*).

2.3. *Information security.*

In order to make sense of the fMRI data collected by large groups of people, comparison and sharing such data would be necessary. Securing such a database would be pivotal. How is this database going to be secured? What are the possible implications of failing to secure such data? What would be done to avoid or minimize inappropriate access, inapt use/misuse, data modification (by others or the individual himself/herself) and "downstream" effects (e.g.- individual and group socio- legal and economic demonstrations of accessed, misused or manipulated datasets) (Giordano, in press)?

2.4. *Use of fMRI for cognitive enhancement in children*

Brain mapping in terms of function may lead to the cognitive enhancement argument. If fMRI results show an abnormal or inadequate functioning in certain part of the child's brain, this information may be utilized to either minimize the abnormality or enhance the cognitive skills. This brings the issue of "the ethics of enhancement." Julian Savulescu (2009) listed the three main arguments with regard to the ethics of enhancement in humans. The first argument deals with the notion that the decision of not to enhance is wrong. The focal point of this argument is that if enhancement is going to improve the child's life, failure to provide such enhancement would be unethical. It is like depriving a child from a dietary supplement that would provide a stunning intellectual result. The second argument is that we need to be consistent with regard to different types of enhancement. We use environment to enhance children's lives. Cognitive/biological enhancements should not be considered any differently because environmental enhancements change our biology as well. If we are okay with the idea to change our biology with environmental

enhancements, then we should be consistent and approach biological enhancement in the same manner. The third argument revolves around the idea that if we were to be open to treatment, we should also be open to enhancements; therefore, enhancements should not be considered any differently than alleviating/treating disease. Preventing a disease or treating a disease leads to a good life, so do the enhancements.

These arguments listed by Savulescu have strong points to consider, yet, it does not mean that there are no possible ethical concerns associated with such enhancements. One of the pivotal questions to be answered is "how far is too far with manipulation of biology or embracement of cognitive enhancements?"

2.5. *Policy issues*

Policy issues are closely related to justice issues. If fMRI becomes a widely used technology for enhancing children's cognitive skills or eliminating possible future abnormalities, "who would receive this technology" would become one of the central questions; children who really need this technology to prevent abnormalities or children whose parents can afford such technology to enhance their children's cognitive skills.

If neurocognitive enhancements become prevalent, it is probable that it will not be rightfully available for all. However, such possible imbalanced access to neurocognitive enhancements should not be used as an excuse to prohibit these technological improvements as it is not the case for the practices performed by the prosperous such as tutoring or cosmetic surgery (Farah et al., 2010).

While addressing the enhancement issue, Michael J. Sandel talks about a worry of generating two categories of human beings: the enhanced and the unenhanced (natural). Sandel (2009) argues that the real issue is not the access issue but the moral issue of enhancement and states that "the fundamental question is not how to ensure equal access to enhancement but whether we should aspire to it in the first place" (p. 892). This question must be clearly answered before any policy making takes place.

As our knowledge about how our brain works progresses, such knowledge will hold potential to have a huge impact on every aspect of our life, including but not limited to education. Policies addressing neuroethics cannot be made without the existence of progressive and integrative neuroethics that generate some benefit vs. risk analysis (Giordano, 2011 as cited in Giordano, in press). That is, neuroethics must develop enough to produce multidisciplinary perspective on benefits vs. risks analysis of using such technology. Developing a framework is a pivotal step with regard to policy making. To do so, implementing workshops and discussions among various disciplines is pivotal. Shared responsibility among regularity agencies and scientists from various backgrounds would provide means for protection and improvement of human life.

3. Is the use of fMRI in education a science fiction or is it already happening?

Neurotechnology is already in use in our daily life including the educational domain. For instance there are educational toys produced by neuroscientists. It seems that with the improvement on the neurotechnologies (i.e., fMRI), it is safe to assume that such technology would not be limited to educational toys. More common

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uses of fMRI in the domain of education depend heavily on the questions/issues raised in related literature. We have to answer at least the following questions to put fMRI into perspective: What can fMRI tell us about brain functions in children? What can fMRI not tell us about brain functions in children? What are the benefits and risks involving fMRI? These questions along with several other questions raised in this study may seem to involve an unlikely situation but exercising our judgment on such questions would help us be more prepared for use of fMRI.

4. Conclusion

While novel technologies often provide new prospects that offer potentials for improving people's lives, technologies also bring novel ethical concerns. It would be premature to dismiss the possible use of fMRI in educational purposes because of the concerns related to the use of such technology. It is obvious that more research is needed to guide the policies otherwise prematurely conducted research can result in unfortunate or harmful outcomes for children due to misguided policy making.[3]

The issues mentioned above pose a very serious question on the usefulness of fMRI. If we were to utilize fMRI in the

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[3] Referring to The "Mozart effect," DiPietro (2000) states that in 1998 Georgia State mandated that a recording of classical music to be distributed to all newborns for the purpose of promoting cognitive development. This practice was followed by other states despite the lack of research that support the "Mozart effect." Music may indeed have some benefits for the babies; however, current research fails to provide a positive relation between exposure of the babies to music and cognitive improvements (DiPietro , 2000). An interesting point here is that there is policy making without well-grounded research.

education of children, such concerns must be eliminated or at least minimized as much as possible.   fMRI is a powerful technology that can be used to improve not only pedagogy but also educational settings. However, the lack of research addressing the issues mentioned above jeopardizes the possible use of such unique technology. Any educational practice based on fMRI (i.e., funneling students into appropriate educational programs, Celone & Stern, 2009) would be at best prematurely done unless such issues are satisfactorily addressed. To do that, a multidisciplinary approach is a necessity.

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Abstract

Numerous studies have examined both the income and race/ethnic achievement gaps. These gaps are particularly striking in the case of minority children, who are more likely than their non-Hispanic white counterparts to be living in poverty. This overlap in achievement gaps makes it difficult to clearly identify the most disadvantaged children. Using two designations in No Child Left Behind (NCLB), socioeconomic status and race/ethnicity, this study examines math and reading trajectories as children move through elementary school. Applying multilevel growth curves to four waves of the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, I examine the intersection of children's income status and race/ethnicity on their achievement trajectories. My findings show children who are doubly disadvantaged --both poor and minority-- have the worst outcomes. However, non- Hispanic white children who are identified as the most economically disadvantaged have better outcomes than some of their same race peers. These findings point to the importance of examining the intersection of children's socioeconomic status and race/ethnicity as it relates to achievement outcomes over time. Pinpointing who are the most "at risk" children within and/or across socioeconomic status and race/ethnicity can lead to targeted policy intervention ensuring these children are served.

Introduction

The first line of the No Child Left Behind Act (NCLB) of 2001 states "An Act: To close the achievement gap with accountability, flexibility, and choice, so that no child is left behind (US Department of Education, 2002)." The driving force of NCLB is to reduce educational disparities in an increasingly diverse child population. Researchers in the U.S. have spent a great deal of time examining the income and race/ethnicity gaps in achievement (Entwisle and Alexander, 1993; Yeung, Linver, & Brooks-Gunn, 2002; Seccombe, 2004; Yan & Lin, 2005; Crook & Evans, 2014). One challenge, however, is that these two gaps overlap considerably, often involving the same children trying to catch up. We know that children from lower income homes and minority children start school at a disadvantage compared to children who are non-Hispanic white and those from more affluent families, respectively (Aikens & Barbarin, 2008; Duncan & Magnuson, 2005; Entwisle & Alexander, 1993; Lee & Burkham, 2002).

However, attending to each of these disparities separately can obscure who is most vulnerable in the child population as well as which interventions among these groups are most likely to bring the greatest returns. Clearly identifying where the largest gaps exist along the socioeconomic (SES) spectrum across racial/ethnic groups and within SES groups along the racial/ethnic hierarchy can increase the efficiency of policy intervention and ensure that the most at-risk children are served. Given these overlapping disparities, this paper aims to further our understanding of who are the most "at-risk" kids within and across socioeconomic status and racial/ethnicity.

Background

Minorities and Blacks in particular have consistently had lower levels of academic achievement than their non-Hispanic white counterparts (Ogbu, 1991, 2003; Jencks & Phillips, 1998; Downey, 2008). These differences are found at very early ages and persist through adulthood into labor force

participation and wage gaps (Coleman, 1961; Jencks, 1972; Downey & Gibbs, 2007). Using data on test scores from The National Assessment of Educational Progress, Miller (1995) documented the differences in test scores among various racial/ethnic groups. White twelfth graders outscored Black, Hispanic and Native American twelfth graders on math tests by 31, 23 and 11 points respectively (Miller, 1995). Asian students outscored whites by 14 points. We see these disparities in other areas all well. Asian students outscored white, Black, Mexican American, and Native American students by 37, 143, 99 and 91 points respectively on 1990 SAT scores. This trend has been consistent over time (Reardon, Robinson-Cimpian, & Weathers 2014). In an analysis of test scores by race/ethnicity from 1971-2012, Reardon et al. (2014) find varying gaps by subject, age, test year and racial/ethnic group, with persistent gaps with Black and Hispanic children underperforming compared to their non-Hispanic white counterparts.

In addition to tracking racial/ethnic achievement gaps, researchers have also examined the impact of SES on academic outcomes. Findings demonstrate children from economically deprived homes have lower educational achievement than their counterparts from more affluent homes (Aikens & Barbarin, 2008; Domina, 2005; Duncan & Magnuson, 2005; Entwisle & Alexander, 1993; McNeal, 1999). The SES achievement gap is particularly striking in the case of minority children, because they are more likely than their non-Hispanic white counterparts to be living in poverty (McLeod & Shanahan, 1993; Seccombe, 2004; U.S. Census Bureau, 2009). In 2010, about 22% of children in the U.S. lived below the poverty line (Macartney, 2011). This number is even worse when examining racial/ethnic differences. Minority children are most likely to live in poverty with Black children being the most disadvantaged followed by Hispanic, white and Asian children with 38, 32, 17 and 13 percent living below poverty respectively (U.S. Census Bureau, 2009). These children are doubly disadvantaged in that they are socially located in two of the lowest performing groups. They experience an overlap of disadvantaged identities.

Scholars have noted shifts in both the racial/ethnic and income achievement gaps over time. In particular, studies have found a narrowing of the gap between Blacks and whites in math and reading between the 1970s and 1980s (Reardon et al., 2014). However, this gap widened again in the 1990s (Reardon et al., 2014, Neal 2006). With the increasing diversity of the child population scholars have also turned their attention to examining the Hispanic-white achievement gap (Reardon, Valentino, Kalogrides, Shores, & Greenberg, 2013; Reardon & Galindo, 2008). The shifts in this gap mirror those for the Black-white gap. These findings suggest that Black and Hispanic children have poorer achievement outcomes than their non-Hispanic white peers. Findings on the income gap tell a similarly bleak story. The income gap has widened over time (Reardon, 2011) and has been found to account for a proportion of the variation in the racial/ethnic achievement gap (Fryer & Levitt, 2006; Rothstein & Wozny, 2013; Mandara, Varner, Greene, & Richman, 2009).

If we are to reduce achievement gaps across the board, we must pinpoint who the most disadvantaged students are by examining the intersection of race/ethnicity and poverty on children's academic outcomes. Finally, although an explanation for the gaps is beyond the scope of this paper, it is important to note that these gaps don't exist in a vacuum. There are a number of child, family, school and neighborhood characteristics that impact both the racial/ethnic and income achievement gaps.

The Present Study

The general goal of this paper is to identify which specific groups of children should be the focus of policy aimed at decreasing socioeconomic and racial/ethnic gaps in academic achievement. Where and when do the largest disparities occur? Using two of the designations laid out in NCLB, socioeconomic status and race/ethnicity, this study maps out the math and reading trajectories of children from

diverse segments of the population as they move through elementary school. I am also interested in identifying the socioeconomic strata in which racial disparities in level and growth of achievement are largest and the racial groups in which corresponding socioeconomic disparities are largest. These analyses applies multilevel growth curves to four waves of data from The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K).

Methods

Data

The data used for these analyses come from the first four waves of ECLS-K. The ECLS-K begins with a nationally representative sample of children who entered kindergarten in the U.S. between 1998 and 1999 (n = 21,260). Data were collected by the National Center for Education Statistics (NCES), within the U.S. Department of Education's Institute of Education Sciences, using a multistage probability sampling design.

The data were collected with the intent of studying children's early educational achievement and the context in which they are experiencing the schooling process. The data are designed such that information on children's schooling experience is collected as it is happening. For example, the first grade data is collected while the children are still in first grade (Tourangeau, Nord, Lê, Pollack, & Atkins-Burnett, 2006). According to Tourangeau et al (2006) this is particularly important because it "produces a more accurate measurement of antecedent factors and enables inferences to be made about their relationship to later academic progress" (Tourangeau et al., 2006:1-4). The strength of this dataset is its ability to show change or continuity in the same children's lives over time. I am able to examine initial differences in children's educational outcomes, as well as extent of change over time.

Measures

There are two dependent variables for this study measuring student's academic

achievement: math and reading scores. At each wave (spring of kindergarten, first, third, and fifth grade) children were given timed cognitive assessment in both math and reading. Several measures of these cognitive assessments are available at each wave of data. Item Response Theory (IRT) scores rely on patterns of correct answers to obtain final scores (Tourangeau et al., 2006) these scores are scaled for comparisons across waves of the data.

This study is concerned with indentifying where the largest gaps in math and reading scores exist across socioeconomic and racial categories. The focal independent variables for this study are child's socioeconomic status and race/ethnicity. Socioeconomic status is measured using an income-to-needs ratio which is created by combining household size and annual family income. The income-to-needs ratio is then compared to the federal poverty line for 1998 (the initial year of data collection for the ECLS-K) resulting in three categories: those at or below 100% of the poverty line (poor), families between 101 and 200% if the poverty line (low income) and finally those families above 200% (nonpoor). Child's race/ethnicity is measured using the parental designation of the child's racial/ethnic background. Children are classified as either non-Hispanic white, non-Hispanic Black, Hispanic origin or Asian origin. Both socioeconomic status and race/ethnicity are key designations outlined in NCLB as indicators of populations at risk.

Children's academic outcomes are affected by both family and school characteristics (Cooper, Crosnoe, Suizzo, & Pitcuh, 2010; Duncan, 2012; Blair & Raver, 2012); therefore, the models also account for a host of family and school characteristics. At the child level, the models adjust for: child's gender (males are the reference group); family structure (step family, single parent family, some other family form, and two biological parent family [reference group]; home language (English is the reference group); and immigration status (whether the child is foreign-born or has foreign-born parents). School characteristic include: school type (private religious, public and other private schools [reference group]); overall

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racial/ethnic composition of the school; whether or not the school receives Title I funding; and percent of the student body that receives free/reduced lunch.

Analyses

Using SAS 9.4 multilevel growth curve models are estimated with the PROC MIXED command in conjunction with PROC MIANALYZE. This particular type of analysis is useful when examining gaps over time. Using growth curve models, I can examine gaps in initial scores, as well as changes in those gaps over time (Raudenbush & Bryk, 2002; Raudenbush, 2001). This method also accounts for time varying and fixed characteristics of both children and the schools they attend (Raudenbush & Bryk, 2002; Raudenbush, 2001). For this analysis, models are constrained to one slope for growth which smoothes over the variations that occur in the rates of growth throughout the period (see McCoach et al., 2006 for example of differential growth in reading scores in ECLS-K). Data have been weighted and missing data is accounted for using multiple imputation via the PROC MIANALYZE command. Finally, time is centered on the mean age of children in spring of kindergarten. The centering of time is important because it dictates how the intercept and coefficients are interpreted. In this case, since time is centered on age in spring of kindergarten, the intercept represents children's math and reading scores in kindergarten.

Results

Tables 1 and 2 (see Appendix) show the descriptive statistics by each NCLB designation. Minority and poor children come from the most disadvantaged families. As we see in Table 1, children from families that are categorized as poor and low income have lower math and reading scores than their peers from nonpoor families. These children are also more likely to not reside in two-parent families compared to their peers in nonpoor families. Children from poor and low income families are also more likely to have a foreign-born parent or be foreign-born themselves, have a primary home

language that is not English, and attend the most disadvantaged schools, compared to children from nonpoor families. Overwhelmingly, the children who make up the categories of poor and low income are minority children. This point again speaks to these overlapping categories of disadvantage. We see in Table 2 that minority children come from the most disadvantaged background compared to their non-Hispanic white peers.

The multilevel growth curve analyses were run twice for both math and reading scores, once to account for socioeconomic within group difference and then to account for within racial/ethnic group differences. These models can be found in Tables 3 and 4 (see Appendix). These models suggest that there are clear differences in achievement trajectories across and within both socioeconomic status and race/ethnicity. The first set of models in Table 3 examines the socioeconomic status within group differences for math scores. Both within and across all the socioeconomic categories, all minority children except nonpoor Asians start with lower math scores compared to non-Hispanic whites and have slower growth over time. Among all children who fall at or below 100% of the poverty line, attending private school increases their initial scores. In contrast attending schools with higher percentages of children receiving free/reduced lunch decreases initial scores and produces less growth in scores over time. Among poor children, non-Hispanic Blacks are the most disadvantaged both in initial scores and in their growth over time, while poor Asian origin children fare no worse than non-Hispanic whites.

Within the low income SES group we see findings quite similar to those for the poor SES group. There is one exception; Hispanic origin children in the low income group, unlike their peers in the poor group, do not have less growth over time. This suggest that although these children start behind their non-Hispanic white peers, they do not fall further behind over time. Comparing children who are just above and just below the poverty line shows the limitations of relying on a single designation – here race—to decrease educational

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disadvantage. Among those children categorized as nonpoor, we see persistent racial/ethnic gaps net of other family and school characteristics, with non-Hispanic Blacks children and children of Hispanic origin having lower initial scores and less growth over time compared to their non-Hispanic white counterparts. This suggests that these two groups of children will not "catch up" to the math scores of their non-Hispanic white peers.

The analysis for reading scores by socioeconomic status show similar findings. For children at or below 100% of the poverty line, we see lower initial reading scores and less growth over time for both non-Hispanic Blacks and children of Hispanic origin in comparison to their poor white counterparts. The racial/ethnic trajectories for children in the poor and low income categories differs for reading compared to their math score trajectories. In contrast to their performance in math, Hispanic origin children in the low income category don't have significantly different initial reading scores or differential growth in their scores over time compared to non-Hispanic whites (i.e., children of Hispanic origin from low income families have reading trajectories that mirror their non-Hispanic white peers). Non-Hispanic Blacks in the low income category don't have different initial scores but they do have less growth over time. This suggests that the scores of non-Hispanic Blacks actually diverge from those of non-Hispanic whites over time. We see this pattern for nonpoor non-Hispanic Blacks as well. In short, across these income groups non-Hispanic Black children are the most likely to start behind their peers and to fall further behind over time.

The six panels in Figure 1 (See Appendix) visually display the diverging trajectories for both math and reading by SES described above.

Much like the analysis for SES, the analyses by race/ethnicity reveal that there is no one trajectory within race/ethnicity for math or reading scores. In Table 4 we see that among non-Hispanic white children, those in the low income group, not the poor group, are the most

disadvantaged compared to their nonpoor peers: low income non-Hispanic white students have lower initial math scores and slower growth in their scores over time. The Asian origin child population displays a similar pattern: the low income group has the lowest initial scores compared to their non-Hispanic white counterparts. In contrast, within both the non-Hispanic Black and Hispanic origin populations, poor children are the most disadvantaged, with lower initial scores and slower growth over time. The racial/ethnic trajectories for reading scores mirror those for math scores.

Discussion

We have seen changes in both the race and income achievement gap over the last 50 years (Reardon, 2011; Reardon, et al., 2014). The racial achievement gap has narrowed while the income achievement gap has widened. The persistent racial achievement gap and increasing income achievement gap are of great concern individually, but the outlook becomes grimmer when we consider the overlapping of these two types of disadvantage. Minority children are the ones most likely to be living in poverty (U.S. Census Bureau, 2009; Macartney, 2011); therefore, children who are both minority and poor are *doubly disadvantaged* and have the worst achievement outcomes.

The significance of this study lies in its ability to elucidate some of the mixed results of NCLB and other educational policies in closing achievement gaps. Policies and programs aimed at increasing the proficiency of these vulnerable groups must be able to clearly identify the children who are most at risk for having the worst academic outcomes. Recognizing the significant overlap between socioeconomic status and racial stratification in these policy goals would better reflect the reality of American society and increase the likelihood that interventions targeting these gaps are delivered to those who most need them. Moving from a universal approach to a more tailored approach could increase the efficiency and effectiveness of these interventions.

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This study adds to the current body of literature by examining the intersection of income and race/ethnicity on achievement outcomes and identifying the most disadvantaged children within and across income and racial/ethnic groups. There is not one clear achievement trajectory within or across SES status and racial groups instead as I show the answer is quite complex. It depends on academic subject and whether we focus on within or across group differences. Policymakers tend to expect that the poorest children will have the poorest scores. The trajectories for non-Hispanic Black and Hispanic origin children follow this pattern, non-Hispanic whites do not. Non-Hispanic white children in the low income group have lower scores than their peers in the poor income group, across subjects. This is an important point if the goal is to create interventions that target the lowest performing children. In the case of within racial group differences for non-Hispanic whites, low income children are more "at risk" than the poor children. Findings such as these make a case for more precisely identifying which students are in need of interventions rather than targets based on a single designation.

Although the impact of family and school characteristics are not the focus of this study, these findings suggest that they differential impact initial scores and change in scores over time by both race and SES. Children at or below 100% of the poverty line (those categorized as poor) experience more positive initial scores and less negative growth over time for reading scores and more positive initial scores for math with no significant growth, compared to non-Hispanic whites when they attend a private school. These same trends were not observed for low income and nonpoor children.

One limitation to this study is the categorization of children into large pan-ethnic categories. The racial and ethnic makeup of U.S. schools is changing and now includes children from diverse backgrounds (Fry, 2007; Orfield & Lee, 2005; Reardon, Yun, & Eitle, 2000). A U.S Census Bureau (2008) report estimated that 44% of the children belonged to a racial/ethnic minority group. Projections suggest that by 2023, 50% of the U.S. child population will be minority children, reaching 62% by 2050 (U.S. Census Bureau, 2008). Similarly the population of immigrant children is growing at a rapid pace, 1 in 4 children in the U.S. either has at least one foreign-born parent or was born outside of the U.S. (Hernandez, Denton and Macartney, 2008). This increasing diversity of the child population must be considered if we intend to create policy aimed at decreasing achievement gaps. Simple Black-white comparisons are no longer feasible. Future studies must investigate student trajectories within and across specific ethic groups and examine the intersection of disadvantage.

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Appendix

Table 1
Descriptive Statistics by Poverty Level

	Nonpoor (n= 4,632)	**Low Income (n= 1,393)**	**Poor (n=2,882)**
Child and Family Characteristics			
Cognitive Achievement			
Math	79.59	71.60 *	70.29 ***
Reading	98.98	89.63 ***	88.96 ***
Child's Race/Ethnicity			
Non-Hispanic white	76.03%	56.63% ***	45.86% ***
Non-Hispanic Black	7.55%	16.43% ***	23.98% ***
Hispanic Origin	10.96%	22.69% ***	24.59% ***
Asian Origin	5.47%	4.25% ***	5.57%
Child's Gender			
Male	51.10%	51.50%	50.11%
Female	48.90%	48.50%	49.89%
Family Structure			
Two-parent Family	87.89%	69.22% ***	61.79% ***
All Other Family Forms	12.11%	30.78% ***	38.21% ***
Nativity			
Child or Parent Foreign Born	11.60%	19.08% ***	23.81% ***
Child or Parent US Born	88.40%	80.92% ***	76.19% ***
Home Language			
English Home Language	94.47%	85.09% ***	80.35% ***
Non-English Home Language	5.53%	14.91% ***	19.65% ***
School Characteristics			
School Type			
Private School	28.71%	11.30% ***	14.30% ***
Public School	71.29%	88.70% ***	85.70% ***
Percent of students receiving free/reduced lunch	22.15%	40.28% ***	42.72% ***
Fifty Percent of student body are minority	19.48%	39.89% ***	46.73% ***
School Received Title I Funds	50.79%	74.78% ***	72.06% ***

Source: The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K).* p<.05. ** p<.01.*** p<.001 denotes statistically different from nonpoor students.

Table 2
Descriptive Statistics by Race/Ethnicity

	Non-Hispanic White (n= 5,705)	Non-Hispanic Black (n= 1,034)	Hispanic Origin (n=1,674)	Asian Origin (n=495)
Child and Family Characteristics				
Cognitive Achievement				
Math	78.86	63.80 ***	68.83 ***	80.79
Reading	97.33	82.81 ***	89.09 ***	100.32 ***
Family Socioeconomic Status				
Poor	25.36%	56.39% ***	48.26% ***	36.27%
Low Income	14.91%	18.39% ***	21.19% ***	13.17%
Nonpoor	59.73%	25.21% ***	30.55% ***	50.56%
Child's Gender				
Male	51.39%	49.62%	49.98%	50.31%
Female	48.61%	50.38%	50.02%	49.69%
Family Structure				
Two-parent Family	82.94%	40.65% ***	74.99% ***	91.93% ***
All Other Family Forms	17.06%	59.35% ***	25.01% ***	8.07% ***
Nativity				
Child or Parent Foreign Born	4.77%	7.63% ***	49.57% ***	79.75% ***
Child or Parent US Born	95.23%	92.37% ***	50.43% ***	20.25% ***
Home Language				
English Home Language	98.62%	98.88% ***	55.30% ***	42.36% ***
Non-English Home Language	1.38%	1.12% ***	44.70% ***	57.64% ***
School Characteristics				
School Type				
Private School	24.87%	11.88% ***	14.93% ***	18.42% ***
Public School	75.13%	88.12% ***	85.07% ***	81.58% ***
Percent of students receiving free/reduced lunch	23.16%	54.61% ***	46.11% ***	30.92% ***
Fifty Percent of student body are minority	10.86%	73.46% ***	67.80% ***	51.83% ***
School Received Title I Funds	55.98%	77.48% ***	72.74% ***	55.75%

Source: The Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLSK). * p<.05. ** p<.01.*** p<.001 denotes statistically different from non-Hispanic white students.

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Table 3

Growth Models Predicting Achievement Scores, Kindergarten Through Fifth Grade by Income

	Math Test Scores			**Reading Test Scores**		
	Poor	Low Income	Nonpoor	Poor	Low Income	Nonpoor
Race/Ethnicity (vs. Non- Hispanic White)						
Non-Hispanic Black	-6.31 ***	-3.31 **	-4.96 ***	-5.15 ***	0.52	-1.19
× Time	-1.86 ***	-0.76 **	-1.14 ***	-1.47 ***	-1.03 **	-1.01 ***
Hispanic Origin	-4.99 ***	-2.20 *	-3.48 ***	-4.39 ***	-1.51	-2.44 **
× Time	-0.50 *	0.01	-0.38 **	-0.45 ***	0.37	-0.30
Asian Origin	0.94	0.99	3.35 ***	4.01	6.81 **	8.60 ***
× Time	0.19	0.33	0.24	-0.98 **	-0.47	-1.32 ***
Child and Family Characteristics						
Male (vs. Female)	0.59	-0.39	0.53	-3.48 ***	-4.11 ***	-4.32 ***
× Time	0.63 ***	0.68 ***	0.62 ***	-0.16	-0.52 **	-0.12
Family Structure (vs. All Other Family Forms)						
Two-parent Family	2.12 ***	1.54 *	1.57 **	3.40 ***	2.57 **	2.72 ***
× Time	0.17	0.09	0.38 *	0.02	-0.32	0.04
Child or Parent Foreign Born	0.37	-0.37	0.86	1.14	0.19	2.71 **
× Time	0.82 ***	0.89 **	0.29	0.49	0.39	-0.25
Non-English Home Language	-2.61 **	-2.04	-2.57 **	-4.11 ***	-2.55	-2.38
× Time	-0.27	-0.57	0.50 *	-0.66 *	-1.09 **	0.16
School Characteristics						
Private School (vs. Non-private)	2.38 ***	1.67	-0.34	2.60 **	1.05	-0.84
× Time	0.07	-0.08	0.03	1.39 ***	1.18 **	1.16 **
Percent of students receiving free/reduced lunch	-0.02 **	-0.04 **	-0.05 ***	-0.03 **	-0.03	-0.08 ***
× Time	-0.02 ***	-0.01 **	-0.03 ***	-0.03 ***	-0.02 ***	-0.05 ***
Percent of student body that are minority	0.32	1.71 *	-0.08	1.49	2.29 *	1.75 *
× Time	0.14	-0.27	0.27	-0.17	-0.66 *	0.01
School Received Title I Funds	-0.20	-0.77	-0.75 *	-0.50	-0.44	-1.50 **
× Time	0.24	-0.04	0.37 ***	0.36	0.23	0.78 ***
Intercept	38.02 ***	38.07 ***	42.47 ***	47.85 ***	46.75 ***	53.85 ***
Slope (time)	16.00 ***	16.05 ***	16.58 ***	20.76 ***	21.11 ***	21.61 ***

Source: The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) . * p<.05. ** p<.01.*** p<.001 denotes statistically different from non-Hispanic white students.

Figure 1

Panel A

Panel D

Panel B
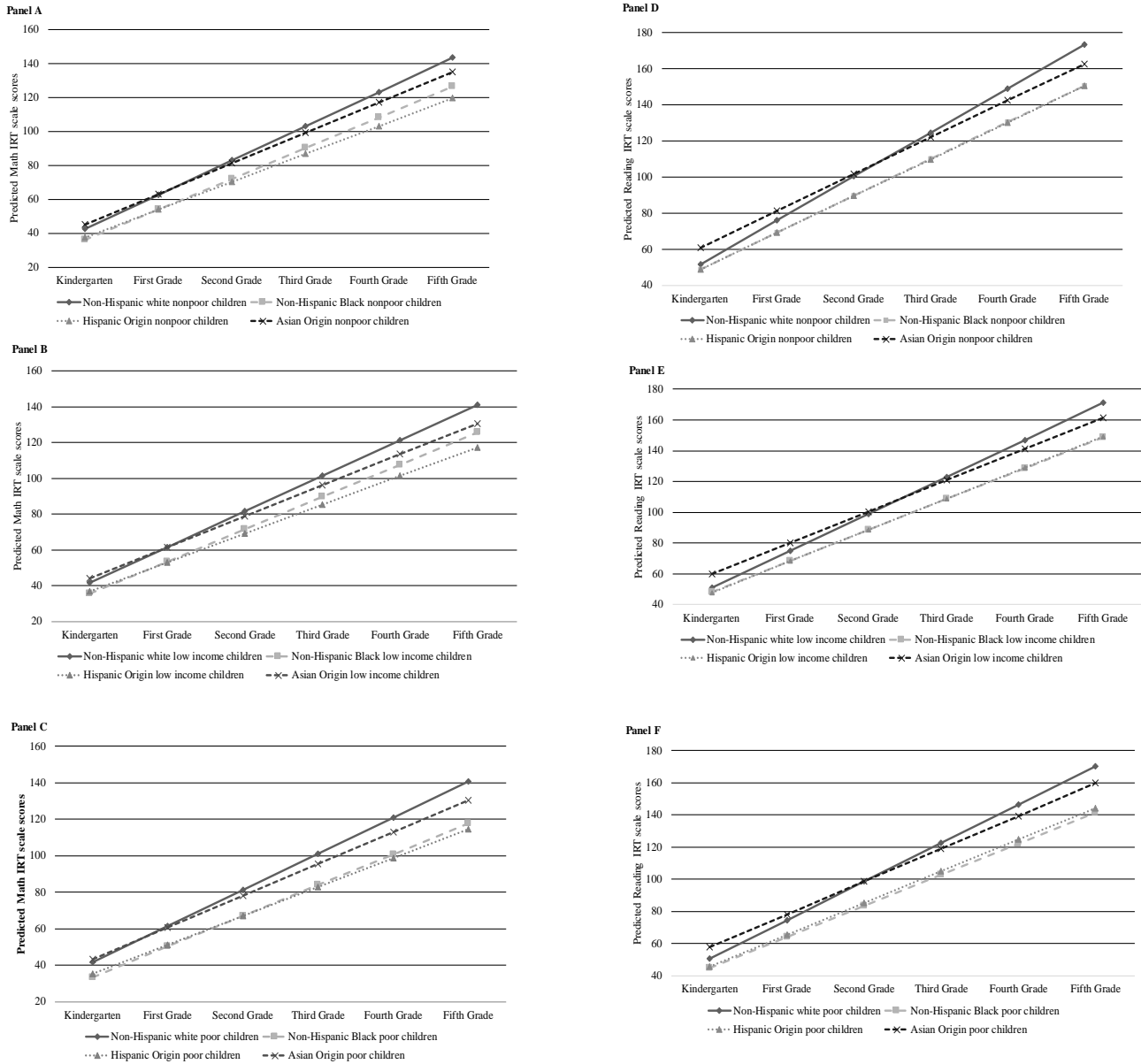

Panel E

Panel C

Panel F

*Figure 1.*Predicted Achievement Trajectories by Race/Ethnicity and SES status.

Table 4

Growth Models Predicting Achievement Scores, Kindergarten Through Fifth Grade by Student's Race/Ethnic

	Math Test Scores				Reading Test Scores			
	Non-Hispanic White	Non-Hispanic Black	Hispanic Origin	Asian Origin	Non-Hispanic White	Non-Hispanic Black	Hispanic Origin	Asian Origin
Child and Family Characteristics								
Family Socioeconomic Status (vs. Nonpoor)								
Poor	-2.42 ***	-4.43 ***	-4.07 ***	-4.76 ***	-2.81 ***	-7.38 ***	-6.23 ***	-8.40 ***
× Time	-0.38 ***	-1.21 ***	-0.56 **	-0.54	-0.43 ***	-1.02 **	-0.56 *	0.05
Low Income	-3.75 ***	-1.94 *	-2.41 **	-6.25 ***	-4.68 ***	-3.28 *	-4.58 ***	-8.18 **
× Time	-0.31 **	0.02	-0.26	-0.66	-0.31 *	-0.24	0.02	-0.03
Male (vs. Female)	0.49	0.26	0.03	1.20	-4.35 ***	-2.93 ***	-3.37 ***	-4.71 **
× Time	0.56 ***	0.86 ***	0.79 ***	0.34	-0.18	-0.24	-0.36	0.06
Family Structure (vs. All Other Family Forms)								
Two-parent Family	1.93 ***	0.74	2.06 **	1.67	2.87 ***	2.52 **	3.06 ***	4.24
× Time	0.20	0.27	0.17	0.60	-0.16	0.34	-0.24	1.19
Child or Parent Foreign Born	-0.29	2.56	0.60	2.44	0.50	3.24	1.31	5.70 *
× Time	0.52 **	1.40 **	0.32	0.51	0.14	0.94	0.13	-0.79
Non-English Home Language	-1.15	-0.84	-3.38 ***	-2.21	0.37	0.30	-4.04 ***	-4.62 *
× Time	1.34 ***	0.54	-0.27	-0.09	0.50	-0.64	-0.73 **	-0.15
School Characteristics								
Private School (vs. Non-private)	0.13	0.93	1.40	0.71	-0.80	1.08	2.45 *	1.85
× Time	0.15	-0.53	-0.43	0.11	1.37 **	-0.02	1.06 **	1.20 *
Percent of students receiving free/reduced lunch	-0.04 ***	-0.03 *	-0.03 **	-0.07 **	-0.06 ***	-0.05 **	-0.02	-0.12 **
× Time	-0.04 ***	-0.02 ***	-0.01	-0.01	-0.06 ***	-0.03 ***	-0.02 ***	-0.02
Percent of student body that are minority	0.23	0.74	0.24	0.54	1.52	2.60 *	0.19	4.45 **
× Time	0.21	0.48	-0.38	-0.23	0.05	0.16	-0.69 **	-1.14 **
School Received Title I Funds	-0.87 **	-0.38	-0.34	-0.13	-1.27 **	-0.38	-0.52	-0.20
× Time	0.46 ***	0.01	0.00	0.33	0.74 ***	0.32	0.07	0.71
Intercept	41.92 ***	36.33 ***	38.12 ***	43.90 ***	53.26 ***	49.77 ***	49.98 ***	58.80 ***
Slope (Time)	16.78 ***	15.04 ***	16.20 ***	16.44 ***	22.00 ***	19.56 ***	21.07 ***	19.27 ***

Source: The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) (n=). * p<.05. ** p<.01.*** p<.001 denotes statistically different from non-Hispanic white students.

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Abstract

This study examined the effectiveness of Supplemental Educational Services (SES) tutoring in increasing the reading and mathematics achievement of Title I students in a Florida elementary school. Kindergarten through fifth grade students who had been matched on their previous performance on the Florida Assessment in Reading (FAIR) or the District Baseline Math test were grouped based on voluntary participation or non-participation in SES tutoring. Scores on the same tests were then compared after the conclusion of SES tutoring. Results showed no gains in improvement for students who received SES tutoring relative to students who did not participate in SES tutoring. Implications for policy are discussed.

The No Child Left Behind Act (NCLB, 2001), a reauthorization of the Elementary and Secondary Education Act of 1965 (ESEA), requires that all students reach their state's proficiency goal by 2014 and raises expectations by requiring states to bring all schools and all student subgroups to the same level of performance. Further, the law continues the federal government's effort to provide Title 1 funding to assist with the education of children from low-income families, one of the subcategories of students who must make progress if a school is to be considered to have made Adequate Yearly Progress (AYP) (Choi, Seltzer, Herman, & Yamashiro, 2007; Eckes & Swando, 2009). Some of this assistance to children from low-income families currently takes the form of Supplemental Educational Services; more than 50,000 public schools used $14.5 billion in Title 1 funds in 2010 to provide additional academic support to help low-achieving children (United States Department of Education, ESEA Title 1 LEA Allocations, 2010). To insure that

schools are being effective and that all schools and all student subgroups achieve the same level of performance, states must establish accountability systems, identify failing schools, and improve student achievement (Sunderman, 2010).

Prior to the 2014 – 2015 academic year, Florida students in grades 3-11 were given the Florida Comprehensive Achievement Test (FCAT) each spring in reading and mathematics as part of Florida's accountability system. Students in grades four, eight and ten were given an additional writing assessment and students in grade five, eight and ten received additional testing in science. Schools made Adequate Yearly Progress (AYP) by meeting the yearly state criterion in reading, mathematics and writing, and students were considered proficient if they achieved levels 3 – 5. A further requirement for AYP, however, was that the achievement of White, Black, Hispanic, Asian, American Indian, English language learners,

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economically disadvantaged students, and students with disabilities be measured and calculated both within the whole group and separately. Simply put, a school may fail to meet AYP due to one subgroup not meeting the reading or mathematics standard. For instance, if all students meet standards in reading but English Language Learners fail to meet standards in mathematics the school is not considered to make AYP (Eckes & Swando, 2009).

Under NCLB, a school that fails to make AYP two years in a row is considered a School in Need of Improvement (SINI) (U.S. Department of Education, 2001). Students who attend a Title 1 SINI and who come from low-income families (as defined by qualification for free or reduced lunch programs) are offered the opportunity for SES. Districts must allocate 20% of their Title 1 funds for SES services so these students can receive tutoring at no cost; Title 1 funds also support special preschool, after school, and summer programs to reinforce the regular school curriculum (United States Department of Education, Title 1, Part A Program, Types of Projects, 2010). Parents of students eligible for SES are notified at the beginning of the year and may select both a provider and an area of instruction (reading or mathematics). Eligible SES providers are approved by the state Department of Education and may be public, private, faith-based, or a local education agency. According to the Department of Education's Fiscal Budget Request (2011) 86% of approved providers across the nation were private providers as of May, 2007. Only 11% of approved providers were school districts or public schools. Once an SES provider has been selected, a minimum of 20 hours of tutoring must be furnished, and it may be provided either to individuals or groups and be conducted at the home, in the community, or in the school. Instruction

begins after SES providers administer a pre-test and write individual learning plans. The tutors also record attendance and administer a post-test.

Though regulations have been written, money has been spent, and services have been provided, research regarding the impact of SES on student achievement is still in its infancy. There is little evidence of the effectiveness of SES at improving student achievement (Burch, Steinberg & Donovan 2007; Fusarelli 2007; Henrich, Meyer, &Whitten, 2010; Munoz, Potter and Ross, 2008). Further, it can be difficult for parents to wisely select between providers. An analysis of SES provider effectiveness in Tennessee found no statistically significant effects on student achievement in reading/language arts or math (Ross, Neergaard, Harrison, Ford, & Paek, 2009). Finally, "SES accountability represents the weakest kind of policy design. It relies on self-reported data from providers, is complaince driven, and provides no money for the evaluation of the program" (Burch, 2007, p. 128).

Despite the lack of research on the efficacy of SES, $2 billion of Title I funding was allocated for SES services in a recent year (Bracey, 2005). In fact, just the Florida school district in which this study was conducted spent approximately $4,000,000 for SES services in one year (United States Department of Education, ESEA Title 1 LEA Allocations, 2010). SES providers for the district under study received $1390.00 for each participating child in 2010-2011, and the district served over 2,500 students that year. Given the magnitude of the expenditures for SES programs, policymakers and other stakeholders need to know the extent to which these programs are successful. The purpose of this study was to determine if participation in SES services

resulted in increased student achievement at a Title I elementary school in Southwest Florida. Specifically, the study compared achievement gains in reading and math for students who received SES services in grades K – 5 and those who qualified for SES tutoring but did not participate.

Method

Participants

Study participants were drawn from a Title 1 elementary school in Southwest Florida in which 99% of the students meet Florida's definition as members of minority groups and 98% qualify for free or reduced-price lunch programs. As such, all students qualified for participation in SES services. Students in the experimental group were those in grades kindergarten through five whose parents voluntarily consented for their child(ren) to participate in SES tutoring from October 2010 to January 2011; the control group was composed of students who did not participate in SES tutoring but were who matched with the experimental group on the following criteria during the same time period:

1. Grade level
2. For students in grades K – 2, Probability of Reading Success (PRS) score on the Florida Assessment Inventory for Reading (FAIR) during Assessment Period 1.
3. For students in grades 3 – 5, Probability of FCAT Success (FSP) score for reading, Reading Comprehension (RC) Score, and Word Analysis Assessment Scores (WAAS) of the Florida Assessment Inventory for Reading (FAIR) during Assessment Period 1.

4. Baseline District Math Assessment raw score for students tutored only in math.

Because participants entered the experimental group through voluntary self-selection, the number of participants varies by grade level and subject area in which tutoring was accepted.

Instruments

Florida Assessments for Instruction in Reading (FAIR).

The Florida Assessments for Instruction in Reading (FAIR) assess students in grades kindergarten through two in phonemic awareness, phonics, fluency, vocabulary, text comprehension, and spelling; testing for students in grades three through five is similar with the exclusion of phonemic awareness and the embedding of vocabulary within text comprehension (Elzie and Foorman, 2009). Content validity from the FAIR was derived from Florida Sunshine State Standards, and predictive validity of the Broad Screen was based on correlations with performance on reading in grades kindergarten through two on the Stanford Achievement Test (SAT). A student's Probability for Reading Success Score indicates the likelihood that he/she will perform at the 40th percentile or better on the end of the year test (Florida Assessments for Instruction in Reading, Technical Manual, 2009 – 2010).

In grades 3 – 12, the primary purpose of the broad screen is to predict future performance on the FCAT. The predictive validity of the broad screen was addressed through a series of linear and logistic regressions. A negative predictive power was utilized to develop FAIR cut points. The cut-point selected for the FAIR was negative

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predictive power of 85%. Those students identified as not at risk by achieving an FSP on the FAIR of 85% would achieve at least a Level 3 on the end of year FCAT reading test (Florida Assessments for Instruction in Reading, Technical Manual, 2009 – 2010). The Probability of Reading Success (PRS) score predicts the student's percent chance of being at or above grade level by the end of the year based on the performance for that assessment period and time of year. A student reading at the 40th percentile or better on the Stanford Achievement Test is meeting standards in reading (Florida Assessments for Instruction in Reading Technical Manual, 2009-2010). Grade 1 and Grade 2 PRS scores are derived from performance on the FAIR Test.

For this study the PRS was used to measure reading achievement in grades K-2 and the FCAT Success Probability (FSP) score plus Reading Comprehension and Word Analysis Scores were used to measure reading achievement in grades 3-5. The FCAT Success Probability (FSP) score is used to gauge the probability of passing the FCAT at each assessment period. However, because the FSP score includes prior FCAT as well as current FAIR reading comprehension ability, the FSP score is not a true measure of students' reading abilities.

Baseline District Math Assessment.

The District Baseline Math assessment was used to measure math achievement for students receiving supplemental educational services in math. The baseline and mid-year tests measure math achievement by grade level based on the Next Generation Sunshine State Standards for Math. The Math Baseline and Mid-Year Assessment were be used because the school district has decided this test is a valid indicator of student math achievement.

The test is administered in a paper and pencil format in 1st grade, and students in grades 2 – 5 are tested on a computer. Test scores are based on percentage of items correct. The Math District Assessment Test has been correlated to achievement on the FCAT for grades 3-5 by the school district but attempts to obtain the district's validity and reliability statistics have been unsuccessful.

Procedure

Student achievement data in reading from the FAIR Assessment Period 1(AP1) and FAIR Assessment Period 2 (AP2) were collected using the Florida Progress Monitoring Network (PMRN). Math District Assessment Baseline and Mid-year data were obtained using Pinnacle Analytics, a data storage base for student achievement in the school district. ANOVAs were used to compare the reading and math scores of students who received SES services to those of students that did not receive SES services.

Results

The purpose of this research was to study the effect of Supplemental Educational Services (SES) on student achievement in reading and math at a Title 1 elementary school in Southwest Florida. To determine these effects, three hypotheses were tested.

First, student assessment results were analyzed to determine if participation in SES tutoring resulted in statistically significant gains in reading achievement for students in kindergarten through grade two. Thirty-three students in these grades participated in tutoring, and were matched with 33 students who had achieved similar PRS scores during AP1. Prior to SES tutoring, the FAIR AP1 mean scores were 56.09 (SD 20.55) for the SES group and 56.24 (SD 20.05) for the non-SES group. After tutoring, the FAIR

AP2 means scores were 69.96 (SD 20.39) for the SES group and 62.96 (SD 21.93) for the non-SES group. Because these results indicated a gain in reading scores for participants in SES tutoring, an ANOVA was run to determine if the difference in reading performance after SES tutoring was significant. This ANOVA revealed that the difference between group means was not statistically significant at the .05 level (F (1, 64) = 1.601, p = .210).

Table 1

FAIR Mean Reading Achievement Scores Between

Measures	SES	Non-SES
	M (SD)	*M (SD)*
		AP1
	AP1	
FSP1	30.84 (23.58)	30.89 (22.82)
RC1	13.53 (12.70)	14.63 (16.25)
WAAS1	40.37 (20.85)	33.97 (25.60)
		AP2
	AP2	
FSP2	32.92 (22.69)	34.50 (21.89)
RC2	16.39 (15.45)	15.21 (10.56)
WAAS2	31.87 (22.83)	35.29 (24.29)

FSP1= FCAT Success Probability Assessment Period 1
RC1= Reading Comprehension Assessment Period 1
WAAS1=Word Analysis Assessment Score Assessment Period 1
FSP2= FCAT Success Probability Assessment Period 2
RC2=Reading Comprehension Assessment Period 2
WAAS2= Reading Comprehension Assessment Period2

The second hypothesis to be tested was to determine if SES tutoring resulted in statistically significant reading achievement gains for students in grades three to five. To determine this, 76 students were matched on FCAT Success Probability (FSP) Scores achieved during testing in Assessment Period 1 (AP1). The mean AP1 score for the 38 SES participants was 30.84 (SD 23.58) and was 30.89 (SD 22.82) for the 38 non-SES students. After matching, student

performance both prior to and after tutoring was compared on the FSP scores, Reading Comprehension (RC) scores, and Word Analysis Assessment Scores (WAAS). Table 1 shows mean performance by group on these measures both prior to and after tutoring.

Table 2 shows the changes in performance of each group on each of the subtests. Examination of this table reveals that while the SES group made larger gains on the Reading Comprehension subtest than the group that did not participate in tutoring, the opposite occurred for each the FSP subtest and the WAAS subtest. The mean gain by the non-tutored group on the FSP subtest was 1.76 points larger than the gain of the SES group, and the mean score of the SES group on the WAAS declined by 8.53 points after tutoring, compared to a gain of 1.37 points by the non-tutored group.

Table 2

Reading Gains Between SES and Non-SES Groups

Measures	SES M (SD)	Non-SES M (SD)
Gains FSP	2.13 (8.37)	3.89 (10.7)
Gains RC	3.29 (11.0)	.58 (15.1)
Gains WAAS	-8.53 (18.5)	1.37 (17.64)

An ANOVA was run to test for statistical significance of the between-group differences at the .05 level. Gains between groups for the FSP scores were not statistically significant ($F(1,74) = .640$, $p=.426$), nor were gains between groups for the RC scores ($F(1,74)=.754$, $p=.388$.) Gains between groups for the WAAS score were statistically significant at the 0.5 level, $F(1,73)=5.643$, p =.020. However, the gains made were significantly higher for the Non-

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SES group, and the SES group had a decline in test performance after tutoring.

The third analysis looked for differences in mean mathematics achievement in grades 1 – 5 for students who participated in SES tutoring compared to students who did not participate in SES tutoring. Table 3 displays the mean results for beginning of the year baseline test and the mid-year math assessment along with the gains made between each assessment for each group.

Table 3
District Mean Math Baseline and Mid-Year Scores by Group Grades 1-5

Measures	SES[a] M(SD)	Variance SES	Non-SES[b] M (SD)	Variance Non SES
Mid-Year	55.86 (15.04)	240.361	55.11 (13.85)	191.810
Baseline	42.49 (10.04)	100.904	42.09 (10.08)	101.787
Total Gains	13.37		13.02	

[a]n=35
[b]n=35

Results of an ANOVA indicate that the mean math gains between the SES group and the Non-SES group was not statistically significant at the .05 level ($F(1,68)=0.55$, $p=.815$); participating in SES tutoring in math did not result in increased student math achievement when compared to students who did not participate in tutoring.

Discussion

Implications

Though relatively little research has been conducted on the efficacy of SES, both the studies reported earlier and the study described in this paper come to the same conclusion: there is no evidence that SES increases student achievement. Further, successive studies of SES implementation in a variety of locations each confirm this finding. This is concerning, especially because the 20% Title 1 funding requirement means that less money is available for competing approaches to increasing student achievement such as preschool, after school, and summer programs. Based on these findings, it would seem that wise policy makers would come to one of two conclusions: either discontinue the requirement for provision of SES or find ways to improve a system that is not accomplishing its objective.

Should policy makers consider discontinuing SES, a number of options exist for reallocation of the funding. One of these would be to cede control of the newly available funds to local school districts, each of which would presumably understand its own special needs and be competent to develop solutions for underachieving Title 1 students. Local districts might choose to expand options currently available such as preschool, summer programming, or after school tutoring by currently employed and certified teaching staff. Other strategies local districts might wish to pursue include reducing class sizes for this student population, purchasing technology that will allow for more focused instruction, or providing training and incentives for parents, older siblings, or community members to provide in-home homework assistance. It should be expected that school districts will come up with other novel

approaches based on their knowledge of local cultures and the types of educational problems they are facing. It is reasonable to expect policy makers, when giving control of funding to the districts, to also require accountability measures to document the effectiveness of any approaches tried.

It is probably more likely that policy makers will want to maintain control of funding, however. If so, another solution to the problem is to fix the system that is currently in place, making SES more effective. The place to start on this is by looking at the current system to find its weaknesses.

One current weakness of SES is that no qualifications for service providers are stipulated. If it is logical to assume that our current system of certification is necessary to insure that teachers are qualified to teach, it seems illogical to assume that SES providers with no minimum qualifications are likely to improve instruction and gain better results for students. Rather, in exchange for receiving government funding to increase student achievement, SES providers should be required to insure that their employees have the skills and training necessary to work effectively with children. As such, requirements for degrees in the subject area tutored, teaching certification, or some other measure of qualification must be established.

Second, payment for independent providers must be dependent on the achievement of results. Under current systems, schools receive financial rewards when their students do well on standardized tests and are punished financially when their students fail to make expected progress in learning. Providing financial incentives to private companies with no requirement for quality performance seems counterintuitive.

In general, for-profit companies seek to maximize earnings by selling their product (in this case, student tutoring) for as much money as possible while paying as little as possible for the material of production. IF they follow this model, SES providers currently have incentives to hire the least expensive tutors that they can, regardless of qualifications, and employ them for a minimum period of time (currently 20 hours), thereby maximizing their profits. It would seem more likely that good results will be achieved for students if individual target achievement goals are set and providers receive payment only after these goals have been hit. For example, students could receive independent pretesting, an appropriate achievement goal could be set, and tutoring could be conducted. When formative assessments convince the provider that the targeted goals have been achieved, an independent summative assessment could be performed to determine compensation.

Use of this strategy might allow several other possibilities. First, a series of achievement goals could be set for each student, allowing the provider to receive incrementally higher payments for different amounts of student achievement. Another possibility would be that the gain scores of individual students are combined, and service providers are rated and paid based on their overall level of success. Use of this approach would also allow disqualification of service providers whose results do not meet minimum standards. The critical factor is that there must be independent evaluation of results to determine the efficacy of services before payment is made, similar to the treatment of public schools under current school rating systems that reward or punish schools based on student achievement. Finally, it is recommended that student progress continue to be monitored after

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cessation of tutoring to make sure that learning gains are sustained.

Limitations

Though the authors believe that the findings of this study are valid, there are a number of limitations to the study that were beyond their control. First, no information was available from providers regarding the length of tutoring that was provided to each student. Analysis of these data may have revealed that there is a threshold level of service above which tutoring is successful, thus guiding future practice. Related to this, there was also no information regarding the qualifications of individual service providers, the curriculum used by providers, or the setting in which services were provided. Again, analysis of these variables may have allowed for identification of more versus less effective practices. Finally, no information was available regarding the size of the groups of students undergoing tutoring. Better control of this variable may have resulted in findings that would have guided future attempts to group students to achieve maximum success.

Conclusion

Accountability has been at the fore of educational reform efforts, as evidenced by legislation such as the No Child Left Behind Act. As part of this accountability, the progress of individual students, subgroups of students, schools has been measured, with financial rewards and punishments for schools dependent on the results. The same level of accountability has been lacking, however, for the private providers that tutor failing students at great expense to the American taxpayer. This study and others like it demonstrate that the payment of 20% of Title 1 funding to private SES providers has not resulted in

achievement gains for failing students. As such, oversight similar to that imposed on public schools should be imposed on the private SES providers, or other means must be found to increase the achievement of students whose performance continues to lag more than a decade after the passage of No Child Left Behind.

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Abstract

We investigated strategies that a literacy teacher educator used to develop preservice teachers' culturally responsive pedagogy. This study focused on (a) implementation of literature circles, (b) preservice teachers' (n= 29) reading and analysis of multicultural children's literature, (c) preservice teachers' reader response reflective journals (RRRJ), and (d) reading comprehension strategies. We analyzed interviews with the professor and RRRJ (87 responses) as well as the course syllabus, reader response guidelines, and course evaluations to understand the lived experiences of the participants. We found preservice teachers recognize the benefits of literature circles and the utilization of RRRJ to develop an understanding of reading comprehension strategies and ways to talk about culture.

Culturally responsive pedagogy requires teachers to explore their beliefs and assumptions about their own culture, learn about cultures other than their own, and develop strategies for promoting equity within classrooms and schools (Banks, 2006; Gay & Kirkland, 2003; Villegas & Lucas, 2002). The true focus of a multicultural curriculum is for teachers and students to develop cross-cultural competencies and envision themselves as citizens of a global society where their fates are linked to the fates of all people (Banks, 2006). Within teacher preparation programs, multicultural education is a vehicle through which preservice teachers may come to value culturally responsive literacy pedagogy and develop teaching practices that address social justice issues in the classroom.

Teacher educators have many tools for teaching literacy methods and developing culturally responsive teaching (CRT) with their preservice students. In the present study, we investigated the use of literature circles and reader response reflective journals (RRRJ) as culturally responsive literacy tools for deep engagement with a piece of multicultural literature. The purpose of this study was to investigate the teaching strategies used by an experienced literacy teacher educator whose goal was to foster preservice teachers' development of culturally responsive pedagogy within the context of a face-to-face university course in literacy methods. This study focused specifically on (a) the professors' implementation of literature circles, (b) preservice teachers' reading and analysis of a multicultural children's novel (*Maniac Magee*) as participants in literature

circles, (c) preservice teachers' reader response reflective journals, and (d) reading comprehension strategies taught in the course. We specifically addressed this research question:

- How can literature circles focused on multicultural literature along with reader response reflective journal (RRRJ) writing foster Culturally Responsive Literacy Pedagogy with preservice teachers?

Multicultural Literature and Deep Engagement

Understanding and constructing meaning from text is at the heart of comprehension instruction and is a strong predictor of academic achievement for all ages (Allington, 1983; Alvermann, 2002; McIntyre, Hulan, & Layne, 2011). Luke, Dooley, and Woods (2011) observed in classrooms where literacy instruction focused on the teaching of explicit comprehension strategies, such as inferring, main idea, fact finding, and making connections. They found this type of skill instruction left students without substantive engagement, deep content knowledge, or connection to their lives. An approach to teaching comprehension that offers students the intellectual and cultural content for engagement and critical thinking about diversity and social issues is literature circles using multicultural literature. This shift in comprehension instruction can move students from "doing comprehension," a basic skills approach that focuses on literacy instruction for high stakes testing, to a "cognitive and social and intellectual phenomenon" (p. 150).

Gunn, Bennett, & Morton (2013) assert teachers should choose multicultural literature that offers students opportunities

to learn about themselves and others. Multicultural children's literature that addresses social issues can bridge school and home cultures, challenge stereotypes, as well as foster students' appreciation of diversity and interrogation of societal inequities (Au, 2011; Gay, 2010; Madhuri, Han, & Laughter, 2013). Research suggests that the literature and pedagogical strategies teachers use in their classroom shape how children see themselves, the past, and the world (Apol, Sakuma, Reynolds & Rop, 2003).

Literature Circles

In literature circles, small groups of students discuss various types of text in depth. Literature circles, which are often used in kindergarten through high school classrooms and in adult book clubs (Daniels, 2002; Mills & Jennings, 2011), provide opportunities for students to engage in critical thinking and reflection and to accept ownership of their reading processes as they share conversations about a book in a community setting. Literature circles support students in formulating and developing their thoughts about a text and repositioning their thinking based on the ideas and interpretations of others (Blum, Lipsett & Yocom, 2014; Schlick Noe & Johnson, 1999). Long and Gove (2003/2004) maintain that discussion of well-chosen literature should include reflexive thinking and should "create an environment that promotes curiosity and questions, and pushes reading, writing, thinking, feeling, talking, and taking action beyond the obvious" (p. 350). Literature circles offer an excellent forum for students to retell for clarification, discuss motivations of characters, create connections to their own lives and other literature, critique social worlds, and

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construct meaning in a collaborative manner.

Reviewing eight years of research on the teaching of literature conducted by the National Research Center on Literature Teaching and Learning, Langer (1998) concluded that literature is best taught in a "thought provoking, envisionment-building classroom as a social community composed of individuals with multiple social identities as well as personal interests and concerns that necessarily affect individual understandings" (p. 22). In these types of classrooms, students as a class or in small groups can express their differences, hear what others have to offer that may be different from their own ways of thinking, and "move their own thinking toward more individually rich, but never singular, interpretations" (p. 22). Literature circles in teacher education courses provide a setting for preservice teachers to develop their thinking and reasoning skills, to understand differing positions and perspectives, and to feel empathy for the beliefs and experiences of others.

Self-Reflection

Self-reflection deepens and broadens an individual's perspectives on multicultural issues. Both teachers and students bring their cultural influences and assumptions to school (Zeichner & Liston 1996). Teachers' beliefs and values develop from their experiences, and teachers identify how their own biases affect others in the classroom as they acquire self-knowledge (Gunn, Bennett, & Morton, 2013; Hale, Snow-Gerono, & Morales, 2008). Research indicates to achieve this self-knowledge, it is essential for preservice teachers to critically reflect about experiences with students from diverse ethnic, linguistic, and cultural

backgrounds (Adams, Bondy, & Kuhel, 2005; Sleeter, 2001). Culturally responsive teachers demonstrate awareness of differentness of self and others, as well as relatedness to other people and cultures (Howard, 2006).

Reflection offers an avenue for preservice teachers to experience cognitive dissonance, a mental discomfort that may occur as they recognize their prior assumptions and expectations conflict with new information. Cognitive dissonance is necessary for change. With change, preservice teachers develop a conscious self-awareness including an awareness of their own biases and prejudices (Bennett, 2010). Therefore, reflection allows preservice teachers to achieve better understanding of their students' cultures and to realize the importance of linking family, home, culture, and learning (Gunn, Bennett, & Morton, 2013; Vogt & Au, 1994). It is the role of the teacher educator to engage preservice teachers in experiences and authentic materials for the facilitation of meaningful reflection. Allen and Hermann-Wilmarth (2004) realized teachers had no reference point to analyze reflections as they pertain to oppression, race, or stereotypes and to understand how their self-awareness affects interpretations of students. One way to afford preservice teacherss the opportunity to encounter a range of perspectives can be through the use of literature circles and multicultural literature.

Theoretical Frame

Designing and fostering a classroom community that promotes cross-cultural understandings is the foundation of a culturally responsive literacy educator. Teachers and students promote respect, self-reflection, and empathy as goals

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(Stallworth, Gibbons, Fauber, 2006). In our analysis of the teaching of this literacy course, we utilized Empathic Identity and Sociocultural theories to understand the meaning making process throughout this course (Rogoff, 1995; Wiseman, 1978). Rychly and Graves (2012) describe four teaching characteristics and dispositions essential for teachers if they are going to develop a culturally responsive teaching pedagogy. Preservice teachers and teachers are (a) empathic and caring, (b) self-reflective about their own beliefs, (c) self-reflective of their own culture, and (d) knowledgeable about other cultures. Teacher educators can foster opportunities for preservice teachers to understand others by engaging them in literature circles followed by self-reflection, McAllister and Irvine (2002) suggest empathy has a vital role in teaching students from diverse backgrounds. While engaged in collaboration, social interaction, and problem-solving opportunities and experience, teachers acquire beneficial understanding of effective teaching (Richards, 2006). Some theorists believe social interactions are essential to learning (Lave & Wenger, 1991). Novices learn from experts through participation, and beginners move from the periphery to the center of a community as they increase their knowledge, skills, and understandings through immersion in sociocultural situations (Lave & Wenger, 1991; Nasir & Hand, 2006). In addition, these experiences facilitate preservice teachers' development of empathetic identity for the other and the ability to imagine another person's experiences (Wiseman, 1978). Therefore, through social interactions preservice teachers learn to position themselves in the lives of students from different cultural backgrounds.

Methods

This study employed a case study design because we chose to explore the perceptions of preservice teachers within one teacher education literacy course (Yin, 2003). We wanted to better understand the participants, preservice teachers, within a particular setting bounded by time and place with detailed data collection through multiple sources (Creswell, 2007; Yin, 2003). Case studies focus on information gained through experience in a context, such as a social or cultural setting (Stake, 2005). We wanted to contribute to the knowledge of preservice teachers' understandings about culturally responsive pedagogy and literacy instruction embedded within a specific context.

Context and participants

We conducted this study at a university in an urban setting in the Southeastern United States and focused on the study of one intermediate literacy classroom where the professor identified her teaching approach as Culturally Responsive Pedagogy. We utilized convenience sampling because the participants were accessible and willing to participate (Onwuegbuzie & Leech, 2007). All 29 preservice teachers enrolled in this teacher preparation course agreed to participate in the study after IRB approval. The preservice teachers mirrored the current teaching population with the majority being white females: twenty-six females and three males. One participant identified as African American and two identified as Latinas as noted by the course professor.

The course professor required two books for the part of the course related to

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the teaching of reading comprehension strategies: *Mosaic of Thought: Teaching Comprehension in a Reader's Workshop* (Keene, Zimmermann, & Graves, 1997) and *Maniac Magee* (Spinelli, 1990). The professor utilized *Mosaic of Thought* to teach reading comprehension skills and strategies, as well as to provide a theoretical foundation. *Maniac Magee* served as a multicultural children's novel to apply the comprehensions strategies learned from *Mosaic of Thought*.

Maniac Magee is a novel written at the intermediate elementary reading level and focuses on issues of race, homelessness, equity, and social justice. Maniac is an orphaned boy who runs away from his aunt and uncle to find himself in a fictional town in Pennsylvania. The town is divided into two sides: the East and West; the Blacks live in the East and the Whites in the West. Maniac never appears to recognize the racial differences or tensions that exist and befriends people on both sides.

Preservice teachers kept journals related to their reading of both books. They first read assigned chapters in *Mosaic of Thought* and recorded their responses. Then they applied the comprehension strategies discussed in those chapters to their reading of particular chapters in *Maniac Magee* and recorded their responses. In class the course professor discussed the chapters in *Mosaic of Thought*, followed by preservice teachers participating in literature circles centered on the chapters of *Maniac Magee* read for that class. Whole class discussion followed. After literature circles, the preservice teachers reflected on how their ideas changed, developed, or were expanded on during the literature circles and whole class discussions. Further details of the assignment can be seen in the reading response assignment sheet in the Appendix.

Data

Interviews. The first and second authors of this paper conducted two informal interviews with the professor of this course, who is the third author on this paper, after completion of the course but before data analysis. We interviewed her a second time for clarification and to dig deeper into understanding her perceptions of the course.

Reading Response Journals. The reader response journals provided a space for the preservice teachers to self-reflect as they applied reading strategies to the course text and *Maniac Magee*, as well as to reflect on their experiences participating in literature circles. We analyzed a total of 87 reflections for this study.

We utilized other course documents, such as the course syllabus, reader response guidelines, and course evaluations to understand the lived experiences of the participants of this course.

Data Analysis

We increased the rigor and trustworthiness of our discoveries through triangulation of data collection including interviews of the classroom teacher, preservice teacher reflections through journal writing, and other course documents (Leech & Onwuegbuzie, 2007). After data collection, we conducted thematic analysis with the data. For this type of analysis, the researcher codes, categorizes, and finds patterns that represent the implicit and explicit themes in the data. The researcher then interprets and suggests meaning from those themes (Guest, MacQueen, & Namey, 2012).

Findings

We found preservice teachers in this classroom recognize the benefits of participation in literature circles and the utilization of reader response journals to develop an understanding of reading comprehension strategies and ways to talk about culture in classroom settings. The literature circles and reader response journals enhanced their understandings while providing a channel for deeper introspection. We identified four overarching themes from the data: revelations and connections; coming untangled: cultural divide; teachers as change agents; and beneficial, positive experiences.

Revelations and Connections

Preservice teachers made note of revelations throughout their experience with literature circles and journaling: "So many times I read a book & have such revelations & connections but I don't write them down." Two subthemes of revelations and connections appeared consistently in the data: personal to deeper and social engagement and prior experiences.

Personal to deeper. Preservice teachers suggested their personal connections helped them to make deeper connections to the multicultural text (Kern, 2008), which they enjoyed; **"I kind of like making (and taking note of) personal connections."** During the semester, they enhanced their personal discoveries of reading to a deeper level. One revelation focused on preservice teachers' realization that they were thinking and using reading comprehension strategies. Many of the preservice teachers learned "that I actually am thinking when I read," and "I didn't even realize some of the strategies I was using."

Preservice teachers realized literacy does not just include reading, but they demonstrated a new understanding of the significant role writing and speaking plays in literacy: "I learned that I am able to comprehend the information better when I was writing my journal and then discussing it in class." In addition, preservice teachers recognized the journals and literature circles provided opportunities to develop more profound thoughts: "I think I thought about the book deeper doing the journal," and "…I had a deeper understanding of *Maniac Magee* because of the journal I kept." They also gained knowledge and understanding on a deeper level; **"With keeping a journal, I had to <u>think</u> about what I read as I went along. By doing this, and re-reading, I was able to get so much more out of both books."** Another preservice teacher expressed:

> I really thought about my own thinking and reading more than I ever had. I became very aware of what and how I was thinking. I really enjoyed the experience of being able to practice the strategies presented in MOT [Mosaic of Thought, textbook] and Maniac Magee.

The reading response journals and literature circles expanded preservice teachers' understandings of literacy as they made personal connections and experienced revelations.

Social engagement and prior experiences. Preservice teachers shared valuable knowledge and understandings they acquired because of their engagement in this social interaction in authentic social contexts (Richards, Bennett, & Shea, 2007;

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Rogoff, 1995). Revelations centered on learning about different perspectives and learning from other individuals. For example, one preservice teacher stated, "I learned that I gain so much more from working with other people than I would get out of a book myself," and another one said, "Sometimes I gained new ideas, sometimes I disregarded old ones, and sometimes I even expanded on predetermined ideas." Preservice teachers thought "talking in a circle made things clearer" and their "interpretations changed after" meeting in groups.

Preservice teachers gained some valuable information about literacy processes but also about how prior knowledge and background experiences impact learning, in particular with students from diverse backgrounds. For example, this preservice teacher wrote, "Someone with the lack of prior knowledge may have difficulty comprehending readings if they can't connect it with some kind of prior knowledge." From their experiences, the preservice teachers noticed the importance of valuing the opinions of their peers. One preservice teacher illustrated this point:

> Everyone's input for this literature circle seemed to spark varied comments from every person in the room. I think we all went home with few information and new things to think ab out. Sometimes people agreed on the answer to a question that was posed and sometimes people disagreed, but no one devalued anyone else's opinion, and I think that is one of the greatest lesson[s] that I learned from doing this activity.

Through the conversations in the literature circles, preservice teachers expanded their abilities to listen to different perspectives, and one preservice teacher believed the experiences "opened my eyes to many possibilities; definitely more than I would have been exposed to without the discussions." A preservice teacher suggested, "These times of peer discussion were very helpful in opening up my views to other people's perspectives. I was able to think about things I would not have on my own."

Preservice teachers became cognizant and aware of new understandings from interaction with their peers. They now recognized how the different perspectives and prior knowledge might be like "reading a different book" and their peers might experience the book while "thinking of different things and having different emotions."

Coming Untangled: Cultural Divide

Many of the preservice teachers' journal responses illustrated an understanding of the "intercultural dilemma" (Stiegelbauer, 1986) that took place in the multicultural novel. Their responses identified that the characters and town were divided by race. Furthermore, many of the preservice teachers' responses revealed their understanding of the cultural divide in *Maniac Magee*.

Preservice teachers believed "…he [Maniac] doesn't understand why everyone is so against people of their different color," and "Maniac was sent to teach others about racism" and "take some hand in bridging the racism gap." They thought a significant image of this cultural divide was a giant knot that only Maniac could untangle: "We think the knot may be like the white and blacks are all tangled up and Maniac who is comfortable with both races is able to undo

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the knot." Through their reflections and literature circles, the preservice teacher developed deeper understandings of the cultural divide within *Maniac Magee.*

> …overall message…you can't judge people that you don't know because what you might think about them could be a falsehood. Also, you shouldn't listen solely to other people's opinions, it is important to form your own so that you stay in control of your life and not have to live in fear of people who are different from you.

Preservice teachers discussed the cultural divide in the book, but they also began to reflect on how it related to their life. Two preservice teacher shared childhood memories: "When Maniac took a bite of Mars Bars candy bar, I remember when I was little and a little black boy and I shared an ice cream cone and everybody stared at us and made strange comments." The other preservice teacher wrote,

In the book when it said, 'What was he doing in the east end where almost all the kids were black?' made me think when I was younger and I was in a singing group and we went to a church where there were all black people. I kept visualizing all the black people in the church and the singing troupe being all white.

Some preservice teachers broadened their perspectives; "I feel that the point of the book was to look beyond the west or east end; to branch out and not be so afraid of people just because they are different than you are." In addition, another preservice teacher commented, "I'm enjoying looking at the world through Maniac's eyes. It's honest, genuine, and sincere way to view other people."

Preservice teachers initially discussed the cultural divide within the text but later connected the cultural divide to their lives.

Teachers as Change Agents

Immediately following the literature circles, the preservice teachers had the opportunity to reflect on the discourse that focused on the multicultural children's book. Written reflections revealed preservice teachers' developing traits of a culturally responsive pedagogy by demanding an affirming attitude for students of diverse backgrounds and becoming an agent of change for all students. For example, one preservice teacher shared a connection between *Maniac Magee* and teaching, "It brings up issues such as racism, finding a place to fit in, and I think there was an underlying message that to make a change we should start with children." One preservice teacher thought community building, such as with literature circles, is "particularly important to realize as teachers, especially when we need to consider our students' life experiences, culture, and prior knowledge. What they as reader's come away with, may be something quite different than what was expected."

Preservice teachers understood the significance of reciprocal learning and building communities, an important aspect of culturally responsive pedagogy (Ladson-Billings, 2009). One preservice teacher commented, "These circles give the classroom a sense of community where everyone can learn from each other," and another one said literature circles could "boost the student's sense of self-esteem and feeling of classroom community." Preservice teachers also recognized literature circles created a space for students to develop empathy: "they can put

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themselves in the place of others and be able to give sympathy or joy or some kind of emotion."

Another preservice teacher extended this thought and recognized how important her background was to teaching: "I think that this is important to understand as a teacher because your students will probably come from a different background than you and they may connect to some things and not to others and they may find that importance lies in something you did not think of." Preservice teachers illustrated how literature circles will help as an agent of change: "Students also have the chance to look at social and cultural issues going on in the world around them through the diverse backgrounds of their classmates." Preservice teachers' reflections revealed new understandings of diversity and how backgrounds impact learning communities. They began to develop culturally responsive pedagogy and see themselves as change agents.

Beneficial, Positive Experiences

Preservice teachers provided reflections that expressed benefits of literature circles for students of various levels of education. One preservice teacher shared, "I think it is more than a benefit for students to discuss what they read; I think it is essential," and another said, "I think that students would greatly benefit from literature circles…" Additionally, one preservice teacher communicated, "…students of all ages would benefit greatly from Literature Circles. Peers are an excellent source of teaching and learning." Preservice teachers identified literature circles as a way to reach students on an emotional level and create a community: "This would help boost the student's sense

of self-esteem and feeling of classroom community."

Preservice teachers not only shared the benefits of literature circles for their students but also the positive, "excellent experience" they had with literature circles during their university coursework. A preservice teacher wrote, "I found the literature circles to be helpful in having me look at things differently." This idea of helpfulness resonated in their written reflections and connected to their future classroom instruction: "I have found the experience very helpful and can understand completely why teachers would want to have literature groups in their classrooms."

Discussion and Implications

Our research demonstrates teacher educators might use instructional techniques such as literature circles and reader response journals as one way to better prepare teachers to teach literacy with a social justice orientation. From their discussions, reader response journals, and literature circles, preservice teachers discovered these approaches to literacy offer positive and beneficial experiences for all students. Preservice teachers recognized how significant aspects of sociocultural and situated learning theories apply to their development and growth, such as through participation and collaboration (Lave & Wenger, 1991; Rogoff, 1995).

As supported by research, literature circles facilitate emotional and deep engagement while students read and share their thoughts (Long & Grove, 2003/2004). Through literature circles, students demonstrate improved social behavior and build self-esteem (Blum, Lipsett, & Yocom, 2014). Preservice teachers recognized the value of social interaction, dialogue, and

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conversation with their peers as a way to learn (Lave & Wenger, 1991; Nasir & Hand, 2006; Rogoff, 1995). Literature circles offer opportunities for students to listen to each other and develop an understanding to value other individuals' opinions (Blum, Lipsett, & Yocom, 2014). In addition, preservice teachers understood how connections between reading, critical thinking and reflection, discussion, and writing facilitate learning within the classroom and how to move beyond traditional methods of teaching.

Preservice teachers from these experiences in this course had revelations about their perspectives while utilizing comprehension strategies. The preservice teachers shared revelations that they used comprehension strategies and actually were thinking while reading and suggested literature circles provided a better way to comprehend the multicultural text (Blum, Lipsett, & Yocom, 2014). During discussions, they continued these revelations with critical reflection about their discussions. As one preservice teacher stated, "Sometimes I gained new ideas, sometimes I disregarded old ones, and sometimes I even expanded on predetermined ideas." Preservice teachers developed critical literacy strategies through literature circles. They began to raise questions, move beyond traditional beliefs about reading, and listen to multiple perspectives (Lewison, Flint, & Sluys, 2002; McLaughlin & DeVoogd, 2004). It is this type of rich intellectually challenging curriculum, in lieu of direct instruction of comprehension skills McKeown et al. (2009) reported, that improved test scores, lowered incidence of classroom behavior problems, increased attendance rate, and facilitated more time being engaged on tasks.

The impetus to read a multicultural text, *Maniac Magee*, stemmed from our goal as teacher educators to develop culturally responsive, empathetic teachers, who could effectively teach literacy. As teacher educators, we recommend utilizing various instructional approaches, such as literature circles and reader response journals or other forms of self-reflection, to better prepare preservice teachers to integrate multicultural texts and develop culturally responsive pedagogy (Bergeron, 2008). The preservice teachers in this study illustrated some important characteristics of a culturally responsive teacher. They noticed from their experiences how different individuals interpret and perceive a text and then recognized how important background and prior knowledge impacts students learning (Gay, 2010; Ladson-Billings, 2009). The preservice teachers proposed that building communities are essential in a classroom. In addition, they suggested English Language learners would benefit from literature circles for various reasons: fluency, self-esteem, and learning English. Literature circles facilitate fluency in engaged readers and writers (Long & Grove, 2003/2004).

Preservice teachers made deep, personal connections to the literacy aspect of the literature circles and developed some characteristics of culturally responsive pedagogy. As the preservice teachers discussed the multicultural text *Maniac Magee,* they revealed understanding of the cultural divide. They suggested the town was divided because of race and began conversations to identify with the characters. The preservice teachers shared reflections of childhood where they saw segregation between the races. As teacher educators, we must foster opportunities for preservice teachers to develop as empathic teachers and not reinforce stereotypes. We

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recommend that during literature circles, teacher educators guide conversations with preservice teachers to challenge assumptions, beliefs, biases, or prejudices within the text or with themselves.

As teacher educators, we need to explicitly provide preservice teachers with more ways to question the unequal power in relationships from a critical literacy and culturally responsive perspective (McLaughlin & DeVoogd, 2004). Multicultural literature is a springboard for critical thinking, and preservice teachers sometimes require questions framed around social justice, multiculturalism, or diversity in order to develop greater understandings (Long & Grove, 2003/2004). Critical literacy through literature circles makes text meaningful and relevant to students while developing empowerment and community, which is essential to culturally responsive pedagogy (Gay, 2010; Ladson-Billings, 2009; Morrell, 2002).

The preservice teachers suggested they heard different perspectives; "I found the literature circles to be helpful in having me look at things differently." However, the majority of the participants were White women, representative of the teaching population, which may have limited diverse perspectives within discussion groups. In order to develop deeper understandings of diversity, multiculturalism, culturally responsive pedagogy, and social justice issues, teacher educators can scaffold approaches to critical reflection with conversations and reflections throughout all coursework and with community involvement projects. We recommend that multicultural education, culturally responsive pedagogy, and social justice issues be intertwined in all aspects of teacher education programs, including internships (Hill, 2009; Villegas & Lucas, 2002).

We wish to end with a quote for pondering and reflection:

If readers review principles of school reform for equity and social justice and then turn to describe successful local schools that generate not only test score gains, but also lower incidence of behavioral problems, and higher levels of attendance, student engagement and time-on-task, and improved secondary retention and pathway articulation—they will likely encounter rich and intellectual challenging curriculum (Luke, Dooley, & Woods, 2010, p.23)

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Appendix

Reading Response Journal Assignment

Keep a journal related to your readings of *Mosaic of Thought: Teaching Comprehension in a Reader's Workshop* by Keene & Zimmermann and *Maniac Magee* by Spinelli. Your journal entries should be on separate sheets of paper, not a spiral notebook, so you can add pages if you wish. When you are finished with the journal, assemble all the pages in some type of folder or notebook. The final pages should be typed unless otherwise indicated by the instructor for particular entries. You should include the following in your journal, in the order indicated below.

1.   Think-Aloud Record your thoughts as you read aloud a short passage of at least a page or two from any text. Write a paragraph about the experience of doing a think-aloud.

2.   Reflections on chapters in *Mosaic of Thought* Beginning with Chapter 3, write a one-page reflection for each chapter. First summarize the key points from the chapter, and then add your personal reflections.

3.   Reflections on *Maniac Magee* Beginning with Chapter 4 of *Mosaic of Thought*, write your reflections about *Maniac Magee* according to the following format. For the particular pages listed below in *Maniac Magee*, apply the comprehension strategy discussed in the corresponding chapter of *Mosaic of Thought*.

Maniac Magee	Mosaic of Thought
pp. 1-29	Ch. 4 - Prior Knowledge
pp. 30-63	Ch. 5 - Determining Importance
pp. 64-99	Ch. 6 - Questioning
pp. 100-123	Ch. 7 - Sensory Images
pp. 124-152	Ch. 8 - Inferring
pp. 153-184	Ch. 9 - Synthesis
entire book	Ch. 10 - Tying it all together

Write your reflections before class and the literature circles. For example, when reading pages 1-29 of *Maniac Magee*, think about how your prior knowledge and experiences relate to those pages of the book.

4.   Reflections after literature circles After participating in literature circles and class discussion, add another page to our reflections about how your ideas were expended on in class or how they changed or developed because of sharing with class members.

5.   Reflect on how you might use literature circles in your own classes.

6.   Discuss how you would use literature circles in ESOL infused classes. How would the strategy work with ESOL students at each of the four levels of fluency? Discuss any modifications you might make for ESOL students.

October 19	Mosaic of Thought, Ch. 1-3 Write reflections on Ch. 3
October 26	Mosaic, Ch. 4-5 Maniac, pp. 1-63
November 2	Mosaic, Ch. 6-7 Maniac, pp. 64-123
November 9	Mosaic, Ch. 8-10 Maniac, pp. 124-end

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Abstract

This article describes a partnership between a university literacy consultant and elementary educators in grades 2-4 to implement small group reading instruction during teachers' literacy block. Further, I discuss the process and outcomes of our efforts: research based instructional approaches, the importance of collaboration between K-12 schools and higher education, data and findings, and the future paths of our partnership.

As reading teachers, our enduring goal is best practice: knowing how to teach, understanding students' needs, and using the latest in research-based instructional techniques. As a literacy consultant, best practice was the foundation of my experience while working with elementary teachers. Specifically, the best practice implemented in this professional development was the integration of small group reading instruction. Research shows that students benefit from small group instruction. The small-group, differentiated reading model considers research-based strategies and enables teachers to focus on specific skills needed by varied groups of children (Tyner, 2009). Believing that learning takes place on two levels: the "actual developmental level" and the "potential developmental level," Vygotsky (1978) presented the zone of proximal development (ZPD).

Meet the Partners

My partnership with this rural school district began in August 2012 with an invitation to collaborate with teachers of literacy. Located in northeastern Pennsylvania, the district accommodates nearly 900 students across four buildings.

Together, we decided the goal to improve literacy would be best met by further developing the teachers' knowledge of best practices in literacy. Additionally, the teachers would need the support as they try new techniques in a variety of instructional settings.

Beginning the Journey: Pre-Assessment

In order to gain an understanding about teachers' current literacy needs and target possible instructional gaps, I met with the teachers in a staff development meeting before the start of the school year. The professional development meeting totaled 150 participants, including the district's K-4 teachers, instructional specialists, and administrators. Following a brief introduction, we organized the teachers by school and grade level. It was our goal to determine the strengths and needs of the teachers' literacy instruction. They were asked to display the elements of their literacy block on a large poster for presentation. They used two guiding questions to accomplish this:

- What does literacy instruction look like in your classroom?

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• What are the students and the teacher doing during the 90-minute literacy block? After displaying their posters on the wall, teachers engaged in a gallery walk to compare their literacy block to other classes and grade levels. Conversations started as they compared their instructional techniques to those in other classes.

Next, teachers were asked to respond in writing to two questions:

• What works well during your literacy block?
• What would you like to improve during your literacy block?

The teachers appeared to put some thought into their written responses, and most were eager to share their ideas. See pie charts A and B for the breakdown in responses. Our third form of pre-assessment was conducted through classroom visits in grades 2-4. During our visits, teachers were not given anything specific to demonstrate but instead, asked to teach their literacy lessons as scheduled.

These three forms of pre-assessment were helpful in giving us insight into the needs of teachers and students. Additionally, sharing across grade levels and schools unified the teachers as learners in the endeavor to try new instructional routines. After reflecting on this day of professional development and debriefing with the principals, I decided to work with the teachers in grades 2-4 for one year. This would give us a more manageable learning community consisting of 24 teachers, 4 reading specialists, and 2 principals.

The Baseline Data

The posters that portrayed the teachers' literacy blocks and their written responses suggested an imbalance in the teaching and learning of literacy. It was evident that small group reading instruction was missing from most of the teachers' daily literacy instruction. The posters also presented a clear absence of instructional routines and grouping methods that typically serve as the foundation for differentiating literacy instruction. Information obtained from the K-1 written responses indicated that improvement was needed with *literacy centers, guided reading, differentiating instruction, and writers' workshop*. Areas that needed improvement in grades 2-4 reflected *differentiating instruction, centers, writing, using leveled readers, partner reading, and readers' workshop*. Charts A and B indicate the areas of needed improvement and the percentages based on teachers' responses. The most common responses included centers, guided reading, and differentiating instruction. The "other" category indicated on the pie charts included various individual responses that did not necessarily pertain to literacy such as behavior management, more parental support, and more time for literacy block.
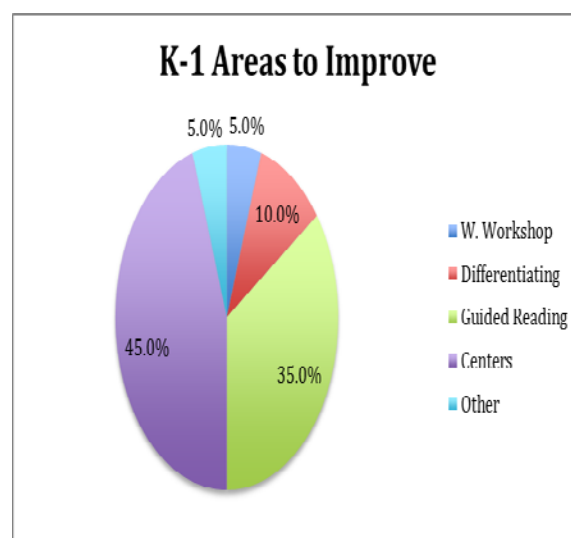

Chart A

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2-4 Areas to Improve

3.0% 5.0%

10.0%

32.0%

10.0%

15.0%

25.0%

- R.Workshop
- Partner Read
- Leveled Readers
- Writing
- Centers
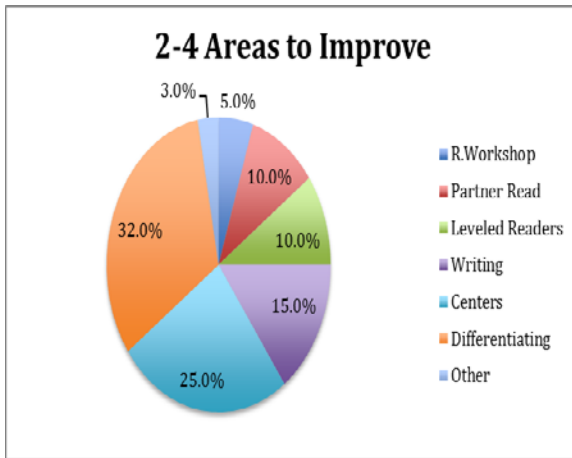- Differentiating
- Other

Chart B

The observations made during the classroom visits revealed whole group instruction – Round Robin Reading being the most common approach as the main, if not the only, form of literacy instruction.

But, Whole Group Instruction is So Much Easier!

Whether relying on whole-group instruction is due to time constraints, classroom management, familiarity, or a quieter classroom, it is not the best format for meeting students' individual needs during the "heart" of reading instruction. Whole-group lessons are often too challenging for struggling learners and too easy for proficient literacy learners (Williams, Phillips-Birdsong, Hufnagel, Hungler, & Lundstrom, 2009). Students who represent these types of learners often fail to pay attention to the task at hand because they are frustrated, bored, or even distracted (Ash, Kuhn, & Walpole, 2009). Without a doubt, whole group reading instruction can be beneficial when engaging in read-alouds, introductions and skill review; however, small groups are essential in scaffolding individual students' understanding.

In *Good-bye Round Robin,* Opitz and Rasinksi (2008) clearly outline the problems

with this specific form of whole group oral reading instruction. When students are called upon to read one after the other, reading comprehension is hindered. Often students fail to pause and think about what they are reading, if they can even read the text! Instead, they are reading ahead, lagging behind, or poking fun of the student who is struggling. For these reasons, the implementation of guided reading and learning centers were suggested to our elementary teachers. It is critical that we match instruction to students' literacy needs.

The guided reading instruction that teachers implement in their classrooms aligns with what we know: children learn best when they are guided by a more knowledgeable person or can collaborate with others. While teachers work with their small groups, the other students are actively engaged in literacy activities, rotating through centers. Learning centers provide students with the opportunities to work independently, with partners, and small groups as they practice different literacy skills. Additionally, the centers encourage students to make choices and take responsibility of their own learning. Jensen (2005) explains that students are more motivated when they are given choices and engaged in relevant, meaningful learning.

The Process Begins

To begin the implementation of small group literacy instruction in grades 2-4, I met with the principals to discuss our plan. Additionally, I met with reading specialists, and one *model* teacher from each grade level.

We shared salient findings in the data collection, and aligned them with the principals' goals to increase student achievement in literacy. As we discussed the importance of small group reading instruction, we considered its implementation during reading/language arts in addition to the teachers' 30-minute intervention block that is set-aside for Response to Intervention & Instruction (RTII). Together, we decided that small group literacy instruction would be implemented as guided reading and

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literacy centers would be implemented in model classrooms first.

In choosing a model teacher, we considered teachers who were positive, flexible, and open to trying new techniques. Model teachers took the initiative in "rolling out" our instructional plan. First, they were given 10 school days to look through the resources, collaborate online with us to address questions or concerns, and make the necessary instructional adjustments in their classrooms for guided reading and literacy centers. Once they were comfortable enough with guiding a small reading group, we invited other teachers to watch their instruction.

While some teachers were familiar with guided reading, the majority of them were not comfortable with the technique. In order to scaffold their understanding, we talked about using instructional texts on students' levels, available materials, parts of a guided reading lesson, and management. As we discussed managing the classroom during guided reading, we explained the practice of literacy centers. We shared handouts, books, and videos on guided reading and also provided guided reading demonstrations for them. Even though we worked directly with model teachers in the beginning, all teachers had access to the resources and were encouraged to engage their students in guided reading and literacy centers. When discussing materials for reading instruction, teachers decided to use books from their adopted Houghton Mifflin Reading Series and leveled readers from Reading A-Z.

In the ensuing weeks, teachers progressed toward organizing their classrooms for the "new" instruction. Moreover, the instructional inquiry continued through two forms of communication: Email discussions, which the teachers would often initiate about such topics as managing centers, grouping, and promoting independent learners, and padlet.com, a website that provides users with a wall in which one posts thoughts and ideas related to any topic. The collaborative website allows members to read each other's posts and comment instantaneously. About once a week, I

would post open-ended questions asking teachers to reflect on videos or shared readings. For example, I posted two videos on guided reading workstations to the wall on padlet.com. Additionally, I posed the following questions on the wall:

- What do you notice about the process for rolling out a new workstation?
- What really catches your attention in the videos? What do you want to remember?
- Have you tried something similar? If so, what worked, and what did not work?

I would frequently check the wall and encourage responders to think deeper about their ideas, or offer suggestions to their peers if they had a question. These digital sources gave us the opportunity to extend our conversations outside of school hours, and continue to learn from each other at the teachers' convenience.

Two weeks later, we visited the model teachers during their guided reading/center time to see their progress. In order to discuss and reflect on the experience, we met before class started, during their preparation or lunch times. During the summer of 2013, it was reported that a particular class of third graders (taught by a model teacher) increased their reading comprehension scores in the annual statewide assessment. This model teacher had initiated small group reading instruction early in the school year and used it regularly – meeting with the lowest readers daily.

Partnerships Promote Powerful Learning

The benefits of partnerships between K-12 schools and higher education are well established (Goodlad, 1987). Some of the key factors that assist in driving a successful partnership include understanding the school's context, recognizing the benefits of the partnership, establishing trust, and designating program champions (Bosma, Sieving, Ericson, Russ, Cavender, & Bonine, 2010).

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When reflecting on these experiences, I considered each of these elements and how it influenced our partnership with the elementary schools:

Understanding the School's Context – The principals were instrumental in sharing information about the organization and dynamics among classes, grade levels, and schools. Time spent in the schools led to an increased awareness of the school's culture, policies, resources, and conditions. This knowledge was helpful in understanding the interrelatedness and interdependence of how different facets may affect each other. For instance, knowing *how* and *when* grade levels met for instructional planning helped guide my involvement in the partnership.

Recognizing the benefits of the partnership - Working together with a shared goal gives us opportunities to learn from each other throughout this journey – all to better our community of learners. Each of us brings our own expertise and credibility to the partnership. The teachers specialize in knowing their students and curriculum and are ultimately the conduit for change, the reading specialists assist in best practices and literacy demonstrations, the principals make the expectations and academics clear, and the professors align research with teaching and learning. When we collaborate, we support, motivate and learn from each other in order to provide the best outcomes for our students.

Establishing Trust – When I was invited to discuss this literacy initiative, I visited (and still do) as an inquirer rather than an expert in leading our partnership. It was important that we work together with the shared goal of directly improving literacy teaching and learning in the elementary grades. After listening to the K-4 teachers' concerns, I provided the teachers with professional development in myriad ways. Additionally, I chose the term "visiting" throughout the experience instead of "observing." To me, observations immediately bring "intimidation" or "a more knowledgeable person watching me teach" to mind. It was never my intention to make teachers feel

uncomfortable during my visits. We learned from each other and shared a vested interest in meeting the needs of all learners. Communication also contributed to establishing trust. I made ongoing efforts to follow up with all partners through visits, email, online message board, or phone calls.

Designating Program Champions – Throughout our journey, I considered everyone involved in student learning a *champion*. Principals advocated stronger literacy instruction, supported the teachers, and participated in change. In addition to working with students, reading specialists provided essential resources, strategies, and ideas for classroom teachers that supported our literacy initiative. Designated model teachers were risk-takers and leaders as they met with us to begin rolling out new ideas. Classroom teachers, although some were reluctant to change, visited the model classrooms to watch demonstrations and lessons before implementation in their own classrooms began. In order to move our literacy initiative forward, everyone is responsible for ensuring that sound, research supported instruction is taking place.

The Journey Continues – Paving Future Paths

As the 24 teachers continue to use guided reading and literacy stations as the heart of instruction, it is important that they allow more than the book levels to guide the planning of instruction. Glasswell and Ford (2010) explain that we can be more flexible with text levels than we might have previously thought. In fact, instruction should be organized around areas of need. Fountas and Pinnell (1996) even suggested that students be *similar* in their development and read *about* the same level. Instead of avoiding challenging text, teachers may use this time to scaffold their understanding. Shanahan (2012) noted that while "it is great to not frustrate kids, learning comes from a certain amount of frustration" (Shanahan, 2012, Comments, para. 5). He continues to explain that teachers' role in reading groups should be more than simply observing reading behaviors. By placing

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students in more difficult texts, teachers might "model, explain, encourage repetition, or isolate parts of the performance for special practice" (Shanahan, 2012, Comments, para. 5).

I will encourage teachers in third and fourth grade to facilitate students' interactions as they group according to needs even if that means the text is slightly more challenging. I agree with Glasswell and Ford (2010) when they express the necessity of this to accelerate reading growth and promote confidence in our below-level readers.

Throughout our partnership, our aspiration has been collaboration and best practice. Now that the teachers are using multiple grouping patterns, small group reading approaches, and literacy centers, we think we are well on our way to realizing our goal.

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Abstract

The purpose of the study was to determine if the ELL and non-ELL students' and guardians' perceptions of student-led conferences were similar. The sample included 97 consenting guardians and 90 students from five fifth grade classrooms. The student and guardian participants were given parallel surveys to ascertain their perceptions of student-led conferences. The survey data were analyzed with the two one-sided significance test (TOST) technique to determine statistical significance. Additionally, 90% confidence intervals were constructed and analyzed to verify the results. Six of the nine student survey questions resulted in statistically equivalent perceptions between the ELL and non-ELL participants. Four of the ten guardian survey questions resulted in statistical equivalent average responses. In both cases, however, ELL students and parents had better perceptions than non-ELL students and guardians for those items that were not statistically significant.

Introduction

Student-led conferences (SLCs) require students to self-assess their learning and share their progress with their guardians. These pre-planned conferences allow students to demonstrate responsibility for their academic performance by showing their guardians self-selected pieces of work gathered in portfolios (Syverson, 2005). During the SLC process, students reflect on their strengths and their weaknesses as they contribute to the development of their personal academic goals. During these conferences, guardians and students have meaningful discussions about academic objectives that the students plan to achieve and their academic strengths and weaknesses (Kruse, 1999; Syverson, 2005; Tuinstra & Hiatt-Michael, 2004).

Benefits of SLC

SLCs have been tied to higher student educational achievement in mathematics and reading and a decrease in disciplinary problems in schools where SLCs have been implemented (Tuinstra & Hiatt-Michael, 2004). Communication is also enhanced with SLCs. For example, guardians benefited from the translation capabilities their children exhibited during the SLCs (Smith, Stern, & Shatrova, 2008). When guardians can communicate in their home language, they are better able to understand their children's progress in school (Bang, 2009; Smith, Stern, & Shatrova, 2008). Tuinstra and Hiatt-Michael (2004) indicated that students believed they produced higher quality work and were therefore better students because of the SLC process. SLCs also encourage students to be active participants in their learning by requiring them to set goals, attain goals, and self-assess their learning throughout the entire

process (Hackmann, Kensworthy, & Nibbelink 1995).

Perceptions of SLCs

Seagraves (2009) reported that guardians both preferred the traditional guardian-teacher conferences to SLCs. Guardians did not completely favor SLCs because they felt their children would report only growth and leave out important details about problems that might exist. The guardians were receptive to having a second conference with the SLC format because they felt it did hold students accountable for their progress, but still expected a traditional conference as well. Tuinstra and Hiatt-Michael (2004) found that guardians overwhelmingly believed their children were more successful after participating in SLCs and therefore desired to continue their use as a communication tool about academic growth.

SLCs and ELLs

For many years schools have seen an increase in students whose primary language at home is not English. Bang (2009) stressed the importance of helping all families participate in school life regardless of their cultural or linguistic differences. He also stated that educators should not assume immigrant families are familiar with the U.S. school system; furthermore, translators are often needed to facilitate successful communication between guardians and the school (Bang, 2009). Villanueva and Buriel (2010) stated that the children of immigrant families are often expected to act as translators between teachers and guardians. Additionally, Bang (2009) stated that providing regular, systematic communication tools is imperative for successful teacher-guardian

communication. She found that having orientations in families' home languages to explain school procedures and activities greatly benefit minority families having just relocated to the United States. Therefore, it may be true that guardian orientations about SLCs in the students' home languages and regularly scheduled SLCs could benefit culturally and linguistically diverse families with systematic use.

Student-led conferences allow the students to explain their academic progress to their guardians in their home languages. The guardians will see their children taking a primary role in self-assessing their academic strengths and weaknesses and in reporting their progress to their guardians. Guardians will have the familiarity of communicating directly with their own children in their home language. This experience is beneficial to the guardians as well as to the students because it clarifies the learning objectives and includes the family in the education process (Bang, 2009). According to Villanueva and Buriel (2010), ELL students are already acting as language brokers, or mediators, between teachers and guardians, so the SLC process will provide a systematic format for communication.

Problem

A communication gap between school and home exists and is widening on predominantly English Language Learner (ELL) and low Socio-Economic Status (SES) campuses (Ladky & Peterson, 2008). Increasing the communication between school and home ultimately benefits the students who act as a bridge for that communication. The student demographics and needs are changing, but

educational practices such as guardian-teacher conferences remain the predominant practice in the education repertoire of school-home communication (Onchwari, Onchwari, & Keengwe, 2008). Improving school-home communication is also important for student achievement (Bang, 2009). SLCs are one tool educators can use to increase the quality of school- home communication as well as increase the students' participation in the assessment process (Bailey & Guskey, 2001). Because SLC's are being implemented in schools with large ELL populations, do the guardians and students of ELL families and those of non-ELL families view these SLCs as being effective? The purpose of this study was to determine if the perceptions of student-led conferences were similar for ELL and non-ELL students and guardians.

Method

The participants were the consenting guardians and students from five of the six fifth grade classrooms in a Title I elementary school in a suburban school district near a large city in the Southwest. This school was designated as a Professional Development Laboratory School (PDLS) due to an agreement with a school of education and a nearby university.

We obtained permission from the district and the school to conduct student-led conferences with the entire fifth grade population at the PDLS campus. The resulting sample therefore consisted of 90 fifth grade students, and 97 non-ELL and ELL guardians. Once permission letters were signed and returned, the students began preparing to conduct their own student-led conferences. We facilitated this process by sharing information about

student-led conferences with the students and teachers planning to participate in the study. We also helped the teachers and students to gather pertinent work samples to review during the SLC. These portfolios were not part of the evaluation, but were used by the students to discuss academic strengths and weaknesses with their guardians. We taught students how to display their work and discuss their abilities by having them role play in mock conferences, following the procedures for conducting conferences outlined by Bailey and Guskey (2001).

Data Collection.

To measure student and guardian perceptions, we developed a survey based on selected questions from two instruments which measured perceptions about SLCs (Tuinstra & Hiatt-Michael, 2004; Baily & Guskey, 2001). The student and guardian surveys were also modified until a fourth grade reading level was obtained based on Fletcher-Kincaid in Microsoft Word. To ensure survey validity, the questions on the surveys were reviewed by a professor of reading and language arts, a professor of bilingual and multicultural education, and a Nationally Board Certified teacher in elementary education. This panel offered suggestions for rewording some of the questions and also suggested that some of the questions be removed. The survey responses were placed on a scale from one to five, with 1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree. To ensure that surveys were available in Spanish and English a bilingual, certified ESL teacher translated the surveys, and a university professor fluent in English and Spanish reviewed the translated questions to ensure that the surveys were parallel.

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We then conducted a pilot study with one of the six fifth grade classes at the professional development laboratory school to estimate instrument reliability. We calculated Cronbach's Alpha on the responses and further modified the survey by removing two questions from the students' survey and one question from the guardians' survey to ensure an alpha level of .70 or higher as suggested by Huck (2008). The combined ELL and non-ELL final student survey Cronbach's alpha score was .915, and the guardians' combined ELL and non-ELL final survey had a Cronbach's alpha score of .815.

Conferences were held for the five classrooms not involved in the pilot study near the end of the term. We administered the surveys to the students and guardians immediately following these conferences. In order to maintain confidentiality, each participant put the survey in a secure box. Completed surveys were removed after all conferences were complete.

Data Analysis.

Because this study sought to determine if the means of two groups (non-ELL and ELL) were the same concerning the students' and the guardians' perceptions of SLCs, traditional null hypotheses significance testing techniques, which seek to determine if two or more samples are different, were not appropriate. Therefore, we used the two one-sided significance test (TOST) technique described by Rogers, Howard, & Vessey (1993) to conduct the analysis, which uses a pair of *z* tests to determine equivalency. The first step was to determine a zone of equivalence (equivalence interval) by establishing an upper and lower boundary around a theoretical difference of 0 between the two

means. The actual, observed difference in the means between the two groups were tested against these bounds according to the procedure described by Rogers, Howard, and Vessey (1993). Specifically, one *z* test was used to test the null hypothesis that the difference in the mean is not more than the lower bound, and the second was used to test the null hypothesis that the difference in the mean is not less than the upper bound. For this study, we used a significance level of .05 to test these null hypotheses and the zone of equivalence was established to be $\pm$ .5 from the hypothesized difference of 0. According to Rogers, et al (1993) if both null hypotheses are rejected there is evidence that the mean difference lies between the two bounds. In other words, they are in the zone of equivalence and it can be concluded that they are the same. See Figure 1 for a graphical portrayal of the TOST technique.

Figure 1. The Two One-sided Significance
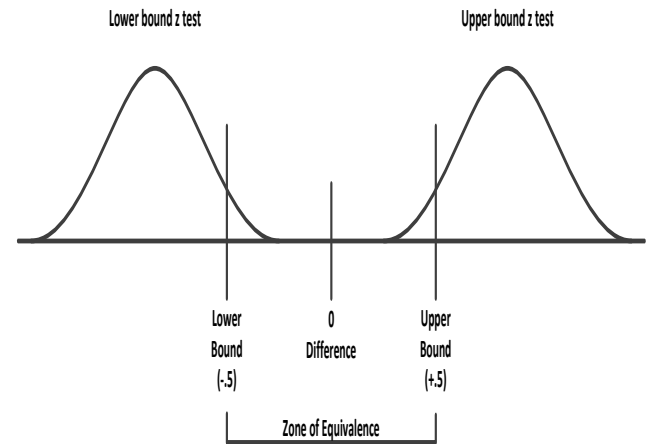
Test

Each survey question on the student and guardian surveys was tested independently to determine if the means of each of the survey responses for ELL

(Spanish version) and non-ELL (English version) was statistically equivalent.

Results

Tables 1 and 2 (See Appendix) contain summary data of the results of the students' and guardians' surveys. These data tables include the number of participant responses (*n*), the mean Likert scale score for the survey responses (M), and the standard deviation for the responses (s). Separate results are presented for ELL and non-ELL students and guardians on each of these two tables. The data for the responses to the student survey are presented in Table 1. Because some students and guardians did not answer one or more questions, the n for the questions was different. Participants' survey responses for ELL mean responses for all of the questions ranged from 4.34 to 4.69 (*range* =.35), and the non-ELL mean responses ranged from 4.08 to 4.54 (*range* =.46) for all of the questions.

The means and standard deviations for the responses to the guardian survey are presented in Table 2. Participants' survey responses for ELL ranged from 4.64 to 4.85 (*range* =.21). Non-ELL participants had survey responses with means ranging from 3.79 to 4.69 (*range* =.90).

Table 3 and Table 4 (See Appendix) present the results of the TOST for each survey question. The first column lists the survey question number. The second column identifies whether the test is for the upper limit or the lower limit of the equivalency bound. The next column is the difference (*d*) between the means of the ELL and non-ELL participants. (The non-ELL mean was subtracted from the ELL mean found on Table 1 to obtain the difference in the means or *d*, i.e., $M_1 - M_2$.) The next column is the test value

used in the significance tests. These numbers are $d \pm .5$. The next column lists the two *z* scores for each question's upper and lower bound significance test. Finally, the *p* values associated with those *z* scores are presented. According to Rogers et al. (1993), the larger *p* value of the two tests for each question should be used when determining equivalency because the larger *p* value is less likely to show equivalence. Therefore, the last column displays the significance level of the larger of the two *z* tests for each question.

As can be seen in Table 3, non-ELL and ELL participants expressed statistically equivalent perceptions in their responses to questions two, three, five, six, eight, and nine. Questions one, four, and seven did not fall within the ±.5 range, so they do not result in statistical equivalency. We did not test to see if the perceptions for these non-equivalent questions were different.

These results for the guardian surveys in Table 4 were calculated in a fashion similar to that for the student survey scores. As can be seen, questions one, two, three, and four report similar perceptions about the questions for ELL and non-ELL participants. Questions five through ten did not fall within the zone of equivalence, so they do not result in statistical equivalency. Again, we did not test to see if the perceptions for these non-equivalent questions were different.

Rogers et al. (1993), suggest that it is appropriate to confirm the results of the TOST by constructing confidence intervals and comparing them with the *z* test results. We therefore constructed figures displaying confidence intervals for the students' and guardians' survey question responses. Barker et al. (2002)

indicate that unlike traditional confidence intervals, two times the alpha should be used for the calculations for the confidence interval for equivalence tests. Therefore, 90% confidence intervals were constructed for this study.

Figure 2 and Figure 3 display the confidence intervals for each question on the student and guardian survey, respectively. In order for the confidence intervals to be equivalent, the upper and lower bounds of the confidence interval must fall within ±.5 from the difference (*d*). Each question has its unique 90% confidence interval displayed calculated from the statistics related to the differences in the means between the two groups. The figure also indicates the +.5 and -.5 zone of equivalence with thick dotted lines. To be statistically equivalent, the entire confidence interval must lie between these limits (Rogers, et al, 1993).

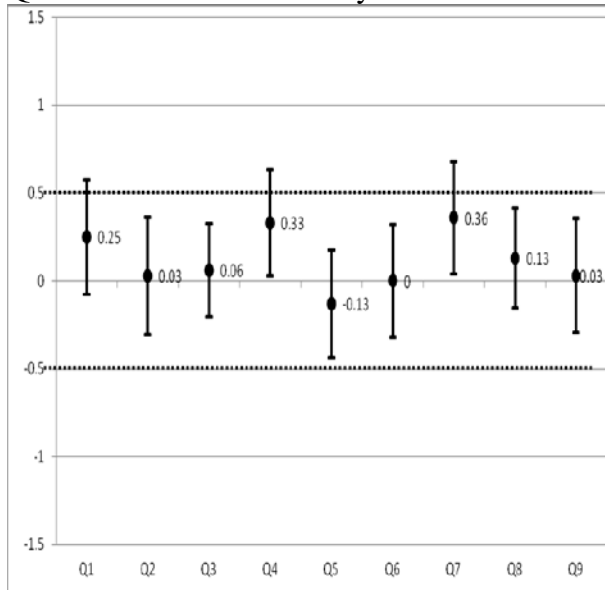Figure 2 Confidence Interval Results by Question for Student Survey

Figure 3 Confidence Interval Results by Question for Guardian Survey
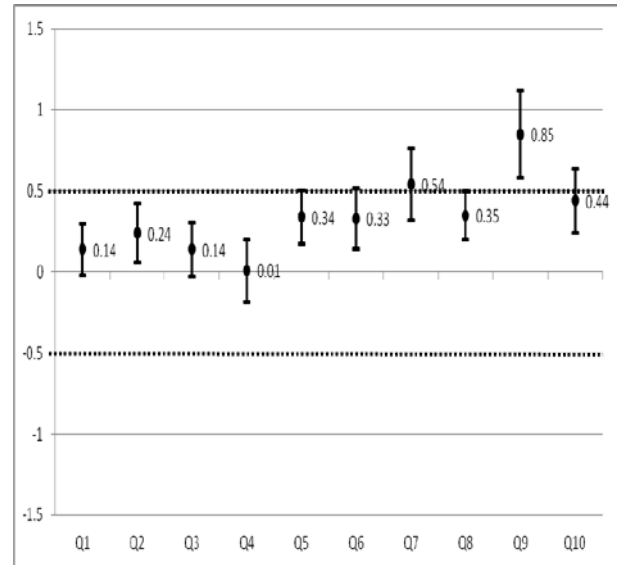
Analysis of the confidence intervals in Figure 2 support the results generated by the TOST tests. According to the confidence interval results on Figure 2, questions two, three, five, six, eight, and nine clearly lie with the defined confidence interval bounds of ±.5. Furthermore, questions one, four, and seven clearly fall outside ±.5 indicating nonequivalence. This verifies the TOST results from table three.

Confidence intervals in Figure 3 support the TOST findings for the guardian survey. The confidence intervals show that questions one, two, three, and four result in statistical equivalency. Questions six, seven, nine, and ten have at least one confidence interval bound outside the upper or lower limit, so these questions were confirmed as not equivalent.

Discussion

Are the perceptions of SLCs similar for ELL and non-ELL students? Are the perceptions of SLCs similar for ELL and non-ELL parents and guardians? As can be seen in Table 5 (See Appendix), the responses for ELL students and non-

ELL students were determined to be statistically equivalent for six of the 9 questions on the survey. It is very important to point out, however, that the mean responses for ELL students for each of the three questions not determined to be statistically equivalent are actually higher than the non-ELL student responses. This is very clear evidence that the ELL students' perceptions of the SLC process was *at least* as good as the non-ELL students. In only one case was the mean response of the non-ELL students found to be higher (Question 6). However, the difference in the mean responses for this question was found to be in the zone of equivalence, i.e., statistically.

As indicated in Table 6 (See Appendix), the analysis of the parent/guardian responses is equally revealing. See Table 6. Four questions were found to have statistically equivalent response means even though the ELL means were actually a little higher in the absolute. However, for the six questions not found to be statistically equivalent, the ELL parent/guardian means were actually higher than the non-ELL parent/guardian means.

Implications for Practice

All groups found it beneficial to participate in the conferences for reasons that include increased student responsibility for work, improved guardian-teacher communication, increased student-guardian communication, and reduced workloads for teachers.

Students realized they were responsible for their learning as a result of participating in the SLC process. They set goals, reflected on their learning, and regularly communicated their progress

with teachers and guardians. The students wrote comments in their portfolios and kept track of their behaviors. Hence, they contemplated obstacles and solutions for improving weaknesses, as well as continuously improved self-identified strengths. The students were responsible for relaying their progress to the teachers and guardians with appropriate verbiage that indicated a true understanding of their academic and social progress. This made the students, guardians, and teachers proud and promoted more student responsibility for learning. The students were able to become more responsible because of the daily SLC guidance facilitated by the teachers. The students participated in their self-assessments; thus, their ability to be responsible for their own learning increased. Therefore, the teachers' staff development sessions and the students' orientations were key components to insuring meaningful SLCs for the students.

Conclusion

Analysis of the data indicates that the participants, students and their guardians, agree that there are benefits to SLCs. In that regard, this study corroborates the findings of Bailey and Guskey, 2001; Darling-Hammond, 1997; and Little, 1989.
The SLC process encourages students to be engaged and actively involved in the educational process and promotes goal setting as well as goal attainment. This was suggested by Benson and Barnett (2005) and Seitz and Bartholomew (2008). The participants in this study were provided with an opportunity to develop self-directed behaviors that can help them with their goal attainment throughout life. The general education programs in some cities are already reaping the benefits from having SLCs on their campuses (Kruse,

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1999; Syverson, 2005; Tuinstra & Hiatt-Michael, 2004). This study demonstrates that implementing SLCs on ELL and non-ELL campuses could benefit the students and guardians by increasing student responsibility and helping to improve communication.

Public schools are finding ways to include SLCs into their curriculum; as the literature regarding SLCs increases, perhaps more schools will use them to improve increase student responsibility, improve guardian-school communication, student-guardian communication, and to reduce teacher workload.

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Table 1
Summary Data by Question for Student Survey

		ELL			Non-ELL	
Question	n	M_1	s	n	M_2	s
1	30	4.50	.682	52	4.25	.947
2	32	4.34	.787	52	4.31	.961
3	32	4.44	.716	52	4.38	.718
4	32	4.69	.535	50	4.36	.942
5	32	4.41	.875	52	4.54	.803
6	31	4.45	.888	51	4.45	.832
7	32	4.44	.716	51	4.08	.935
8	32	4.56	.669	51	4.43	.831
9	32	4.50	.718	51	4.47	.958

Table 2
Summary Data by Question for Guardian Survey

		ELL			Non-ELL	
Question	n	M_1	s	n	M_2	s
1	54	4.83	.376	42	4.69	.563
2	55	4.73	.449	41	4.49	.637
3	55	4.78	.459	42	4.64	.533
4	55	4.65	.480	42	4.64	.665
5	55	4.82	.389	42	4.48	.594
6	54	4.78	.420	42	4.45	.705
7	55	4.73	.449	42	4.19	.682
8	55	4.85	.356	42	4.50	.552
9	55	4.64	.589	42	3.79	1.025
10	55	4.84	.373	42	4.40	.767

Table 3
Tests Results by Question for Student Survey

Question	Test	*d*	Test Value (*d*±.5)	*z*	*p*	Larger *p*	
1	Upper	0.25	-0.25	-1.27	0.103	0.103	
	Lower		0.75	3.80	<0.001		
2	Upper	0.03	-0.47	-2.33	0.010	0.010	**
	Lower		0.53	2.62	0.000		
3	Upper	0.06	-0.44	-2.73	0.003	0.003	**
	Lower		0.56	3.48	<0.001		
4	Upper	0.33	-0.17	-0.91	0.177	0.177	
	Lower		0.83	4.53	0.000		
5	Upper	-0.13	-0.63	-3.37	<0.001	0.024	*
	Lower		0.37	1.98	0.024		
6	Upper	0	-0.50	-2.57	0.005	0.005	**
	Lower		0.50	2.57	0.005		
7	Upper	0.36	-0.14	-0.72	0.235	0.235	
	Lower		0.86	4.45	0.000		
8	Upper	0.13	-0.37	-2.12	0.017	0.017	*
	Lower		0.63	3.61	<0.001		
9	Upper	0.03	-0.47	-2.38	0.009	0.009	**
	Lower		0.53	2.69	0.007		

.05 level is indicated with a *, and ** indicates significance at the .01 level

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Table 4
Tests Results by Question for Guardian Survey

Question	Test	*d*	Test Value (±.5)	*z*	*p*	Larger *p*	
1	Upper	0.14	-0.36	-3.75	<0.001	<0.001	**
	Lower		0.64	6.66	0.000		
2	Upper	0.24	-0.26	-2.35	<0.001	<0.001	**
	Lower		0.74	6.78	0.000		
3	Upper	0.14	-0.36	-3.57	<0.001	<0.001	**
	Lower		0.64	6.34	0.000		
4	Upper	0.01	-0.49	-4.22	0.000	0.000	**
	Lower		0.51	4.39	0.000		
5	Upper	0.34	-0.16	-1.60	0.055	0.055	
	Lower		0.84	8.40	0.000		
6	Upper	0.33	-0.17	-1.47	0.071	0.071	
	Lower		0.83	7.17	0.000		
7	Upper	0.54	0.04	0.30	0.616	0.616	
	Lower		1.04	7.69	0.000		
8	Upper	0.35	-0.15	-1.62	0.052	0.052	
	Lower		0.85	9.19	0.000		
9	Upper	0.85	0.35	2.12	0.983	0.983	
	Lower		1.35	8.17	0.000		
10	Upper	0.44	-0.06	-0.51	0.306	0.306	
	Lower		0.94	7.95	0.000		

Table 5.
Analysis of Student Responses

Question	Prompt	Stat. Equiv.	Higher Mean Score
1.	Setting goals helped me do better in school.		ELL
2.	I feel that the conference helped me to correct my own work.	YES	ELL
3.	The conference helped me know what I do well.	YES	ELL
4.	The conference helped me know what I need to work on in school.		ELL
5.	The conference helped me see how much I have learned.	YES	Non-ELL
6.	I feel good when I talk about my schoolwork with my guardian.	YES	-
7.	Putting my work in a portfolio helped me do better in my class work.		ELL
8.	Talking with my parent/guardian help me tell them what I learned.	YES	ELL
9.	Knowing that I had to talk to my parent about the way I act in class made me act better.	YES	ELL

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Table 6.
Analysis of Parent/Guardian Responses

Question	Prompt	Stat. Equiv.	Higher Mean Score
1.	I liked my child leading the discussion about his or her work in our home language.	YES	ELL
2.	I learned about how well my child gets along with others.	YES	ELL
3.	My child knows that his/her efforts are related to grades.	YES	ELL
4.	My child will use the skills developed in student-led conferences.	YES	ELL
5.	I liked the student-led conference.		ELL
6.	I think that children who participate in student-led conferences will listen better in class.		ELL
7.	The conference helped me communicate better with the school.		ELL
8.	I learned more about my child's academic progress because of this conference.		ELL
9.	I feel that my child did their homework more often because of student-led conferences.		ELL
10.	I feel that my child took responsibility for his or her work more because of student-led conferences.		ELL

Appendix A. The English Student Survey Instructions and Questions

Students were asked to respond to the statements in Table 5 using a Likert-type scale. This scale used Strongly disagree (1), Disagree (2), Not sure (3), Agree (4), Strongly Agree(5) as the markers.

1.   Setting goals helped me do better in school.
2.   I feel that the conference helped me to correct my own work.
3.   The conference helped me know what I do well.
4.   The conference helped me know what I need to work on in school.
5.   The conference helped me see how much I have learned.
6.   I feel good when I talk about my schoolwork with my guardian.
7.   Putting my work in a portfolio helped me do better in my class work.
8.   Talking with my parent/guardian help me tell them what I learned.
9.   Knowing that I had to talk to my parent about the way I act in class made me act better.

Appendix B. The Spanish Survey (Encuesta del Estudiante) Instructions and Questions

The instructions for the Spanish survey were "Ahora que ha concluido la conferencia con tus padres/tutores por favor lee lo siguiente y marca una respuesta." The rating scale was Muy desacuerdo (1), Desacuerdo (2), No estoy seguro (3), De acuerdo (4), Muy de acuerdo (5).

1. Ponerme metas me ayudó a hacer mejor en la escuela.
2. Siento que la conferencia me ayudó a corregir mi propio trabajo.
3. La conferencia me ayudó a saber que hago bien.
4. La conferencia me ayudó a saber en que tengo que mejorar en la escuela.
5. La conferencia me ayudó a ver cuánto he aprendido.
6. Me sentí bien cuando compartí mi trabajo con mis padres o tutores.
7. Mantener mi trabajo en un portafolio me ayudó a hacer mejor mi trabajo escolar.
8. Hablar con mis padres en nuestro idioma natal me ayudó a explicarles lo que he aprendido.
9. Saber que tenía que hablar con mis padres de mi comportamiento en clase me hizo comportarme mejor.

Appendix C. The English Guardian Survey Instructions and Questions

Guardians were given the instruction "Now that you have completed your parent/guardian conference, please read and select answer" to the statements in Table 7 using a Likert-type scale. This scale used Strongly disagree (1), Disagree (2), Not sure (3), Agree (4), Strongly Agree(5) as the markers.

1.   I liked my child leading the discussion about his or her work in our home language.
2.   I learned about how well my child gets along with others.
3.   My child knows that his/her efforts are related to grades.

_____

4. My child will use the skills developed in student-led conferences.
5. I liked the student-led conference.
6. I think that children who participate in student-led conferences will listen better in class.
7. The conference helped me communicate better with the school.
8. I learned more about my child's academic progress because of this conference.
9. I feel that my child did their homework more often because of student-led conferences.
10. I feel that my child took responsibility for his or her work more because of student-led conferences.

Appendix D. Guardian Spanish Survey (Encuesta de los Padres o Tutores) Instructions and Questions

The instructions for the Spanish survey were "Ahora que ha concluido la conferencia de padres por favor lea lo siguiente y marque una respuesta The rating scale was Muy desacuerdo (1), Desacuerdo (2), No estoy seguro (3), De acuerdo (4), Muy de acuerdo (5).

1. Me gustó que mi hijo/a dirigió la conversación acerca de su trabajo escolar en nuestro idioma.
2. Aprendí como mi hijo/a convive bien con los demás.
3. Mi hijo/a sabe que su esfuerzo está relacionado con sus calificaciones.
4. Mi hijo/a usará las habilidades desarrolladas en las conferencias guiadas por el estudiante.
5. Me gustó la conferencia guiada por el estudiante.
6. Creo que los estudiantes que participan en conferencias guiadas por el estudiante serán más atentos en clase.
7. La conferencia mejoró mi comunicación con la escuela.
8. Aprendí más del progreso de mi hijo/a gracias a esta conferencia.
9. Siento que mi hijo/a cumplió más con su tarea debido a las conferencias guiadas por el estudiante.
10. Siento que mi hijo/a tomó más responsabilidad de su trabajo debido a las conferencias guiadas por el estudiante.