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The Creation and Support of Dialogic Discourse in a Language Arts Classroom

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Abstract

This exploratory study examined the complexity and interrelatedness of dialogic discourse, disciplinary literacy, and the social environment necessary for student learning. Taking place in an urban school in a large Midwestern city, analysis of three 8th grade language arts lessons indicated that dialogic discussion was sustained and supported by a social environment signifying third space and that conversations must be situated within the disciplinary specific demands for learning. This work offers deeper understandings of the contextual and relational dimensions of educational teaching and learning with implications for teacher education.

This exploratory work focused on three language arts lessons over the course of an academic year in Mr. Cooper's (all names are pseudonyms) class, a highly successful 8th grade teacher. By focusing on these three lessons, we aimed to provide further insights into the complexity and interrelatedness of classroom conversations and the social environment necessary for student learning in a language arts class. Specifically, this work focused on two questions: What makes disciplinary discussions in this classroom dialogic in nature? How is a beneficial social environment that supports these types of discussions created?

Research specific to classroom talk makes a distinction between the types of interactions in the classroom that help students learn and those that do not. Classroom talk as recitation, where students are merely expected to recall what they have learned or read (Nystrand & Gamoran, 1991) with little or no opportunity to voice their own ideas and opinions, (Wells & Arauz, 2006) are often described as procedural (Nystrand & Gamoran, 1991) and monologic (Wells & Arauz, 2006, Gutierrez, 2008). Classroom interactions that are more like conversations among participants and ones where students can bring in their understandings and experiences allow for substantive engagement and are described as dialogic in nature (Wells & Arauz, 2006). Dialogic discussions or discourse promote "coherent instruction and learning, as shared understandings are elaborated, built upon, and revised" (Nystrand & Gamoran, 1991, p. 275). Much work discusses the benefits of this type of classroom discourse (Mercer & Littleton, 2007; Nystrand, 1997; Nystrand & Gamoran, 1991; Wells & Arauz, 2006).

Because the nature of classroom talk influences discourse practices students acquire (Beach, Appleman, & Dorsey, 1990; Marshall, Smagorinsky, & Smith, 1995), when looking specifically at literary understanding, it is necessary to look at the interactions and expectations that shape how students talk, think, and learn about literature (Applebee, Langer, Nystrand & Gamoran, 2003; Langer, 2010; Lee, 2007). Pertinent to literary understanding is the "disciplinary conversations" (Applebee, 1996) that help advance the exploration of works and multiple perspectives. Also needed are the practices, norms, and orientations in literary discussion and interpretation for discipline-specific learning and understanding to take place (Grossman, 1991).

The social context of the classroom is just as important. Talk functions as a social and cultural tool regulated by normative rules (often tacit) in given situations and spaces (Mercer & Littleton, 2007). In the classroom, the social environment influences and transforms a space for learning (Gutiérrez, 2008). Paying attention to the social space created in a literature classroom allows a view into how students' evolving understandings and their experiential knowledge are regarded, taken up, ignored, refused, or incorporated into further understandings (Gutiérrez, Baquedano-López, & Tejeda, 1999; Gutiérrez, Rymes, & Larson, 1995). When students are allowed to be equal partners in their learning and their knowledge is seen as an asset to learning, a new kind of space, a theoretical third space, is created where teachers do not dominate the talk and the power relationships between teacher and students are more balanced (Gutiérrez, 2008).

In the following sections, we first discuss the theoretical frameworks pertinent to this work regarding classroom discourse, third space, and literary understanding. We then provide a context for the study and the analytic procedures in the methodology section. The results offer evidence of the complexity and interrelatedness between classroom discourse rooted in the discipline of literature and the social aspects of learning. Finally, some conclusions and implications of this work are discussed in the last section.

Theoretical Underpinnings

Dialogic Discussion

When classroom talk is dialogic, the teacher and students collaboratively co-construct meaning. That meaning is interdependent with the actions and statements of others. What was said is connected with a speaker, its significance and all related remarks that preceded it. "In the dialogical view the essential condition for understanding to take place is that the listener should be able to relate the position that the speaker's utterance represents to other positions expressed earlier in a given discourse community" (Lahteenmaki, 1998, p. 79).

Meaning making is collaborative when the teacher and students shape the course of talk through negotiation (Nystrand, 1997). When engaged in dialogic conversation, teacher and students share ideas and resolve gaps or misunderstandings. Participants must listen to each other and thus make an attempt "to understand from each other's perspective" (Wells & Arauz, 2006, p. 382). It is through this way that teacher and student collaboration in shaping meaning impacts learning (Wells, 2000).

Dialogic discussions depend on the relationship between teacher and students. Because talk is much like conversation, teachers do not dominate but lead the discussions and the relationships between teacher and students are described "like a partnership, observing reciprocity and thinking of each other as they work. Students are an essential factor in the discourse" (Nystrand & Gamoran, 1991, p. 269). Discussions that are dialogic in nature are especially beneficial to students from non-dominant backgrounds because they help build a bridge between students' prior knowledge and disciplinary knowledge (Wells & Arauz, 2006).

In the classroom dialogic exchanges involve uptake, which happens when the speaker recognizes and validates the previous speaker's perspectives by incorporating those ideas for further discussion. When ideas are taken up, the interactions become much like conversation, less predictable and repeatable, and more authentic. This is different from the typical inquiry-response-evaluation pattern of talk in which the teacher asks a question, the student answers and the teacher evaluates the answer, then starts a new sequence with a pre-planned question that is not related the student's response. With dialogic discourse, rather than the transmission of information or facts, the purpose of instruction becomes the "interpretation and collaborative construction of understanding" (Nystrand, 1997, p. 7).

Classroom discourse shifts to the dialogic when teachers ask more authentic questions, students direct the flow of topics and ideas, and teacher's utterances take up or build on students' responses (Nystrand & Gamoran, 1991; Marshall, et al., 1995). However, Nystrand (1997) emphasizes that dialogic discourse is more than just elements of uptake and authentic questioning. Moving toward student engagement through discourse involves not only changing instructional moves (e.g., asking authentic questions) but also devising activities and situations that allow teacher and students to take on new roles (Langer, 2002; Marshall et al., 1995). Such new roles can create shifts in power and control related to classroom dynamics. This change to a more equitable social environment is aptly discussed in the literature on third space (Gutiérrez et al, 1995).

Third Space

Third space is a theoretical space and operates under the assumption that knowledge and power are linked and learning environments are most productive and effective when

knowledge is negotiated (Gutiérrez, 2008). This theoretical space makes room for the academic discourse to meet everyday or informal (nonacademic) discourse, “merging of the teacher and student world views” (Gutiérrez, Rymes, & Larson, 1995 p. 452-3) and for the possibility of students’ narratives to shape discussion. In third space, the relationships formed in classrooms through classroom talk and interactions allow for the inclusion of multiple perspectives and voices that lead to a deeper construction of meaning (Wells & Arauz, 2006). Such meanings can only take place when conversation is not dominated by the teacher but co-constructed with students (Nystrand & Gamoran, 1991).

Third space allows for hybrid discourses where cultures, relations, and power interplay (Kamberelis, 2001). Dialogue that takes into account these aspects is considered hybrid because no one perspective or knowledge (that reflective of school norms) is privileged nor does it exclude others (that of students’ cultural and experiential knowledge). In fact, hybrid discourse helps link the school’s norms and students’ everyday life, making room for and seeing the value of students’ discourse while disrupting traditional power relationships and passive student participation (Kamberelis, 2001).

Moving beyond general understandings of effective discussions, dialogic discussions must be situated within the social environment in which they take place and within the specific discipline. This is important since content area understanding requires specialized ways of talking or conveying information (Lee & Spratley, 2010; Moje & O’Brien, 2001; Shanahan & Shanahan, 2008).

Literary Understanding

Both Langer (2011) and Rabinowitz (1987) point out that literary understanding is influenced by, among other things, a reader’s culture, gender, experiences, and prior knowledge. In order to make sense of literary texts, readers make interpretations through “the acceptance of the author’s invitation to read in a particular socially constituted way that is shared by the author and his or her expected readers” (Rabinowitz, 1987, p. 22). As Crawford and Chaffin (as cited in Rabinowitz, 1987, p. 27) emphasize, “understanding is a product of both the text and the prior knowledge and viewpoint that the readers brings to it.” Readers’ prior knowledge and understandings have been the focus for making interpretation explicit through Cultural Modeling (Lee, 2001, 2006, 2007) and related frameworks (Moll, 1992; Moll & Gonzalez, 1994; Moll & Greenberg, 1990). It is important to consider the reader’s worldview and experiences they bring to reading and interpretation (Hillocks, 2010; Lee, 2007).

Langer (2011) emphasizes that the understandings one has about a text are dynamic, meaning that they are “subject to change at any time as new evidence emerge and new ideas come to mind” (p. 10). She calls this “building envisionment.” Readers of literary

texts explore “horizons of possibilities,” an exploration where one considers different perspectives, feelings, intentions, life situations, eras and cultures in order to make interpretations of the text (Langer, 2011).

Another aspect of literary understanding is through discussion. Here, the aspects of literary understanding are still important but more so, are the ways in which these understandings are made public. The work by Applebee et al. (2003) suggests that what contributes most to students’ ability to effectively participate in language arts disciplinary conversations are approaches that “used discussion to develop comprehensive understanding, encouraging exploration and multiple perspectives rather than focusing on correct interpretations and predetermined conclusions” (p. 722). Similarly, Langer (2011) asserts that support in literary discussions includes helping students move beyond thinking that there is a ‘right’ answer and to encourage students to ask questions that come to mind related to the text they are reading. Wells and Arauz’s (2006) work indicates that the shift from monologic to dialogic discussion happens when the questions asked have multiple possible answers and teachers encourage students to respond and build on each others’ ideas and understandings. This is important because when teachers engage in dialogic discussion, they play a key socializing role, “modeling the kinds of questions and issues that are germane …to academic discussions of literature…” (Nystrand & Gamoran, 1991,p. 265).

When students partake in classrooms that emphasize high academic demands and discussion-based approaches to develop understanding, students are then able to use this knowledge and skills on their own in order to engage in challenging literacy tasks (Applebee et al., 2003; Marshall et al., 1995). Because learning and development is strengthened by classroom discussions (Mercer & Littleton, 2007), helping students to interpret and helping students to participate are both necessary for literary understanding.

Present Study

The present study emphasizes the critical and multiple aspects of learning in one classroom by applying multiple lenses (dialogic, social relationships, literary) when trying to capture a successful learning environment. The three theoretical perspectives complement and build on each other. Research on dialogic discourse points out that teacher uptake of student ideas is important, while the work on third space clearly delineates the learning opportunities when student knowledge is seen as an asset and necessary for learning. Similarly, work on third space emphasizes the social learning environment that supports academic and everyday language use and work related to disciplinary understanding suggests that prior knowledge and experiences inform our literary interpretations. In this exploratory work, it became clear that in order to more fully understand and account for the learning, interactions, and development in Mr. Cooper’s class, we needed to look beyond the literature on dialogic discourse.

Method and Analysis

This study was part of a larger, multi-year project comprised of a university partner supporting urban schools in whole-school literacy reform (Au, Raphael, & Mooney, 2008; Raphael, Au, & Goldman, 2010)[1]. Classroom observations were conducted during the 2008-09 school year to examine the pedagogical and literacy instructional practices that supported whole school literacy reform. Twenty teachers across grades one through eight were observed three times over the course of the school year (i.e., fall, winter, and spring) across five urban schools. The teachers were nominated by the principals at their schools and selected because they were teacher leaders (i.e., grade level chair, member of school's leadership team) and were believed to be implementing explicit reform practices in their classrooms. Observations of typical lessons were scheduled through consultation with the classroom teachers.

Observation Tools. Lessons were observed in ten-minute episodes involving seven minutes recording field notes and three minutes coding. The alternating pattern of seven minutes of field notes and three minutes of coding continued for the duration of the lesson (video/audio recording was not permitted during the observations). Field notes captured dialogue and nonverbal cues for the first seven minutes of every ten-minute episode. For the next three minutes, the observer coded key areas relevant to the seven minutes they just observed. The key areas included literacy emphasis, instructional context, teacher behavior, student behavior, and materials.

Student behavior focused on student engagement and was conceptualized as appropriate, observable on-task student behaviors gauged on a scale of 1-5, with 1 indicating no student engaged to 5 indicating all students engaged in the activity. The coding of teacher behaviors included facilitating discussion, listening/ monitoring, reading, asking test/school questions and asking thought-provoking questions. For the purpose of this study, we focused on two specific teacher behaviors: asking test/school questions and asking thought-provoking questions. *Asking test/school questions* was defined as asking explicit questions from the text with one correct answer, while *asking thought-provoking questions* was defined as asking open-ended questions that promote higher-level responses and can have multiple interpretations.

Researchers created a coding manual and established reliability through two training sessions. Inter-observer reliability using Cohen's Kappa was .89 or higher across the coding. Through conversations during the training, a field note structure was established. Field notes were used to capture verbal dialogue along with any nonverbal or additional

[1] This work was supported, in part, by a grant to Partnership READ, University of Illinois at Chicago, from the Searle Funds of the Chicago Community Trust.

contextualizing information (e.g., interruptions, calls from the office, bell ringing). To track who was talking, “T” for teacher and “S” for student were used.

The School and Teacher. Diller School is an urban elementary school located in a large Midwestern city. During the 2008-2009 school year, Mr. Cooper taught the 7th/8th grade gifted split class. This was his second year teaching and the first year the school took on the gifted program.

Analysis. Because of our content area focus, we chose to look at the six middle school (7^{th} and 8^{th} grade) teachers observed across the five schools. These teachers taught language arts, writing, social studies or mathematics. We compared the sustained level of student engagement and the presence of *asking thought-provoking questions* in the teacher behavior category across the middle school observations. When averaging student engagement, measured on a 1-5 scale, Mr. Cooper ranked highest in sustained level of student engagement across the three lessons at 4.4. The other teachers ranged from 3.6 to 4.3. When examining teacher questioning in the check off data, across the episodes, Mr. Cooper asked thought-provoking questions more often than any other seventh or eighth grade teacher, in 68% of observed episodes. One other teacher asked thought-provoking questions in 63% of episodes. Four of the six teachers asked thought-provoking questions in 0 to 1 episode. For these reasons, we chose to take a closer look at the field notes from Mr. Cooper’s classroom starting with the way he used questions to support student thinking and learning (Soter, Wilkinson, Murphy, Rudge, Reninger, & Edwards, 2008). Thus this work is exploratory in that the ideas emerged from the data and in how we systematically explored Mr. Cooper’s three lessons in an attempt to contextualize how he engaged his students beyond asking thought provoking questions.

Our analytic treatment of the lessons included first establishing effective dialogic discussion in the lessons. To do this we engaged in careful repeated readings of each lesson, focusing on aspects of talk that made them dialogic in nature (i.e., talk was more like conversation, types of questions asked, uptake, student responses were considered important). In doing so, we developed a better understanding of how the talk sustained consistent levels of student engagement.

Analysis across Mr. Cooper’s three lessons helped identify patterns, recurring ideas, and descriptions pertinent to how the lessons were dialogic but also included other effective aspects of engagement that went beyond what dialogic discourse covered. The importance of a social environment in which power among teachers and students is shared emerged through repeated readings. Also, the discourse was situated in the discipline of literature and that seemed important. In exploring theories and lenses that spoke to these aspects, we became aware that these were similar in nature to those described as necessary for third space and for literary understanding in particular. We looked for patterns among lessons in an effort to understand how these three aspects of

learning play a part in each lesson and how they complement each other. In particular, we examined how the dialogic interactions allowed students and teacher to collaborate when other learning communities would recognize the potential learning opportunity as a point of disruption (Gutiérrez et al., 1999). Also, we looked at scaffolds and supports that helped students to develop an understanding of literature over time through changing and shifting of meaning (Langer, 2011, p. 15).

Findings

Each lesson provided rich examples of dialogic discourse, ways of talk particular to literary understanding, and indicators of third space created through hybrid activity. Because these three aspects are closely intertwined and complementary, we discuss all three in each lesson, thus emphasizing that in this classroom, all three support student learning.

Lesson One: "Harrison Bergeron." The first lesson analyzed was from the beginning of the school year in November. This lesson focused on the futuristic science fiction story, "Harrison Bergeron" by Kurt Vonnegut. Harrison is a 14-year-old boy who is exceptionally handsome, intelligent and strong. In this story, social equality is a now law and those who are more intelligent, athletic, or beautiful are handicapped by impediments so that they are no better than anyone else. Harrison, understandably, has to bear enormous handicaps.

In discussions that allow for conversation, the questions posed are not focused on a right of wrong answer but are meant to stimulate points that may bear on understanding the story further. This lesson was built around the inquiry question: Why does Harrison declare himself emperor and order everyone around once he has escaped from jail?

The first focus is on the segment of the lesson where students discussed why Harrison is characteristically strong, athletic and handsome. A student suggested that maybe it was "because Harrison was everything the government didn't want people to be." This comment in turn, opened the door for questions from other students about the reasons behind the government's decision to make everyone equal. In particular, they began discussing the handicapping of intelligent people, which is done by sending out a loud, painful noise to their brains every 20 seconds so that their thoughts are scattered. Here, students discussed possible implications of the government's decisions to enforce equal intelligence.[2]

S: Why does the government stop people from thinking? How will we try to invent something new if people cannot focus for more than 20 seconds? How can someone have an education? …That's almost impossible to do?

[2] All responses were recorded as stated by teacher and students.

T: Let me give you the final question: Why is only person who chose to revolt a fourteen-year old boy?

S: I feel that the government, he does not want to society to advance, he wants to power…the government wants them to be more like a lowering of standards…to have the most power.

S: But that wouldn't make sense. Why would you want people to lower their standards? …if you are born…if you are athletic…that's not right.

S: It's like K [a student] was saying, the government is trying to make it like they are most powerful. That's why they dumb everyone down…

S: Why?

S: I disagree with D [a student]…with free will comes competition… with this strategy…

T: [unable to capture what was said]

S: I strongly disagree with what G [a student] say…why not have everyone be equal, be the same?

S: Why not help the lower class people, not like a slow room, but help them more, not…help them understand things more thoroughly?

S: Some people make fun of them…like one time in the classroom, everybody not going to help them…

What is striking about this segment is the amount of questions raised within these 12 turns of talk. In all, nine questions were raised, including the teacher's question. Langer (2010) asserts that asking questions is one of the main principles for arriving at literary understandings. The questions raised by the students about the practices of the government in leveling intelligence are important to the understanding of the story, that is, they not only highlight the type of government that Harrison lives under, they highlight the moral and philosophical issues central to literature (Hillocks, 2010). As Hillocks (2010) explains: "these moral concepts become the basis for the warrants that tie the evidence that readers perceive to the judgments they make about characters, groups, and societies, and the writers themselves and their works as wholes" (p. 1). It seems that inherent in the students' questions, (especially when a student asked that if the goal is to make everyone equally intelligent, then why not help those less intelligent to "understand things more thoroughly") there was a particular perception or judgment formed around the type of government that would make people equally intelligent through such means.

Students' questions also raise critical social issues. For example, the student who made a case for helping others to become as intelligent as others clarifies this by stating, "Why

not help the lower class people, not like a slow room, but help them more?" In his response to this question, another student pointed out an issue with this suggestion, namely that not everyone will be willing to help them, "some will make fun of them." Through the questions and points raised, students not only "elaborate on and incorporate their own narratives into the larger classroom text" (Gutiérrez et al., 1995, p. 453) but also come to a deeper understanding of the complexity of the issues raised in the story (cf. Wells & Arauz, 2006).

Overall, this segment shows that students' answers are not evaluated but their responses are taken as points to consider and build upon. This is a mark of dialogic discourse, where there is no clear pattern of questions solely posed by the teacher, where the teacher does not control the conversation or what interpretation students need to support. Through the dialogue in this lesson, students were able to connect the complex issues the story covers to something that is more familiar: the idea of differences in learning/ ability in schools. Conversations that allow students to bring in their understandings to connect to those of the text can only come from discussions that are open to their experiences and understandings.

It seems that issues of fairness take center place in this lesson because the classroom environment allowed for dialogic discussions in which students can think deeply about the stories they read. In this lesson, larger issues of humanity and moral and philosophical dilemmas are exposed. In order to develop this level of understanding, the environment must be one that allows for the development of such understandings through providing classroom time and support of students pursuing their own ideas and interpretations (Langer, 2010). The environment conducive to this understanding allows for a shared control between teacher and students of what questions are raised and discussed (Gutiérrez et al., 1995). In the above segment, the teacher's decision to table his own question for the sake of students' continued discussion around the issue of intelligence is indicative of this shared power (Gutiérrez, 2008).

Lesson Two: Romeo and Juliet. The second lesson took place in March and focused on examining the language and human intentions from Act II of Romeo and Juliet. We focus on three particular segments of the lesson in order to highlight the three aspects under consideration – dialogic discussion, third space, and literary understanding.

At the beginning of the lesson, a student asked about the meaning of the reference to fruit as Romeo's friends talk under a medlar tree. In this scene, Romeo's friends are trying to get Romeo to appear from the darkness of the trees and in doing so discuss his relationship with Rosaline as one based on lust. The student questioned the significance of the scene, making clear he did not understand the sexual innuendo or the context in which it took place. Mr. Cooper explained that the medlar fruit represented a female body

part and the two friends were drunk and “pigs.” Instead of snickering or giggling, another student commented on the literary importance of the scene.

S: I think he wrote this in the sexual tension. He did, he wanted to see certain people, if you only got the sexual tension, then you missing the point.

T: Can I pick up to add to that?

S: I think it was one of the, those comedic parts to get the audience laughing.

Through the explanation of the fruit, Mr. Cooper was willing to take on the student’s question and tackle material that could have been deemed as inappropriate given the sexual innuendo. After he explained the meaning behind the language of this scene, Mr. Cooper did not control the conversation, instead, he took up the student’s question. This contributed to the third space where students were able to establish that the scene was intended for a literary purpose, for comic relief. In this segment, students were in and moving through envisionment (Langer, 2010), using personal knowledge, text, and context to furnish ideas and spark thinking in a literary way.

In the next example from this lesson, the class discussed beliefs around falling in love. One student claimed Romeo and Juliet fell in love “based on looks and that’s really shallow.” The teacher acknowledged the point, and added, “We have to read more to find out if this is a deep sort of love or shallow.” He went on to say that students’ interpretations may differ depending on one’s personal belief that “there is one soul mate for you or believe that are lots of someones” and that both interpretations are equally valid. Mr. Cooper guided his students to focus on close reading of the text and to be aware of their individual goals and beliefs about love (cf. Lee, 2007). Through the discussion, he invited his students to “become critics identifying tensions between the author’s and our own sense of the world” (Langer, 2010, p. 20; see also Nystrand, 1997, p. 8) when he directed his students to attend to and be aware that their beliefs about love, in part, influence the interpretations they develop (Rabinowitz, 1987).

In the final segment from this lesson, students explored factors contributing to the characters’ actions and behavior. The teacher asked students to “compare and contrast Romeo and Juliet.” In doing so, they described Juliet as naïve, smart in how she handled Romeo, and also as young and in her first relationship. Mr. Cooper, a few turns later asked:

T: Do you think she’s [Juliet] a respectable woman?

S: Yes, because Romeo, he be trying to get her, but she be trying to get him to tell her he loves her. If she loose, she would have already given it up.

S: Is her parents really in love?

T: That’s a good question.

Here, the question about Juliet’s parents seems to be inconsistent with their discussion regarding Juliet’s character. The class takes up this question and the conversation continues for few more turns of talk before the lesson ended. While most of the student dialogue was inaudible, the teacher’s response indicates that the discussion centered on Juliet not wanting the kind of relationship her parents had.

T: I like this connection, too. I think [student’s name] is tapping into the Capulets. [They] do not have a love relationship and Juliet doesn’t want that...it may be her first time, but she’s ready to love.

As we have seen before, here, the teacher did not resist student’s questions as outside of the classroom’s theme or topic (Gutiérrez et al., 1995). As a response, the class took up this question, shifting the conversation to talk about the relationship between Juliet’s parents and the possible impact it may have on Juliet. This seemingly disconnected question could have been shut down or ignored, but Mr. Cooper realized the student was inquiring about a possible relation between Juliet’s actions toward Romeo and her parent’s marital relationship. Mr. Cooper mediated the conversation, commenting that this question, which could have been construed as irrelevant or off topic, was a good one. He was able to “moderate, direct discussion, probe, foresee, and analyze the implications of student responses…a process that values personal knowledge and accordingly promotes student ownership” (Nystrand, 1997, p. 17). What is also important to note is that the teacher was not guiding students to a particular interpretation of the text but to their struggles with making sense of the text and possible meanings. Dialogic discussions allow for students’ interpretations to emerge and be supported or debunked because their role is not merely to understand and support the teacher’s interpretation.

Across the three examples from this lesson, it is clear that students were learning about noting particular details when interpreting literature (Rabinowitz,1987). This important aspect of understanding literature, knowing not only how to interpret but how to talk about that interpretation, is underscored in the next lesson.

Lesson Three: Student Poems. The third lesson, which took place in May, is different than the two previously analyzed. Mr. Cooper was beginning a unit on poetry and the focus was on helping students pay attention to details of a picture in order to create a poem. The picture portrayed a mother holding her young child; the child has his arms wrapped around the mother’s neck. In the picture, the peaceful faces and subtle smiles suggest a strong bond and love between the mother and the child. As a culminating activity, students were to read their own poems to the class and the class was to provide comments on their work. Because this was a new way of interacting in the classroom, that is, moving away from discussions of literature to creating poetry and critiquing each

other's poems, the focus was on ways to model and support discussion of poetry. As we have seen in the previous lessons and noted in our discussions of these, ways of talking about literature requires support in both development of ideas and how to talk about literature (Langer, 2010). As Langer (2010) states, "[w]hen teachers support students' ways to discuss, they focus on social behavior..." (p. 93).

Our first segment is of a poem read early on in the lesson. Mr. Cooper introduced the poem by stating, "She has a different take on this image." From his statement, Mr. Cooper placed the student as author who used language for a specific purpose. The student's interpretation of the picture, suggesting that the child is not loving towards the mother, may have been considered outside of what is acceptable to write about (Gutiérrez et. al, 1995) in some classrooms. By acknowledging that the student had "a different take" on the image, he embraced the student's work as part of the creative collective as opposed to a rule-breaking act.

S: [reads poem] It's about the child about to do the unthinkable, choke the mother.
T: I am interested why you chose this perspective on this image?
S: Don't you think...
T: Three comments
S: I thought that you would...it was creative to take it to another side.

Through Mr. Cooper's introduction ("she has a different take on this image") and follow-up questions, he not only modeled the type of considerations and questions that are acceptable when discussing poetry, he also validated the author's craft. This, in turn, set up the ability for students to take seriously the author's take on the subject. For the author of the poem, her ability to manipulate language to convey meaning is obvious; that is, the student knows enough about irony to create it in her poem. Her own description of her poem "It's about the child about to do the unthinkable" is evidence that she is aware that her audience would not be expecting what her poem portrays. It is clear that students pick up on the irony of the poem when one student states, "it was creative to take it to another side." Here, the manipulation of language by the author is recognized as an intentional invitation to an imaginary world (Lee, 2007).

The next segment highlights Mr. Cooper's support for social behavior and ways of talking when critiquing poetry. After a student read his poem titled "Poverty," the student explained that his poem was about poverty and escape.

S: It's so deep I'm drowning.
T: So, who's got a comment, please somebody different or else I'm calling someone out.
S: ...Put your head up. I heard that you were kind of nervous.
T: How about a comment that someone can use...putting someone on the spot, that's not cool.

S: You did good with your creativity...save me and stuff. I felt that was real good, deep.
S: In the picture they are happy, in your poem you was like even though you're happy, but still going through struggles.
S: I like how you focus on...[inaudible].
T: Last comment.
S: Reminds me of that movie we watched, how they had to run a mile to get back to their home.

The segment begins with a student's playful comment "It's so deep I'm drowning." This comment may be evidence of internally persuasive discourse. According to Bakhtin (as cited in Marshall et al., 1995) there are two types of discourse: authoritative, which is rigid and relies on a power imbalance, and internally persuasive discourse, which allow students to make talk their own, move it to contexts beyond the classroom, and allow 'play' and 'flexible transitions' (Bakhtin, 1981, p. 343). We see these types of play and transitions in the previous lessons (for example, in the second lesson, when I student stated, "I wanted to be my own person" in response to the teacher's point that one's worldview affects how one interprets the developing relationship between Romeo and Juliet).

Lee (2007) ties this type of word play to what is required to a response to literary reasoning. Specifically, response to literature requires "a playful attitude toward linguistic detail and ability to deconstruct figurative language" (p. 20). Although Lee discusses in particular the cultural ways in which signifying is used by African American students to make sense of rhetorical features in fiction, this seems to fit because the student's comment above is, after all, an exaggeration of a feeling and a play on words used to indicate the depth of meaning in the poem.

The student's comment "In the picture they are happy, in your poem you was like even though your happy, but still going through struggles" is particularly interesting because the student here is attending to an allusion. The student is able to pick up that in art, or writing, concepts or ideas sometimes are not what they seem to be and thus he is able to extend his interpretation of the poem (Lee, 2007).

The comment by the last student in this segment provides an example of how students successfully enter into dialogue with the text in order to arrive at meaning. When the student stated that the poem, "Reminds me of that movie we watched, how they had to run a mile to get back to their home," the speaker is successfully building his understanding of the poem through his history (personal and school history) to form some understanding of the poem (Langer, 2010; Lee, 2007; Rabinowitz, 1987).

In the lesson overall, students were engaged in dialogic discussion all the while learning how to provide constructive comments to their peers about their poems. In this lesson,

attention to literary techniques, language, and ways of solving literary problems were made more explicit. Along with attention to techniques in poetry, this lesson exemplifies the supports needed in order for students to participate successfully in literary discussions. As Langer asserts (2010) “Supplying collaborative support for ways to discuss helps students learn the social rules of discussion, such as what is appropriate to talk about in an envisionment-building classroom, how to check that they are being understood, and how to take turns”(p. 93).

Conclusion

All three lessons show high levels of student engagement. Each lesson consisted of whole class discussion where most of the students participated. The strongest evidence of engagement in discussion is the expanding of ideas, critique of interpretations, and providing evidence both from the text and personal experience. In the three lessons, students did just that.

The analysis of these three lessons suggest that dialogic discussion is necessary for learning but just as important are multiple aspects of student support and practice. In particular, this work makes it clear that dialogic discussion is sustained and supported by a social environment signifying third space and that these conversations must be situated within the disciplinary specific demands for learning.

This work also supports the idea that since learning is contextually based, we may need to focus on more than one framework to understand what is going on in a classroom that seems to promote student learning. In looking at the interrelatedness of the theoretical underpinnings, we realized that classroom conversations are never devoid of a domain and so they must be analyzed in the discipline in which they occur. Also, as the findings confirm, conversations do not happen unless students’ experiential knowledge and capacity are recognized as assets. That is, the teacher becomes a co-participant in the classroom discussions instead of the person who controls the answers. Students equally partake in building and leading discussions by connecting what is being discussed to what they know. The literature on dialogic discourse does not consider discipline specific talk or fully explains the importance of the social environment. This work bridged these three aspects and provided deeper understandings of the various dimensions of educational teaching and learning.

There are limits associated with field notes as the only source of data for this work. More specific data about the influence of the classroom environment and disciplinary conversations are lacking. However, this limitation also points to a need for further inquiry into the influence of students participatory roles in discussions, the social environment and how these are related to students’ own sense of learning and understanding.

The current study has several implications for practice. Teacher training programs need to help pre-service teachers understand the importance of the disciplinary specific demands for understanding literature, the norms and practices that support dialogic discussion, and the power relationships that influence student engagement and learning. More specifically, teacher training and in-service programs must include information on how to foster the type of discussions that are dialogic in nature and the beliefs necessary for disciplinary specific understanding and interpretation (for example, realizing that in literature understandings cannot be reduced to simple right and wrong answers). Also, teachers need to be provided with strategies and practice in forming, improving, and sustaining beneficial environments. Along the same lines, training needs to address ways to help teachers develop the type of teacher-student relationships that value and build on student knowledge and experience. As Gutiérrez et al. (1995) remind us, if a classroom does not have enough "interactional experience in the third space to mediate participation" then it quickly comes to a close due to being an "uncomfortable territory" (p. 466).

Future work will need to focus more closely on how disciplinary specific practices for literary interpretation, ways to engage students in practice of dialogic discussions and the space that allows for a prioritizing and voicing of student knowledge and experiences are especially beneficial for advancing minority students' understanding. This is of particular importance for minority students attending urban schools where often their cultural and experiential discourse is ignored or silenced (cf. Gonzales, 2005; Gutiérrez et al., 1995, p. 447).

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Constructing Gender: Contradictions in the Life of a Male Elementary Teacher

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ABSTRACT

Drawing upon observations, written communications, and monthly interviews spanning the participant's first year of teaching, this case study reveals contradictions men face as elementary teachers. Entering teaching with a "male" advantage, Brad was isolated within a "female" profession. Becoming the male role model he always wanted to be, he became constantly vigilant of his interactions with children. Celebrated for departing from the scripts of masculinity, he was simultaneously rewarded for reinforcing these scripts in his work. Although friends, teachers, and parents celebrated his career choice, he felt pushed to "move up" by "moving out" of the classroom. This study reflects the spectrum of contradictions men confront as male elementary teachers. Key words: male elementary teachers, professional identity, teachers as role models, gender, scripts of masculinity

INTRODUCTION

Upon entering the teaching profession, male elementary teachers encounter mixed messages. If they conform too strictly to the traditional scripts of masculinity they may be perceived as incompetent to work with elementary children. If, on the other hand, they are too nurturing and empathetic their masculinity may be questioned. Many of the male elementary teachers Allan (1993) interviewed expressed frustration with conflicting gender expectations. In his study of male primary teachers, Sargent (2001) found the men in his study to be highly conflicted regarding gender. Their masculinity was both a valued asset and their greatest liability. In short, they were suspect until proven innocent.

The men most often made direct reference to sexual molestation during these individual discussions of the difference between women's laps and men's laps…

Keith: I really love these kids. You know, I just don't care anymore. I mean, I know we're supposed to be kind of standoffish, but I can't be. These little folks need care and love and hugs. I even let them sit on my lap.

Paul: Why “even”?

Keith: Oh, that’s the big no-no. Women’s laps are places of love. Men’s laps are places of danger (Sargent, 2001, p. 53).

These mixed messages are but flashpoints in a constellation of contradictions that male elementary teachers encounter when entering the classroom. Most male elementary teachers quickly discover that the characteristic that most advantages them-their gender--also isolates them. Male elementary teachers are celebrated for their departure from the scripts of masculine hegemony yet these very scripts become the standard that validates their personal and professional behavior. On the one hand they are viewed as role models but their presence is a threat to children. They are obliged to nurture their students but must maintain a physical and emotional distance. A barrage of implicit and explicit messages compels them to leave the classroom and “move up” in the field.

Methodology

The purpose of this study was to investigate the experience of Brad, a young first-year male elementary teacher, through the lens of four contradictions men face in the elementary classroom. Grounded in the professional literature (herein purposefully integrated into Brad's experiences rather than presented as a stand-alone section), this study capitalizes on the authors' interest and former research in gender studies in education. The following question provided the focus for this study: How would Brad, in his first year of teaching, negotiate the mixed messages that male elementary teachers receive?

How would Brad negotiate the contradiction of being male in a “female” world?

How would he negotiate being simultaneously perceived as a role model and a threat?

How would he disrupt scripts of masculinity while at the same time reinforce them?

How would he negotiate being pulled into the profession while simultaneously being pushed out?

As a case study form of qualitative inquiry, Brad's experiences provide an in-depth look into our educational institutions and processes (Soltis, 1990). The lens of this male elementary teacher provides insight for teacher education and professional development.

This study was conducted during Brad’s first year of teaching immediately following his graduation from a small church-related liberal arts college in the Midwest. One of the authors had been a professor in his teacher education program. Brad was a traditional student who graduated in his early 20s. Following graduation, Brad obtained a teaching position in a small

rural school of 250 within a district that enrolled approximately 10,000 students. Brad was one of two male elementary classroom teachers on the staff.

Data, in the form of audio and video recordings, were collected over the course of a full year. The researchers recorded six 90-minute interviews with Brad (June, September, October, December, February, and April), two observations followed by stimulated recall sessions (September and March), and four focus group sessions. The focus groups were conducted with Brad and three other first-year teachers to provide a conversational context for the study (one in August before the school year, one in September, one in February, and one in June on the last day of the school year). Although all four first-year teachers' experiences were recorded and interpreted for various purposes, Brad's experiences were extracted from the focus group recordings to inform this study.

Multiple semi-structured interviews with Brad allowed the researchers to pursue the research questions as the year progressed with more specific, open-ended, non-leading questions such as, "What has been challenging you the most? In what ways are you experiencing success in your teaching? To whom do you go for support? What are you learning about yourself as you gain experience in the classroom?" Brad's experiences were explored before, during, and after his first year of teaching. Seidman (2006) noted that "interviewing is most consistent with people's ability to make meaning through language. It affirms the importance of the individual without denigrating the possibility of community and collaboration…it is deeply satisfying to researchers who are interested in others' stories" (p. 14).

To develop a contextual and empathetic understanding of Brad's experiences, observations were also conducted early each semester in Brad's classroom. These observations provided an opportunity to personally interpret his interactions with students and colleagues. The observations were videotaped and stimulated recall sessions were conducted with him the day afterward to co-construct an understanding of Brad's early teaching experiences.

Immersion in the Data: Collecting, Comparing, and Questioning

Interpretation, by contrast, is not derived from rigorous, agreed-upon, carefully specified procedures, but from our efforts at sense making, a human activity that includes intuition, past experience, emotion—personal attributes of human researchers that can be argued endlessly but neither proved nor disproved to the satisfaction of all. Interpretation invites the examination, the 'pondering,' of data in terms of what people make of it. (Wolcott, 2001, p. 33)

Wolcott's quote came alive in this study through the reading of transcriptions and field notes, listening to audio recordings, and repeated viewing of video recordings. The researchers also related to a critical point made by Gallagher (1995). Gallagher discovered, after struggling during her initial qualitative research experiences to make her data analysis rigorous, that the procedures described in qualitative research handbooks often went against the theory behind qualitative research itself. She concluded that although "the process of data analysis is central to

conducting qualitative research…coding, managing, and displaying data should be a meaning making process, not a procedure that is to be executed with exacting proficiency" (p. 26). Gallagher found that the act of applying specific procedures made her participants' lives seem "distant and unreal" (p. 25), and prevented her from personalizing her analysis process.

Brad's experiences were closely monitored and interpreted throughout the entire process of data collection. The researchers personally transcribed all of the interviews, observations, stimulated recall sessions, and focus groups in order to hear and listen repeatedly not only to Brad's words, but to his speaking pace, volume, tone, inflections, and moments of hesitation. Additionally, the video recordings of his observations and focus group sessions provided valuable nonverbal information.

The examination of new data in comparison to former interpretations created new questions for each successive interview. This cyclical collection-comparison-question process was repeated each time data were gathered, until about two-thirds of the way through the year when the beginning of the written narrative was drafted. As Wolcott (2001) said, "The conventional wisdom is that writing reflects thinking. I am drawn to a stronger position: writing *is* thinking" (p. 22). Writing was the single activity that most shaped and solidified the interpretations during the collection and processing of the data that revealed these four key contradictions.

Findings

This article examines four contradictory messages and the related literature through the lens of Brad's experience during his first year in the elementary classroom. Interviews and observations spanning a full year establish gender as the foundation of Brad's personal and professional identity. As he entered the classroom he quickly found that the long-awaited mantel of "male role-model" could be worn only with discomfort and confusion. He felt strangely apprehensive and vulnerable. His interactions with fellow teachers, students and parents were outwardly positive, but in the quietness of his own thoughts he often found himself awkwardly bumping into his own gender. Nothing in his prior experience prepared him to appropriate gender in the construction of a professional identity.

The following sections address the four research questions by summarizing the contradictions Brad experienced as related to the professional literature.

Contradiction 1: Male in a "Female" World

Brad entered teaching with a "male" advantage, but was isolated and misunderstood within a "female" profession. The transition from "student of teaching" to "teacher of students" was daunting. Further complicating this transition were the conflicting social expectations that accompanied being young and male. Brad explained, "It's a total transition….I went through college with it not being a big deal," --*it* being one of few males in a predominantly female profession. Although his identity was secure as a teacher's son and most recently as a student

teacher, now that he was out on his own, *it* bothered him. “I guess I was so used to it, I didn’t really know any other way. I guess I’ve always been around education, so that was kind of acceptable.”

When Brad got the job, he was relieved to know there would be at least one other young male staff member in his school. His male friends entering other professions did not seem to understand the challenges of teaching nor the pressures Brad would face as a male in a “female profession”:

…and he’s only a year older than me, so you know, not to be biased or anything, but just having another male to talk to sometimes helps a little bit, too. I’m looking forward to that. It’s nice, because a lot of my friends, besides my [education major] friends that I had at Riverside, I mean…having another teacher to talk to is great because they really don’t know what’s going on in the classroom, and they think it’s kinda like baby…I mean, you hear, “Brad, it’s just teaching.” But it’s a lot of work, and a lot of responsibility, so, just having that support, someone to talk to, if there’s a problem. Just getting it off your chest--that’s what I’m looking forward to.

Brad’s teacher education program did not structure purposeful discourse about the tension he would face as a man in a largely female profession. Skelton (1994) noted the need for open discussion in teacher education and in schools about how male teachers can effectively interact physically with children. Sargent (2001) also reflected on the importance of discourse about these gender-based struggles. “Teachers generally have few opportunities to exchange ideas regarding their teaching, and men teachers, in particular, are especially isolated from others” (p. 147). Nielsen (2006) contended that teacher education programs should structure opportunities to deconstruct gender issues, because “an awareness of gender discourse can better prepare men for the contradictions and conflicts they may face as they manage their masculinity in an occupation built upon the assumption that workers will draw from discourses of femininity” (p. 5).

For example, in Brad’s new position planning instruction was fraught with obstacles. In college, team planning was a structured expectation in many of the courses he took. However, in his school, team planning was not the norm. His teammates were both experienced female teachers who needed to arrive right before school or leave immediately afterward. There were two disconnects—they had little time for planning and little in common with Brad. He expressed, “…the vibes just aren’t there that I should feel for planning. They’re both great ladies; I really respect them and like them, but to sit down and do that work, it’s not there.”

At a staff development session, Brad felt torn between conversing with his female teammates and paying attention to the content of the meeting. “Honestly, I don’t want to rag on my team, but they were talking about ornaments and stuff the entire time, and I was trying to listen to them, but I have no idea what I’m doing, so I kind of want to listen, too.” Brad imagined being on the same team as the second grade teacher – the only other male who taught in a general elementary classroom. “If I were on the same team as Dave, it would be a whole different

story….It would be awesome, how well we would plan together; it would be perfect….If I was with Dave, I would feel more comfortable sharing my ideas."

To add to his professional isolation, Brad felt socially removed from the staff. He felt out of place as the only male who attended the school's holiday dinner, where instead of mingling with the women on staff, he sat at the bar with a male friend who just happened to be there that evening. He admitted, "I felt so out of place. Jesse [another male teacher] wasn't there because he had a game; no Mark, no Dave; no guys were there."

Brad sought out the friendship and support of the other three men on the staff -- Jesse (the P.E. teacher), Mark (the music teacher), and Dave (a classroom teacher) -- and took every opportunity to socialize with them during the school day. He even sacrificed his planning time to maintain contact with them.

Jesse--the physical education teacher--I've gotten to know him really well. A lot of the teachers, during their specialists of physical education, art, or music, they like to go back and work. It's kinda like your prep period, but it's kinda like my kind of time to talk to a teacher, too. So I'm in the gym for 15 minutes talking to him while the kids are warming up or stretching. And the music teacher, too. I'll talk to him for a few minutes before he has to get going… [the art teacher] is really nice, but I don't really connect to her. I say hi to her. It's kinda like a guy thing, almost.

Although Brad felt tension in his early teaching related to his gender, he outwardly dismissed it. "Maybe being male is different; I don't know. I haven't figured it out yet. I probably will never figure it out, either."

Contradiction 2: A Role Model and a Threat

Brad realized that being a male elementary teacher automatically associated him with role modeling. Teachers, school officials, and parents reinforced this notion as well. Brad was hired after his very first teaching interview recognizing that his gender was a significant factor in the hiring decision. He admitted, "They said, 'Well, we really don't look at anybody without their reading endorsement, but since we knew you, and you're a male, and you're a nice guy, we're gonna give you a shot at an interview.'"

School administrators in a study by Riddell and Tett (2006) noted that "in some primary schools there are no men at all" (p. 51). Riddell and Tett reported that in the 2002-2003 school year 88% of U.S. elementary teachers were female. Their data also indicated that male primary teachers' minority status gave them career advantages "on the grounds that they would provide a role model for the male pupils" (p. 78).

Allan (1993) found the male elementary teachers he interviewed to be highly conscious of their male advantage. "Many men felt they were given a hiring preference because of the public's

demands for more male role models, but were at a loss to identify exactly what this work consisted of" (p. 122). Allan's participants perceived "an important need for increased involvement of adult men in the lives of children, owing to the increasing number of single-parent families, or families in which fathers have limited interaction with their children" (p. 115). Martino & Kehler (2006) supported the recruitment and retention of male elementary teachers, but cautioned schools and society to avoid "essentialist arguments about the need for male role models in schools as a panacea for addressing boys' diverse educational and social problems" (p. 125).

Sargent (2001) noted that the concept of "role model" came up in every interview with his 39 male participants. However, while they consistently supported the concept, none of these men could provide a good definition for "role model." The inability to define "role model" (Thornton, 1999) is problematic primarily because it perpetuates traditional stereotypes about men and women that do not advance a more complex understanding of gender.

Accordingly, Brad saw himself as a role model for elementary students but he could not define the term nor articulate specific practices or methods that activated this role. Instead he defaulted to his gender as the basis for being a "role model." From his days as a high school mentor into his first year of teaching, being a role model meant being himself.

…just being a role model in the school system for the younger kids, you know, we were always interacting with the little kids, which was great, so I felt like I had a really positive influence over kids…and I think I've been building a rapport with kids--I think I was just born to do that, honestly.

While the male coaches and student teachers from his past provided the symbol of "male role model" they provided no substantive definition. "I looked up to them so much, just being a role model and having that male influence. I thought they were the greatest guys in the world." He admired the adult males from his past and sought to replicate their behavior in his own practice. However, he lacked any conscious or analytical definition which would guide his work with children.

While Brad welcomed the positive reinforcement he received for being a male role model he also recognized a corresponding dark side to that image. He was aware that his maleness could be perceived as a threat to children (Sargent, 2001). His use of the terms "always" and "never" captured his constant vigilance.

So I never really give hugs; I always give a high five or a handshake….if a little elementary kid would come up and give me a hug, I would probably do that, but if a fifth grade girl would come up and hug me, I would never do that. It's always a handshake or a high five…as much as kids want to be hugged, I would never do that at all.

Brad was constantly aware of his physical proximity to children, particularly girls.

…I always feel bad when you hear in the paper about a sexual abuse case because it puts a bad rap on guy elementary teachers. But it could happen in the case where it was a woman, too. I don't want to be looked at like that; that's kind of a bad rap right there. I always have a heads up on the situation. I'm well aware of what's going to happen. For example, when we went on a field trip and the parents were there, I felt like, you're a male around my daughter and I don't want them to think I'm a predator or anything like that. So I always keep my distance.

For example, Brad was leery of being found in his classroom alone with a female student. One day he tried to convince a girl who wanted to stay inside for recess to go outside instead.

What if someone walked in? I was at my computer and she was standing at her desk. She didn't get her homework done, so she said, "I'll stay in and get it done." And that was her responsibility. So I said, "It's alright, you can go outside." And she said, "No, I'll stay in and get it done." I guess you always hear about bad things that happen. I would never want to be in that situation where someone would think that.

His vision of himself as a role model was compromised by a corresponding set of negative social contradictions that imposed on him a threatening cloud of suspicion due to his gender. When Sargent (2001) talked one-on-one with the men in his study about gender-based tension, they accepted it as the way things were. However, when this topic came up in focus groups, the men in his study expressed anger and frustration with how society limited the quality of their interactions with children based solely upon gender. Male teachers often express concern that others could suspect them of child abuse. While these thoughts constantly run in the background, rarely is the topic addressed directly either as an accusation or as a point of professional conversation on the institutional level (Skelton, 1994).

Contradiction 3: Disrupting While Reinforcing Scripts of Masculinity

Brad was celebrated for departing from the scripts of masculinity, but he was also rewarded for reinforcing these same scripts in his work. Because our society limits the extent to which males should touch or nurture young children, male elementary teachers compensate by acting as the male role model, a role that simultaneously provides distance and connection (Allan, 1993; DeCorse, 1997; Gerson, 1993; Riddell & Tett, 2006; Sargent, 2001). Specifically, "men are being forced to 'do teaching' by doing a kind of safe form of hegemonic masculinity (Martino & Kehler, 2006; Roulston & Mills, 2000), albeit one that is closely monitored, through the use of compensatory activities" (Sargent, p. 154). Allan (1993) corroborated these conclusions.

They must assert--and especially model--'being a real man' in ways that are personally sustainable, that have integrity, and that are also acceptable to those who evaluate them on this important job criterion and control their careers. At the same time they feel pressure to conform to stereotypically feminine qualities to establish the sensitive, caring relationships necessary to

effectively teach children. For these men, gender is highly problematized, and they must negotiate the meaning of masculinity every day. (p. 114)

Brad and another male teacher coached fourth graders in after-school sports. In their role as coaches, they were able to nurture students following the scripts of masculinity (Connell, 1995; Roulston & Mills, 2000). Riddell & Tett (2006) noted that sports-related activities are common compensatory activities, allowing men to contribute to their school and relate to other male elementary teachers. Sargent (2001) explained that as men purposefully distance themselves from children, **"**they participate in the reproduction of the myth of stoic, distant men. This means they are participating in their own marginalization" (p. 68**).** Brad limited physical contact with his students to high fives and handshakes, always aware of others' perceptions.

Brad also assumed that the women on his teaching team would manage any of his female students' personal problems. Consistent with Sargent (2001), he even called the female teachers "mother figures." As a male, Brad could not follow the normative social script dictating the nurture of elementary students as a mother figure (Biklen, 1995).

Sometimes I feel like they need a female in this situation. Not that I'm not a loving, caring guy—I do—I care about every kid in my class. I'd do anything for them…almost like being a Mom figure; they would know how to handle certain situations….Sometimes students need that mother figure in their life so they can show that affection, which I really can't. I try to listen to your problems, and I can tell you this, but it's totally different coming from a male.

While Brad could not be a mother figure because of his gender, his young age limited his ability to assume a fatherly role. To mediate these deficits, Brad chose "brother figure," the most closely associated role given his age and gender. The third week of school Brad reflected,

I feel like an older brother….it's different how they act toward me than they would toward an older male. I still feel like I'm really young….And as a brother figure, I honestly feel like the students are like my younger brothers or sisters, and that's how I look out for them. Hopefully that works, but sometimes I honestly feel like they need someone more mature to handle situations.

The role of "brother" was a compromise position, mediating the conflicting pressures Brad experienced as a young male elementary teacher.

Brad was conflicted. He wanted to be a teacher, but he also found himself pulled toward the safe havens within the profession that were most closely associated with masculinity. He did not envision being an elementary teacher for a lifetime. He found himself drawn away from the nurture of young children and toward stereotypically male teaching positions. "Maybe I'd like middle school where I could teach one specific area. Probably social studies. It's kind of a typical role. He's a guy, coach, social studies teacher." This position would allow Brad to "be a guy" while doing what he *really* wanted to do—teach children.

Contradiction 4: Pulled In and Pushed Out

Brad was celebrated for being in the elementary classroom but felt pushed to "move up" in the profession and "move out" of the classroom. While men are explicitly celebrated for becoming elementary teachers, society implicitly compels them to move into other careers (Allan, 1993; DeCorse, 1997; Gerson, 1993; Sargent, 2001). Brad's perceptions supported this phenomenon.

Well, you don't really see too many male elementary teachers staying in it too long, really. They're always in administration or something else. I don't know if that's just part of the social norm…when I go to a math meeting and there's an older gentleman teaching fifth grade, I'm surprised he's not a principal or something like that, because you're so accustomed to seeing that.

Allan (1993) offered an explanation for the dilemma that often results in career changes for male elementary teachers.

The man who is too 'masculine' would be suspected of being an incompetent and insensitive teacher, while the man who is nurturing and empathic would be stereotyped as feminine and 'unnatural.' Thus, paradoxically, an initial hiring advantage to men carries with it certain disadvantages, insofar as it places men in an untenable situation. (p. 126)

This quandary leads to the "revolving door" (Allan, 1993) where male teachers are channeled into more male-dominated positions within the field. Riddell and Tett (2006) documented gender-based tension as one reason men leave elementary teaching. "Issues around the protection of children become conflated with ideas about masculinity, leading to mistrust of men as classroom teachers" (p. 78). By mid-year, Brad had enough teaching experience to know he related well to children, but already felt pressure to "move up."

I mean, I want to teach for a while, but I don't know if I should. Maybe I should venture out after I get experience, you know, try to work my way up in the education system. I thought maybe about being an athletic director, or a counselor, but you're still working with kids, too.

Although Brad loved teaching, he reluctantly planned to move to another role within the field of education. At parent-teacher conferences in December, Brad sensed that the fathers were wondering why he was a teacher. "I kind of felt at [parent] teacher conferences that some of the dads, although they enjoyed their kids having me for a teacher…were thinking, 'You're a teacher?' I kind of get that feeling. I don't know why." He added, "Because honestly, if you think about it, who can really teach? Who has the patience to be with kids, and just cares so much…not too many people can do it, I don't think." Brad contended that a teacher's ability to care for and teach children—regardless of the teacher's gender—should be the definitive criteria. Yet he knew this was not the case (Nielsen & Montecinos, 1995).

CONCLUSION

Brad's first year of teaching illuminated the complexities and contradictions male elementary teachers face as they enter the profession. Brad easily secured a job but soon felt alone and out of place on a female-dominated staff. Finally becoming the male role model he always wanted to be, he found himself constantly vigilant of his interactions with children. Although applauded for his desire to work with young children, Brad was conscious of his boundaries and felt constrained to nurture them through socially-sanctioned masculine roles and activities that placed distance between him and his students. His career choice was clearly celebrated by friends, other teachers, and parents. But simultaneously these allies and supporters sent subtle messages projecting on him a career that would cut short his tenure in the classroom. Following the traditional scripts of masculinity, he would move up in the profession and move out of the classroom. This path would distance him from nurturing students while diminishing his proximity to children.

Implications for Teacher Education

Brad's experience offers three important implications for teacher education programs. First, such programs should construct elementary teaching explicitly through a prism of gender. The challenges Brad faced as the lonely male on a mostly-female elementary staff need to be part of the discourse of teacher preparation.

Through critical reading and discussion, coursework in the teacher education program should purposefully and explicitly help to deconstruct gender as a primary characteristic defining teacher roles (Allan, 1993; DeCorse, 1997; Nielsen, 2006; Riddell & Tett, 2006; Sargent, 2001).

Second, teacher education programs should challenge the assumption that men will by virtue of gender provide a value-added element to the classroom (Martino & Kehler, 2006). The male-as-role-model is a predominant theme in the discourse of teacher education but a clear definition of what constitutes the male role model remains elusive and undefined (Sargent, 2001).

Third, teacher education programs should directly address the impact of gender on the teacher's role. Such programs should prompt purposeful discussion that extends beyond constructing men as celebrated heroes in a field dominated by women. In turn, programs should address the problems males will encounter when finding themselves working in close proximity to children. For men, the classroom will become the stage on which the contradictions of elementary teaching will be played out. Both men and women in teacher education programs need to engage the unwarranted suspicions men are faced with and the disproportionate adulation they receive within the teacher education program and the profession (Skelton, 1994).

Implications for Professional Development

It is important to assess what a case study of one teacher's experience can do and what it cannot do. Brad's experience provides a lens through which the professional literature can be examined. As such, his experience suggests three implications for professional development programs. First, as pre-service teachers graduate and are inducted into the profession, gender study needs to be a regular part of their professional development. For both male and female members of the school's staff, professional development should prompt teachers to reflect on gender as a social construct. Professional development should help to unpack the influence of gender in shaping the classroom environment and its diverse social and academic functions (Elliott & Schiff, 2001).

Second, professional development should work to disrupt the hegemonic scripts of masculinity (Martino & Kehler, 2006; Roulston & Mills, 2000) that require men to demonstrate their safeness and their straightness through traditionally-identified roles and attributes such as leading sports activities, lifting heavy articles, and technological expertise (Sargent, 2001). In short, men should not be shackled by social images limiting them to coaching, moving cartons, and fixing computers. Both the discourse and the practice of professional development should engage multiple masculinities (Collinson & Hearn, 2001).

Third, induction and professional development should find a place for images of men as career teachers, disrupting the assumptions that men will not stay in the classroom but rather move on to a "better" position (Allan, 1993). Masculine hegemony should be disrupted in the practice of elementary teaching thereby suppressing the social and institutional structures that work to replicate it (Connell, 1995).

In summary, Brad's experiences are consistent with a growing body of literature that problematizes gender and teaching. His experience reflects the tension men encounter and the resulting contradictions they face. Teacher education programs should purposefully and proactively poise men for the spectrum of contradictions they will face as male elementary teachers. Professional development programs should support male teachers through ongoing and open reflection with other men and women about the implications of gender and its impact on their professional practice.

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Perceptions About Learning to Read in 2nd-5th Graders

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Abstract

Perceptions about learning to read were studied in 474 second through fifth graders in three elementary schools. The children were asked to respond in writing to a question about what they would say if they were asked to help someone learn to read. Initially, the responses were analyzed qualitatively by identifying themes and categories; further analyses involved numerical comparisons between themes. The most common responses were about sounding words out, affirmative offers to provide help and recommendations for learning to read, and text choices; few answers reflected the importance of meaning or the role of comprehension in reading.

Teaching...can be likened to a conversation in which you listen to the speaker carefully before you reply. ~Marie Clay, 1985

Since the 1990s, so much has been revealed about how to teach reading. We know that proficient readers have strong decoding/word identification/vocabulary skills and are able to flexibly use comprehension monitoring and regulating strategies to make sense of text (Baker & Brown, 1984; Keer & Verhaeghe, 2005; Pressley & Allington, 1999; Raphael, 2000). We know that early intervention with struggling readers can counteract a downward trajectory (Cox & Hopkins, 2006; Glasswell & Ford, 2010; Reynolds & Wheldall, 2007). Yet with all that we know, we sometimes forget to *listen*, as Clay reminds us. We forget to find out what our students are really learning as we teach them to read. We forget to examine how our language, instruction, and actions across years are all transmitting a hidden curriculum of sorts and that in learning to read, students are acquiring much more than the explicit content that we are teaching.

The purpose of this study was to engage in a focused investigation of students' perceptions about what it means to learn to read, after they themselves had become readers. A perception is the result of using one's mind and senses to understand and is a formed understanding of about something in the world. There are a number of lines of

research focusing on students' perceptions and our study is located within this body of literature.

A rich line of research describes students' self- perceptions as readers or their beliefs about their reading abilities (Gambrell, Palmer, Codling, & Mazzoni, 1996; Henk & Melnick, 1995; McKenna, Kear, & Ellsworth, 1995). These studies indicate that self-perceptions can have a powerful impact on literacy development because beliefs tend to guide practices (Good & Brophy, 2003). Students' competence in learning to read is dependent upon both their developing skills and their beliefs of self-efficacy that make possible the effectual use of skills (Bandura, 1993; Chapman & Tunmer, 2003). Students' understandings of reading and their sense of efficacy as readers can influence stance about the reading process, choices of literacy activities, level of effort and persistence in establishing comprehension, and achievement (Henk & Melnick, 1995; Keer & Verhaghe, 2005).

Students' Perceptions of Reading

The focus of our study was not on students' perceptions of themselves as readers but instead on their understandings of learning how to read. The study centers on listening to what students perceived about the learning to read process and, in particular, the actions that they believed children must engage in to read, the skills needed for reading, the tools required, and the attitudes or motivations readers must possess. It fits into a line of work begun as early as the 1960s and stretching into the current era. A set of studies focusing on student's perceptions of reading involved interviewing mostly pre-readers or beginners to understand what researchers called, readers' *definitions of reading, concepts of reading,* or *perceptions of reading.* Reid's 1966 landmark study introduced what appeared to be a prototype for the line of research. Reid interviewed 12 non-reading five-year olds asking them three questions, "What is in books? How do grown-ups read? What is writing?" The results indicated that these young emerging readers had very limited understandings of the mechanisms of written language and little understanding of the overall purposes of reading. In 1969 Downing replicated and extended Reids' work by interviewing 12 five-year old children and experimentally testing their abilities to discriminate sounds and words auditorily. When asked, "What is in books?" children usually provided the following responses, "pictures," "writing," or "stories." Some would recall verbatim sections of text (e.g. Mary had a little lamb.) One clever fellow actually explained that stories could be found "on the floor, near the piano" where his teacher gathered the children to for read alouds. Children rarely used terms like "words" in their descriptions and never identified that information was the content of books. When asked, "How do grown-ups read?" children gave responses like "looking," "by sitting down," "by looking at the writing," or "by looking at the numbers." Downing concluded that both his study and the Reid's suggested that children had serious (and potentially crippling) understandings about the purposes of reading – to understand the meaning. He

also concluded that they had limited insight about the abstract linguistic terminology used in the teaching of reading. It was upon the basis of the Reid (1966) and Downing (1969) studies that Clay's landmark Concepts of Print test was based (Clay, 1989). Clay's assessment focused primarily on the mechanics of reading and evaluating the degree of knowledge a child possessed along a continuum of understandings about print. Her approach was more behavioral in nature. Instead of asking children what was in books or how grown-ups read, itself a rather abstract task, she simply organized a set of tasks through which children could demonstrate their understandings of reading mechanics.

Interestingly, a 2010 study of first graders' concepts of reading matches many of the findings in the earlier studies. Kiiveri, Maatta, & Uuiautti (2012) conducted a study in Finland with six-year olds, most of whom were non-readers, at the point of school entry. The phenomenographic study used an interview to investigate the perceptions of readers in four areas: a) their assessment of their own skills (self-concept as a reader); b) their perceptions about the ease (or difficulty) of learning to read; c) their opinions about how interesting reading might be; and d) their perceptions of the usefulness of literacy. The main finding of the study was that children concentrated mostly on the concrete elements of reading as described in the following quote:

Reading was something where one uses eyes and light if needed, sometimes one uses one's mouth and voice but mostly one uses a book or something else that can be read – according to some children, pictures can be read perfectly well, too. . . . reading appears in children's opinions as observing, recognizing words, and understanding them, it is a meaningful interpretation of written symbols. (Kiiveri et al., p. 35, 2012).

The Kiiveri et al., (2012) study sheds light upon the messages that pre readers have received about the act of reading and what they believe it to involve, but their perceptions are naïve.

In the 1970s Johns extended the early concepts of reading work with studies that included older and more experienced readers and related children's conceptions of reading to their relative achievement levels (Johns, 1971; 1974; Johns & Ellis, 1976). In all of these studies, Reid's original focus, What is reading?, appeared to be the thrust but Johns investigated the responses of older students. In a very simple 1971 study he asked 53 fifth graders the "What is reading?" question and ranked their responses using a five-level system (i.e. 1= don't know what reading is, 2= reading is a set of classroom procedures-workbooks, 3=reading is decoding, 4=reading is about meaning, 5= reading is both meaning and decoding.) Using the Gates MacGinitie Reading Test, he found a modest correlation between test results and concepts of reading (r_s= .31, .33). A 1976 study of over 1,600 children in grades one through eight obtained answers to the following three questions: 1) What is reading?, 2) What do you do when you read?, 3) If someone didn't know how to read, what would tell him/her that he/she would need to learn? Many

readers described reading as a set of classroom-based activities such as reading textbooks, workbooks, and meeting in reading groups. Additional responses focused on the decoding elements of reading and there appeared to be a trend with older readers having better understandings of the reading process than younger students.

Influences on Students' Perceptions of Reading

Many factors, including home, community, peers, and teachers have an impact on children's understandings about reading (Almasi, 1996; Johnson-Glenberg, 2000; Keer & Verhaeghe, 2005; Mathes, Torgesen & Allor, 2001; Moore, Alvermann, & Hinchman, 2007). Specifically, the practices and perspectives of classroom teachers can have a great influence upon students' conceptions of reading, motivation to read, attitudes about reading, and self-efficacy related to reading (Acikgöz, 2005; Chapman & Tunmer, 2003; Grossman, 1991; Richards, 2001; Zancanella, 1991). For instance, in classrooms where reading instruction is highly balanced, supporting motivation and enthusiasm and including focal areas in phonics, decoding, fluency, vocabulary, story structure, metacognition, and comprehension, we would expect that student perspectives of reading would be similarly balanced and reflective of those elements of reading. On the other hand, in classrooms in which there is a strong instructional focus on specific skills such as phonics, we would expect that children would view reading as being about knowing and utilizing letter/sound knowledge. We would also expect that as students move into the upper elementary grades, their emergent literacy skills such as phonemic awareness would be well developed and integrated, and their perceptions would more heavily reflect that reading is about comprehending and learning from text (Keer & Verhaeghe, 2005; Pressley & Allington, 1999; Raphael, 2000).

In fact, empirical work supports these assumptions. A set of very targeted studies in the late 1980s and 1990s similar to the earlier Reid and Downing research, contrasted children's' concepts of reading based upon different skill levels and experiencing different instructional approaches (Bondy, 1990; Dahlgren & Olsson, 1986; Freppon, 1991; Rasinski & DeFord,1988). Bondy conducted a four-month naturalistic study in a first-grade classroom and found that students' concepts of reading differed based on their reading groups. Higher ability reading groups held more meaning-centered concepts about reading while students in lower level reading groups held views more centered on the surface level elements of reading. Rasinski and DeFord (1988) contrasted first graders' concepts of reading based on the instructional styles of their teachers (i.e. Mastery Learning, Traditional, Literature-based). Students were asked, "What is reading? What is writing? What do you do when you read and write?" Researchers rated answers on a seven-point scale with a score of seven matching the most meaning-based answers. Students in Mastery Learning or Traditional classrooms viewed reading as something to get done in the classroom or as a set of tasks to be completed, while students in the Literature-based classrooms viewed the purposes of reading and writing as

communicating and accessing stories. In a similar 1991 study, Freppon investigated first graders' concepts of reading in skill-based and literature-based classrooms. In addition to using a number of achievement measures, Freppon also used running records and passages that were altered to identify readers' strategies. A 17-item interview provided data about learners' perceptions about reading. They were asked a forced choice question about what is more important in reading: (a) getting the words right or understanding the story, or (b) thinking about the story in your mind or saying all the words right. Both groups actually possessed similar concepts of reading but the literature-based group used more reading strategies and viewed reading as a meaning making process. This group also rejected the altered passages as incomprehensible. In sum, this set of studies indicated that first graders' practices in approaching and making sense of text are guided by their perceptions about reading, which are influenced by their schooling experiences.

We were interested in the how instructional approaches and teachers influenced the perceptions of older readers, however. Moore, Alvermann and Hinchman's (2007) findings indicated that teachers influenced the literacy practices of adolescents and significant others in their lives, and some connected reading experiences in school and out of school. Students who enjoy and are enthusiastic about reading appreciate that reading is a necessary life skill that allows them to understand people, life, and themselves. Yet, we were unable to find studies investigating the influences of instruction on the perceptions of readers in second through fifth grade.

Rationale for the Study

Despite the rich base of research investigating students' concepts of reading, our analysis of the literature suggested that gaps existed. We conducted this study for three reasons. First, we noted that the preponderance of the evidence related to students' perceptions of reading focus on first graders or emergent readers. In fact, the most recent study investigating the perceptions of readers above grade one was conducted in 1976 (Johns & Ellis, 1976). We wanted to understand the perceptions that readers at higher levels possessed to see if trends in findings shifted as students developed. Second, we wanted a study that reflected students in grades two through five who were attending school in a more recent era. Reading instruction in the 1970s is quite different from reading instruction today. Third, we wanted to use a written question to gather students' perceptions. In considering the oral interview methodology we noted the pressure in asking students to produce an oral response with an adult. Although this methodology connects with emerging readers who likely have very limited writing skills, we believed that we would get richer answers without the pressure of adult "face time." Furthermore, many of the previous studies did not gather students' natural responses to questions about reading but instead offered up to five forced choice answer options, thus limiting the data.

Understanding children's perceptions provides a lens into what they are experiencing and how they are making sense of it. The purpose of this study was to examine perceptions of 2nd-5th graders about learning to read. Upper elementary students in grades 2-5 were selected for this study because these grades encompass a range of students including those who are at or beyond the emergent reading level through those who have reached a level at which they are expected to have the capacity to engage in reading to learn. We expected that children's mature perceptions of reading would be reflected in their suggestions for emergent readers. The research question was: What recommendations do 2nd-5th graders have for beginning readers?

Methods

Participants

A total of 474 2nd -5th graders participated in the study. Data were collected from students in three different elementary school settings in a mid-Atlantic state. Each school was in a different school district. Mountain Elementary had 45 teachers, served 553 PK-5 students and was located in a university town of 39,000 residents. Creek Elementary had 35 teachers, served 416 K-5 students, and was located in a town of 25,000 residents. Harvest Elementary had 25 teachers and served 228 PK-5 students in an urban town with 91,000 residents. All three schools, referred to by pseudonyms, qualified for Title I federal assistance. Table 1 includes information on the schools. The proportions of students across the four grade levels were evenly distributed, with the majority of students in each grade level ranging from 22 to 27% within school. At Mountain Elementary, 24% of the population was identified as culturally diverse. Creek Elementary included 19% and Harvest Elementary had 97% culturally diverse students. The objective in selecting these three schools was to include a representative population of schools in the state/region.

Survey and Procedure

A survey was developed that included demographic questions (grade level, gender) and one question about children's' perceptions about learning to read. The focus question was an open-ended short answer question - "If you were going to tell someone how to read, what would you say?" Children's understandings of reading and the process of learning to read were reflected in their suggestions about how others could go about learning to read. Responses to the short-answer question varied from no response, to a few words, to 2-3 sentences or phrases.

The survey was administered to the students in their classroom settings during a 30-minute time frame. To assure consistency in survey administration across schools and classrooms, a script directing teachers to read the items was provided for the teachers. To counteract inherent social desirability bias in self-report measures, the surveys were completed anonymously.

Analysis

Initial data analyses were qualitative, with the open-ended response data categorized to identify student perceptions about learning to read. The open-ended responses were read repeatedly for the purpose of initial identification of recurring themes. After prevalent themes were noted, constant comparative analysis was utilized to inductively code each of the responses, using a successive process of examining, comparing, and categorizing the data. Constant comparative methods of analysis utilize inductive reasoning, add rigor, and provide a systematic approach to qualitative data analysis procedures (Strauss & Corbin, 2007). The data were double coded to maintain the contexts in which information was provided. First, the data were coded as a whole, then they were segmented by grade levels and by schools for the purpose of considering possible differences in the perceptions of students at different elementary levels and in differing school contexts.

Because of the large number of participants and coded responses for each theme, counts were made of the numbers of written comments recorded for differing themes by grade level and school. Percentages of coded responses were calculated as a means of comparison. These numeric perspectives on the data allow for a comparison across the grade levels and schools; however, because of the qualitative nature of the data and the use of double coding where individual data items reflected more than one theme, these counts and percentages can only be considered illustrative of the data.

Results

The results are reported by: (a) themes across the entire data set, (b) comparisons of themes across 2nd, 3rd, 4th, and 5th grades, and (c) comparisons of the themes across the three school contexts. The numbers of items for each theme identified in the data were counted to provide perspective on the incidence of data related to specific themes. Because some responses were double-coded, there are greater numbers of total coded responses than actual responses. Table 2 identifies the percentages of total coded responses in the identified themes. About 12% of respondents did not provide an answer to the question.

Sound it out or pronounce it

The most common response, subsuming 33% of all coded responses, was the advice to "sound it out." When asked what they would tell someone if who needed help learning to read, many respondents advised readers to sound out words. In this same category were included a handful of directives to pronounce the words. A sampling of the writings included:

Wut is this werd soud it out. (2nd)

You haft to sound it out and you can mack it into littl words and sond it out all tugr. (3rd)

Know every letter + the sound of it. Know the sound of combinations of letters. (4th)

You pronounce the letters in each word then read the words. (5th)

The recommendation that someone learning how to read should make use of grapheme/phoneme relationships in pronouncing words was consistent across all three schools, and all four grade levels.

A review of responses showed that a number included invented spellings. Many of the participants did not know how to spell the word "sound," so they produced versions including sand, sod, sond, sown, soud, sowd, sud, sawd, sowed, sownd, saw, soned, soand, shound. We were interested in whether or not misspellings were more frequent in the "sound it out" theme and so we identified the proportion of responses within top six themes with misspellings along with the numbers of words misspelled. Proportionally, 19% of the 225 coded responses in the "sound it out" theme possessed 42 misspelled words. This proportion of misspelled words was surpassed only by the "try and practice" theme in which 22% of the 51 coded responses possessed misspellings. By contrast, in the next largest response category -"give help," only 4% or seven of coded responses possessed spelling errors. Thus, respondents who suggested, "sound it out," appeared to be more likely to have misspelled words.

Willingness to Give Help and Recommendations

The second most common response to the question was a response about willingness (or unwillingness) to provide help (28%). Many respondents gave a basic response indicating their willingness to help (e.g. "Yes," "Sure I would," "I would teach you how to read," "no,"). In this theme, the majority of children stated that they would help someone learn to read with responses such as, "yes." There were also numerous cases in which students implied willingness to help with comments like, "if you can't sound it out ask me and ill tell you," and "do you have trouble with reading cause I can help you."

Thirteen students had negative responses indicating that they would not help someone learn to read. Some just said, "no," and others made comments such as, "I'm to busy to teach you," and "I can't teach you how to read because I don't know how to teach someone how to read." Several children indicated uncertainties such as "if I wolud help you, what if I miss a word," and "I need help reading so you could help me."

There were also numerous recommendations about what beginning readers should do. These suggestions included using suggestions like using a finger to point to words, reading from left to right, enjoying reading, choosing interesting texts, having courage,

and not stressing out. There were fifteen students who stated that readers should get help from adults. They suggested getting assistance from teachers, reading teachers, librarians, parents, and adults in general.

Some representative comments included:

"if you cannot read the book or it is boring do not try to. theres no poit is read a stoy that's not fun their ment for fun" (3rd)

"take your time! and enjoy the book." (4th)

"It takes courage and imagination to read a book. Believe that you can do it." (5th)

The most striking aspect of this theme was the willingness of the participants to help others learn to read. Their written comments about learning to read appeared to be genuine, as though they perceived that the survey request was likely to lead to a request for their help.

Reader-Text Matching

About 11% of all responses reflected participants' attention to text-reader matching - finding books that were at the appropriate difficulty or interest levels. Many of the participants made recommendations about text difficulty with attention given to the unique needs of beginning readers. A common suggestion was that readers should begin by reading easy books then move on to more difficult texts. For example, a 4th grader wrote, "get a esy book like a adb. Look, red it and that's what made me read," and a 5th grader wrote, "I would say to start off on easy books with easy words, and a lot of pictures in it." Several participants made references to leveled books and picture books. "Get 1st leveled books." (2nd) "I would say start off on a 1 level book and keep going up until you start to read." Other students identified specific titles or authors, as in, "Hatching magic. The hungry caterpillar. treehouse," (2nd) "read Dr. sues books," (4th) and "I would tell them that they should start learning words with the cliford's phonics" (5th). These responses suggested an awareness of text leveling systems and/or an understanding of text features available in texts that might make them easier or harder (e.g. pictures, phonics support, high frequency words in Dr. Seuss).

A second feature of this text-reader matching theme was attention to interest and motivation. The following responses exemplified this idea, "to make the first book they read about there favorite topic," (4th) and "Read something you like and another way is to ask your friends if they know any good books" (5th). Similarly, a number of students pointed out the importance of enjoying books, as in, "Be able to enjoy the book don't read books you don't love" (4th). A few students noted that books should be obtained

outside of school. A third grader wrote, “Don’t like school books. Good books at home,” and a fifth grader commented, “go to a bookstore to get books about real people and different kinds of people.” The participants in this study demonstrated in their comments that they found the reading of easy, leveled, interesting books to be important in learning to read. Interestingly, there were no references to learning materials such as workbooks, workbook pages, or skill-building materials and activities that some children encounter in school reading instruction. As discussed further in the article, the text-reader matching theme was much more prevalent in fourth and fifth grades (See Figure 1).

Read, learn, or memorize words

A total of sixty responses or 9% of all coded responses, centered on word-level reading. The following responses exemplified this theme, “Read a word then another word than you will read;” (2nd) “It’s easy. All you have to do is read words;” (3rd) and “You have to try to figer out want the words are and the after that you are reading” (4th). There were also several suggestions that readers must learn or memorize words. For instance, from a second grader came the comment, “learn some words.” One third grader wrote, “When you see it again, memorize it,” and a fourth grader provided the advice, “Memorize the words. May memory be with you.” In a few cases, there were suggestions that knowing words was connected with sounding words out, as in “Sound out the words. help them learn what word it is” (3rd). However, the data related in this theme were primarily about saying, learning, or memorizing words and the responses often contrasted with “sound it out” approach.

Try or practice

Over fifty of the participants (7%) acknowledged the importance of practicing for people learning to read. Most commonly, they wrote, “try your best,” “try again,” or “try hard.” Some students connected trying or practice with improvements, as in “If you can’t read just keep trying and you will get it” (2nd) and “If your not very good at reading try try again.” (5th). In other words, when asked to explain how they would tell someone to read, these participants offered encouragement and suggested practice.

Spelling

A small set of participants (3%) identified a connection between reading and spelling. For example, a second grader wrote, “Start to spell so you know the words and can read,” and a fifth grader commented, “If you want to read you need to learn to spell.” Other participants more generally suggested that spelling is helpful in learning to read, as in, “Start to spell so you know the words and can read,” (2nd) and “First I would help them by spelling out words little by little” (5th).

Letters/alphabet/syllables

Another topic of focus for a few participants was that of learning letters or the alphabet, or syllables. Comments included: “I would teach them the alfabet,” (3rd), “If you know the alphabet, look at the letters and sound out the word with the letters of the alphabet, (5th), “I would tell them about all the sounds A-Z. I would explain how to read letters together” (5th), and “Figure out how to say the syllables: (4th).

Meaning/understanding

Fifteen participants wrote responses that contained the word “mean” or reflected that understanding or connecting with a story is important in reading. In more than half of these cases, meaning was indicated at the word level. For example, a second grader wrote “I wude say that word means ____,” and a fourth grader commented, “I’d tell them what the words mean.”

There were six recommendations that indicated understandings beyond knowing meanings of words. A second grader wrote one of these and fifth graders submitted the others. The six suggestions related to meaning were:

“Try to say it with your imagination.” (2nd)

“Try to picture the scene.” (5th)

“Feel like you are inside the book.” (5th)

The low number of written comments related to this theme demonstrated that these participants did not believe that meanings or understandings are significant in learning to read.

Read to them or reread

Eight students specified that they would help another person learn to read by reading to them and/or recommending that they reread. Responses in this category included, “Listin to me read this book then you repeet after me” (2nd), and “I would read the book to him then see if he can read it” (4th).

Talk or writing

Five participants indicated either that reading was related to talking, or that writing is helpful in learning to read. Regarding talk, a third grader wrote, “I would say first you wold need to know how to talk and how to prone different words. If they can talk and say different words I would tell them to start with easy books then get harder.” Suggesting that writing is helpful, a fourth grader responded with, “You should write a small story to get to know what words look like.”

Use illustrations

In three responses, participants indicated that illustrations could be helpful to readers. For example, a fourth grader wrote, “First look at the words and sound them out, and look at the picts, they help you.”

Comparisons across 2nd, 3rd, 4th, and 5th grades

To compare the proportion of coded responses by grade level, we identified the percentages of coded responses within each grade level for all of the themes (See Figure 1). Keep in mind that the responses were doubled coded, so response levels within categories were not mutually exclusive. A respondent could have expressed “willingness to help” and a reference to “spelling,” for example. The percentages of response coded to different categories within grade levels, do, however, reflect potential trends. These analyses revealed the following four patterns: a) the consistency across grade level of the “sound it out theme;” b) the prevalence of attention to text-reader matching in grades four and five; c) a greater percentage of second and third graders responding in the *give help* theme, and d) a higher incidence of no responses in second and third grade.

The advice to “sound out” words was uniformly the most common response to the question about telling another person how to learn to read. Participants in all grades consistently suggested this idea at rates at or above 25%.

Fourth and fifth graders more frequently identified text-reader matching as an important reading suggestion (14-17%) than second and third graders (4-5%). This suggested that developmentally upper elementary students were more aware of text-reader matching as an important variable than lower elementary students. Importantly, fourth and fifth graders gave attention to both difficulty and interest, suggesting that they believed both to be important.

Second and third graders were more likely to respond with an offer of help. Over 28% of second and third grade respondents expressed some level of willingness to help in response to the question whereas a little over 20% of fourth and fifth graders showed this same interest. In all grades, the *sound it out* and the *willingness to help* themes, subsumed over 50% of responses. In second grade, non-responses were equivalent to those in the *sound it out* theme (25%). The older students had a greater variety of responses, and appeared to show more diversity in their recommendations.

Comparisons across the three school contexts

To examine possible differences across the three school contexts, counts were made for each theme by school. This yielded the percentage of respondents within a school who provided responses within a given theme (See Figure 2).

Within each school between 45 and 73% of responses were coded in the "sound it out" or "give help" theme. Nonetheless there were differences in the degree to which participants in different schools supplied certain types of responses. For instance, students from Mountain Elementary identified "sound it out" responses at higher levels (36%) than the other two schools (25-26%). In addition, students at Harvest were more likely to express willingness to give help to beginners (37%) than students at the other schools (Creek-26% Mountain-20%). Text-reader matching was about twice as likely to be a suggestion of Creek students (14%) than Harvest (5%) or Mountain (8%). The Harvest students wrote shorter responses to the question posed and their comments were more evenly divided across all themes.

Discussion

In 1969 Downing wrote, "It is a serious error to assume that children always learn only what the teacher thinks she is teaching. This is why teaching methods are extremely important. They are important not for the usual reasons which people give, but because of the concealed lessons which are unintentionally taught by different methods" (p. 226). As literacy teachers we are so often in the position of guiding reading instruction and supporting high quality instruction. While teaching a child to read is a highly responsive and interactive endeavor, we rarely stop to ask children what they believe about learning how to read. By asking students in 2nd-5th grades what they would tell a student learning how to read, we were able to get some small indication of the messages that they received and had perhaps internalized. The study produced some interesting patterns that we believe have implications for beginning reading instruction. Below we describe four patterns that emerged from the findings: a) the degree to which meaning-making is married with perceptions of learning to read; b) the preponderance of *sound it out*; c) a willingness to give help; and d) developmental trends in the awareness of reader-text matching.

Second-Fifth Graders Do Not Perceive Learning How to Read as Involving Meaning-Making

As discussed further in the paper, most participants, regardless of grade or school responded to the survey question with suggestions to sound out words or with an indication of willingness to help. While this reflects what was on their minds, it is also remarkable because it shows what was *not* on their minds - meaning. Three types of recommendations for beginning readers related to meaning or comprehension. These themes were (a) getting the meaning or understanding the story, (b) talking or writing

about stories, and (c) using illustrations. Taken together, there were 23 student responses that corresponded with these three categories (less than 4% of all coded responses).

We make several observations about this trend in the findings. The first is that the responses could be both a reflection of the question asked and the hurdle that word recognition developmentally poses for the beginning reader. In considering the low number of responses related to finding meaning, it is important to recall that the participants were asked a question about what they would say if they were going to tell someone how to read. This question clearly focuses on process - how to read - and likely sent participants to the mechanics of reading. It is certainly not surprising that participants described elements of word recognition (e.g. letters, sounds, memory) in responding to the question, as it is one of the most concrete, tangible, and prominent behaviors of the learning-to-read process. The children's responses reflect the perspective that being able to identify words is a precursor to comprehension; the goal is to figure out the words, and once that happens, getting the meaning will be possible. Yet, we found it noteworthy that meaning-checking was not described as at least some part of the process of learning to read.

Second, participants may intuitively understand that the kinds of stories read by beginning readers are typically short (often less than 100 words) and not rich with meaning or fodder for comprehension. They may correctly understand that the most difficult challenge for most beginning readers is recognizing words. It is the behavior that holds students back initially.

Lastly, it might be that the respondents did not mention meaning as a strategy for telling someone how to read because, in their minds, it was the goal and so very obvious that it did require explicit attention. Nonetheless, an orientation in the early grades that does not include some mention of comprehension as part of the learning-to-read process may be contributing to a pervasive mindset that is carried into the intermediate grades - reading is about word recognition solely. [Note. As described below, older participants did show attention to interest as a variable in text-reader matching and this appeared to reflect some attention to the influence of content in the learning-to-read process, but is a separate type of response.]

Sound it Out: Children Echoing an Oft-Misguided Prompt

The results showed that, across grades and schools, at least 25% of responses included the suggestion that sounding out words would help someone learning how to read. This perspective is in keeping with both the alphabetic nature of English as well as the literacy research that reflects the essential nature of phoneme/grapheme knowledge in emergent literacy (Adams, 1990; Chall, 1996; Ehri, 1998). English *is* a morphophonemic language - learning and automatizing phoneme/grapheme relationships and morphemes

significantly influences word recognition and thereby comprehension. Because the participants were asked to make recommendations for emergent readers, we can presume that they had instruction in using phoneme/grapheme relationships to identify words. It is logical and reasonable that they felt it was important for children to sound out and pronounce words.

We did find it striking that there was one school in which a greater proportion of responses included the *sound it out* recommendation. Thirty-six percent of responses from Mountain Elementary suggested sounding out words, which was about 10% more than the other schools. We are not sure how to explain these differences, but beginning reading instruction at Mountain Elementary may have placed slightly heavier emphasis on explicit phonics instruction and this might have influenced respondents' perceptions about how to help beginners. We did review the demographics of the three schools but we did not identify any characteristics to which we might attribute the trend at Mountain Elementary. Mountain and Creek represented higher numbers of Caucasian students and lower levels of poverty, while Harvest served a culturally diverse population in a high poverty neighborhood.

What was most ironic and revealing about respondents' suggestions to sound out words was that for 19% of them, the *sound it out* response was coupled with misspellings, on average about two spelling errors. So while they recommended making use of phoneme/grapheme relationships, it appeared that they did not have a complete command of these relationships themselves. We interpret this finding in three ways. First, although the script that guided the administration of the survey did not contain specific directions about spelling, respondents were told that the survey would not be graded and that the focus of it was on understanding their perspectives. So, correct spelling was not emphasized and respondents might have correctly assumed that getting their ideas down was more important than spelling correctly. Second, we note that spelling and word recognition are separate but related processes. Usually, children can recognize words before they can accurately spell them. Word recognition is an analytic process in which children begin with a printed stimulus on a page whereas spelling is a synthetic process in which children must integrate their knowledge and produce the likeness of a word on a blank page. It is not unusual for children's spelling to lag slightly behind what they can read. However, responses in the *sound it out* theme were more likely to possess misspellings even when compared to another large theme (*e.g. willingness to give help)* with a similar number of coded responses (n=191). Only 4% of responses in the *willingness to give help* category possessed misspellings. This led us to our third interpretation. For many children (19% in this study) the directive to *sound out* words may be repeated by parents and teachers so much that it becomes a part of advice that they pass on but they may not fully understand this advice within the context of the words they are asked to sound out. For them it is just what you tell someone to do if they cannot

read a word - but “sound it out” works only if you have knowledge of the letter/sounds and/or morphemes in the word that you are trying to recognize. It is totally useless if there are patterns that you do not know. For instance, directing a second grader to “sound out” the word *enough* does not make sense unless the student has command of the *–ough* pattern. Without this knowledge, sounding out will not lead to an accurate oral pronunciation of the word. As asserted by Brown (2003), teachers and parents should align word prompts with student development and only use the *sound it out* prompt for words that contain patterns that a child can honestly sound out.

Willingness to Give Help

The second most common response that participants provided was an indication of their willingness to help. The theme of giving help and making recommendations can be viewed as closely related to the theme of suggesting that beginning readers try hard and practice. It was heartening that the participating children in all three schools were apt to respond to the survey item with willing offers to help others learn how to read. There was great sincerity in children’s comments like, “Yes, I will help them.” The overall response to the survey was positive in nature, with many indications that the children took on the task of survey completion seriously and authentically. Some children indicated worries about their inability to help others learn to read; others recommended getting help from adults including parents, teachers, and librarians. We are reminded of the classic study of very young children, whose insight that they did not know how to read, signified some understanding of the complexities of the process (Clay, 1977). We also found it interesting that at Harvest Elementary School, there was a greater percentage of students who made a response about their willingness to help (37% vs. 20-26%). Again this suggested that some school-level feature might influence students. It could be that that culture at Harvest particularly emphasizes cooperation amongst students. There was also the belief that learning to read requires effort and practice.

The responses in this category also led us to the possibility that our question was a bit misconstrued. The intent of the question was to capture perceptions about the process of learning to read, how students learn to read. However, responses describing willingness to help did not focus on the process but instead addressed the question of *whether* or not the respondent was willing to help. We wondered if there might be a developmental trend in this response, perhaps suggesting that younger responders were more likely to provide this response because they did not understand the question in the same way as the older readers. We did not clearly find such a trend in the data.

We did find however, that second graders showed of highest proportion of non-responses than students in other grades (25% in 2nd vs. 7% in 3rd, 11% in 4th, 10% in 5th). This

suggested that indeed it was possible that second graders may have been more likely than responders in other grades to misunderstand the question.

Child Awareness of Reader-Text Matching May Have a Developmental Component

Participants did give attention to the importance of reader-text matching as something that they would tell someone learning how to read. We found four trends in these data.

First, respondents addressed both text difficulty and interest as components of reader-text matching. They frequently suggested finding easy or leveled books. Indeed, inappropriate books can derail the learning-to-read process (Author, 2007). They also used the term "leveled" to describe text difficulty, which suggested a language that may be in place in some schools. However, respondents also advised beginning readers to find books that they liked or that were interesting, noting that unmotivating, uninteresting books should not be the diet of beginning readers. Interestingly, respondents did not make reference to any other types of materials related to school literacy instructional practices such as workbooks, worksheets, or basal readers. They did not say, "Get a workbook and start on p. 1" or "Do your workbook pages the best you can." This suggested that these types of materials may not have been used in the participating schools and/or were not perceived to be an essential part of beginning reading instruction.

Third, we noticed that Creek Elementary students were more likely to address reader-text matching and this suggested that their school might have given more attention to this element of reading. Lastly, and perhaps most interestingly, we found evidence for a developmental trend in awareness of reader-text matching. Fourth- and fifth-grade readers provided more responses in the reader-text matching theme than younger readers, suggesting that they may have been had more cognizance of this feature of reading instruction. This would fit with a developmental trend that usually shows older students to be more metacognitive about literacy processes.

Connections to Previous Studies

When we related the findings in this study to the literature we found interesting intersections between our findings and those of others, as well as discrepancies. The focus of our respondents on the most concrete and tangible elements of reading, the words, letters, and sounds connected exactly with the earliest studies showing that young emerging readers formed perceptions of reading around the imageable elements of the act (e.g. books, looking, sitting, words) (Downing, 1969; Kiiveri, et al., 2010; Reid, 1966). In our study, however, respondents were more specific in their understandings, referring predominantly to using letter sounds to sound words out. Our participants seemed to possess the explicitly linguistic terminology that the emergent readers in the earlier studies did not. However, the participants in our study did not appear to have moved beyond those explicit terms, as the series of studies by Johns showed (Johns, 1971; 1974;

Johns & Ellis, 1976). Unlike the older readers in the Johns studies, our participants did not appear to hold more meaning-centered views of reading. The older readers in our study did appear to naturally mention text-reader matching and motivation more than the younger participants but did not explicitly identify comprehension or meaning. Thus, when not provided with a forced-choice option (as in the Johns' and Bondy studies) our participants did not mention meaning more frequently. Lastly, we can make some hypotheses about the influence of instruction on our respondents based on the literature. Although we did not identify the instructional approaches taken by teachers or the groups within which students were taught, as in Freepon (1991) and Rasinski and DeFord (1988), we can surmise that their classrooms likely had a big emphasis on decoding. Both the Freepon and Rasinki and DeFord (1988) studies made this connect and we surmise that these students, who likely experience instruction impacted by Reading First initiatives, were influenced by the instructional approaches in their classrooms.

Summary

The purpose of this study was to understand the perceptions that students had about learning to read - what they believed about how to help other children in the process of learning to read. Although we do not have conclusive explanations about exactly why students responded in the ways that they did, we do have several theories and believe that this work has some implications. When reflecting on the results of this study we are reminded of the importance of the language that we use with young readers, the influence of school culture in shaping perceptions about reading, and the need to integrate the very important code-level focus in primary grades with the equally important meaning-making focus.

In several instances this survey functioned as a mirror, with respondents reflecting back to us the messages and language that we as teachers use with them. The prevalence of the advice to "sound out" words in all situations and with all words connects with our experiences that reflect both the pervasive and often mindless use of this word prompt. In our opinion, many teachers and student teachers give this advice almost automatically without any analysis of the word that the student is to sound out. We feel strongly about ending this pattern in beginning reading instruction. First we must give careful attention to the books that we ask children to read. If sound it out is a frequent mantra during the reading process, the reader-text match might not be right. We also believe strongly in Brown's (2003) advice on this issue, which emphasizes the alignment of teacher prompts with student development. Brown (2003) suggested that advice to sound out words should come after a wait period and a generic, follow-up prompt. Only after these two actions and, only if the word contains patterns that the child knows, should "sound it out" be used. "Sound it out" must cease to be the mindless mantra repeated for every word with which a child struggles.

Intersecting with our reflection about the significance of language is the significance of school cultures and environments for influencing students' perceptions about read. In three cases we found slightly higher levels of students providing advice in particular categories. Reading programs, as designed and carried out at the school-level, do influence students and we can be mindful about whether or not the messages that we are sending connect with our intentions.

Lastly, both the language that we use and the school reading program has the power to create perceptions about what children should do when they are reading that could influence them for years to come. Beginning reading instruction will always be heavily focused on word recognition; reading is about words, but not words alone. We believe that primary reading instruction that does not include attention to meaning as part of the message creates a habit-of-mind that may be contributing to the many intermediate readers who experience the infamous fourth-grade slump. If readers perceive reading to be solely about word recognition, they may experience a struggle when they encounter lengthier, information-dense passages in the upper grades. This study reminds us how very perceptive and intuitive children really are and how much we have to learn from them if we will only ask and listen.

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Table 1. *Cultural and Socioeconomic Characteristics of Student Populations at Mountain, Creek, and Harvest Elementary Schools*

Cultural/ Socioeconomic Characteristics	**Mountain**	**Creek**	**Harvest**
Caucasian	76	81	3
African American	7	16	90
Hispanic	4	2	4
Asian	10	1	0
Native American	1	0	2
Free and Reduced Price Lunch	29	33	99

Table 2. *Percentages of Total Coded Responses for Each Theme*

Theme	**Number Responses in Category**	**Percentage of Total Coded Responses**
Sound it out or pronounce it	225	33.43
Giving help and recommendations	191	28.38
Text choice	77	11.44
Read, learn, or memorize words	60	8.92
Try or practice	51	7.58
Spelling	22	3.27
Letters/alphabet/syllables	16	2.38
Meaning/understanding	15	2.23
Read to them or reread	8	1.19
Talk or writing	5	0.74
Use illustrations	3	0.45
	673	100.00

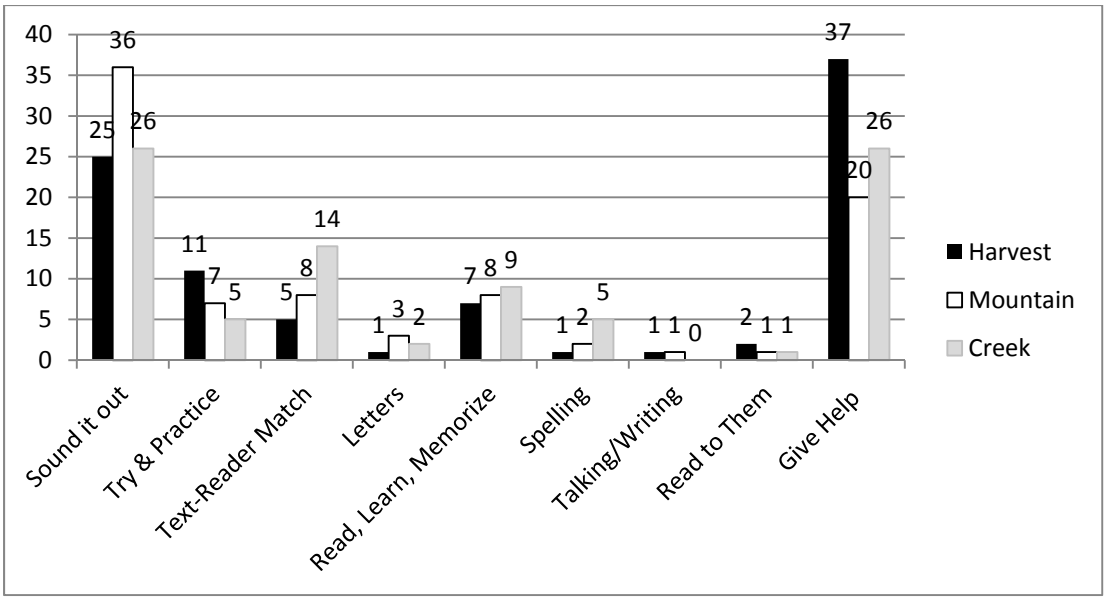

Figure 1

Percentage of responses within grade level and by school in top nine themes

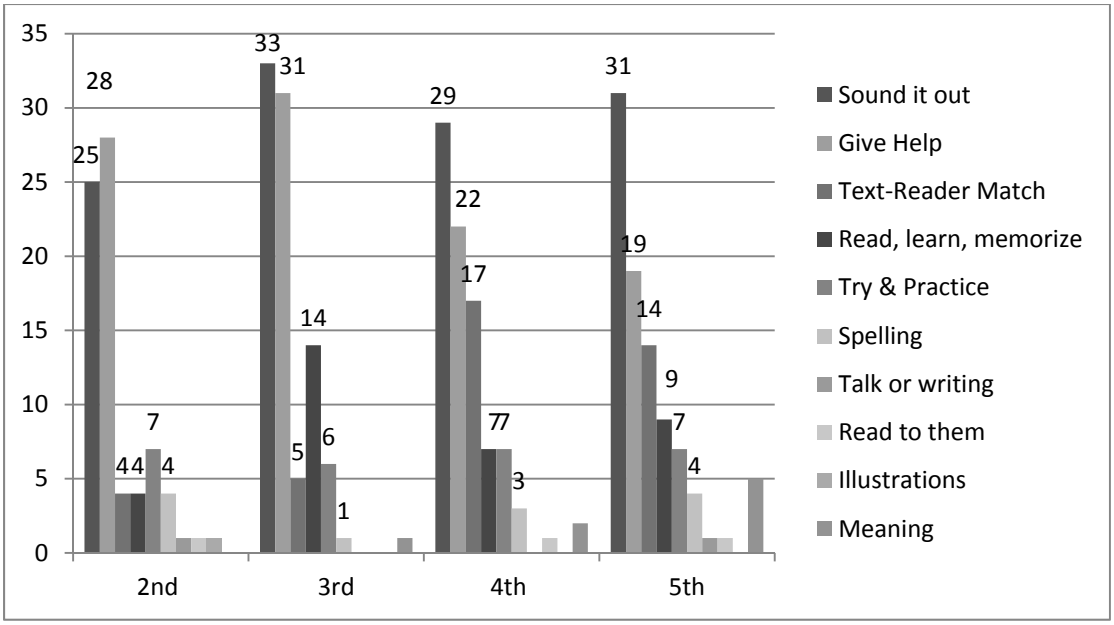

Figure 2

Percentage of Responses in Themes by Grade Level

Technology Leadership Preparedness: Principals' Perceptions

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Abstract

Adopting technology in the K-12 classroom is evolving from adapting lessons that highlight a technology to pervasive use of interactive and handheld devices. In this environment, school leaders have the complex task of incorporating technologies to enhance teaching and learning. The purpose of this quasi-experimental quantitative study was to examine leaders' perceptions of technology leadership preparedness and analyze the impact of the Quality-Plus Leader Academy (QPLA) on leaders' perceptions. The research was guided by the overarching question: What is the perceived technology leadership preparedness level of school administrators as measured by their understanding of the 2009 ISTE NETS-A standards? The following sub-question added clarity: How do technology leadership preparedness perceptions differ between principals who attended the Quality-Plus Leader Academy and those who did not, across the five NETS-A themes: visionary leadership, digital age culture, excellence in professional practice, systemic improvement, and digital citizenship? This study revealed principals' perceived they were most prepared for digital citizenship and least prepared for visionary leadership. In addition, there was a statistically significant difference between technology leadership preparedness perceptions between QPLA participants and non-QPLA participants. Considering these findings we recommend that Educational Leadership programs align coursework with NETS-A standards to help leaders develop the knowledge and skills necessary to lead technology rich schools. In addition, school districts should consider using supplemental principal preparation programs that incorporate the NETS-A standards to further prepare their building leaders. Technology leadership skills should be embedded in the standard dimensions of leader development.

John Dewey stated, "If we teach today as we taught yesterday, we rob our children of tomorrow." School leaders must embrace this philosophy and engage in activities which prepare them to lead 21st century schools. Increasingly, this involves developing an understanding that technology in the K-12 classroom is evolving from adapting lessons that highlight a technology to pervasive use of interactive and handheld

devices. This instruction-technology connection creates high expectations to engage today's learners and transform education to support 21st century skills. In this environment, school leaders have the complex task of incorporating technologies to enhance teaching and learning. In addition, researchers note that today's students have grown up immersed in technology and some schools are responding to this demand by providing more engaging and collaborative technologies for students and staff (Gosmire & Grady, 2007; Prensky, 2010). However, some school leaders have not been prepared to support ever-changing technology-rich environments (Bush, 2008; Levin, 2005).

In an effort to provide guidance for leaders, the International Society of Technology Education developed educational technology standards, called NETS-A (ISTE, 2009). The purpose of this quasi-experimental, quantitative study was to explore the perceptions school principals have of their technology leadership preparedness and determine the impact of the Quality-Plus Leader Academy on leaders' perceptions of their technology leadership preparation. The district of study used a supplemental leader preparation program, Quality-Plus Leader Academy, to enhance traditional leader preparation. Technology leader preparation skills were defined by the 2009 NETS-A standards. This is important because understanding how leaders perceive their own skills and analyzing the impact of training will inform decision makers who provide training for school leaders.

Conceptual Framework

In March 2010, the National Educational Technology Plan (NETP) focused on transforming education through effective use of engaging technology. It suggested successful implementation relies on strong leadership (United States Department of Education, 2010). In fact, researchers have suggested leadership is the best predictor of the effect of technology on teaching and learning (Anderson & Dexter, 2005; Reilly, 2005). Meanwhile, technology skills are scarcely addressed in formal educational leadership programs (Dexter, 2008; Redish & Chan, 2007). Having an understanding of the current technologies and how they can be utilized is critical because securing and allocating necessary financial resources for technology is one of the many responsibilities of a K-12 building leader. In addition, researchers have concluded that leadership is the most important factor in effective school change (Leithwood & Riehl, 2005), including change brought about by technology (Dexter, 2008; Gosmire & Grady, 2007; Grey-Bowen, 2010; Macaulay, 2009; Redish & Chan, 2007). Specifically, the principal's role in visionary leadership, modeling best practices, and support for instructional technology is key to successful technology integration (Gosmire & Grady 2007). To fulfill these roles, it is clear that technology leadership skills are needed and awareness of those skills is critical.

Technology Leadership Skills

Researchers have attempted to identify the necessary skills for technology leadership (Anderson & Dexter, 2005;Davies, 2010; Grady, 2011). In 2005, Anderson and Dexter (2005) developed a model for technology leadership with eight technology leadership indicators: technology committee, school technology budget, district support, principal e-mail, principal days (on technology), staff development policy, grants, and intellectual property policies. Their study concluded that "although technology infrastructure is important, for educational technology to become an integral part of a school, technology leadership is even more necessary" (Anderson & Dexter, 2005, p. 74). More recently, Grady (2011) provided a list of 10 tasks for the principal's role as technology leader. These include:

The principal should establish the vision and goals for technology in the school.

The principal should carry the technology banner in the school.

The principal should model use of technology.

The principal should support technology use in the school.

The principal should engage in professional development activities that focus on technology and integration of technology in student learning activities.

The principal should provide professional development opportunities for teachers and staff that emphasize use of technology and that facilitate integration of technology into student learning.

The principal should secure resources to support technology use and integration in the school.

The principal should be an advocate for technology use that supports student learning.

The principal should be knowledgeable and supportive of national technology standards and promote attainment of the standards in the school.

The principal should communicate the uses and importance of technology in enhancing student learning experiences to the school's stakeholders.

Grady (2011) made a final note on the task list to remember that "technology is nothing more than a tool used to complete work" (p. 8). This task list, as well as the technology models by Anderson and Dexter (2005) and Davies (2010), provided guidance to principals for technology leadership skills. All three researchers support the development and use of nationally recognized technology leadership standards. The most prominent

and frequently used standards for administrators are the International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS-A).

Standards for Technology Leadership

In 2001, the International Society for Technology in Education (ISTE) developed educational technology standards for students and teachers, NETS-S and NETS-T, respectively. In 2002, ISTE developed technology standards for leaders, known as NETS-A which were updated in 2009 (ISTE, 2009). The rationale for NETS-A was that leaders must be able to support students and teachers and ensure that conditions essential to ensuring optimal benefits from technology are in place (Knezek, 2009). These standards were grouped by six subscales: leadership and vision; learning and teaching; productivity and professional practice; support, management, and operations; assessment and evaluation; and social, legal, and ethical issues. For each of the six subscales, performance indicators were added to further explain the theme (ISTE, 2009).

The visionary leadership subscale guides leaders to inspire a shared vision with stakeholders to maximize positive instructional change. A visionary leader is expected to advocate technology efforts by committing time and resources to support change (ISTE, 2009).

The digital citizenship subscale calls for leaders to ensure equitable access to technology resources. Digital citizenship expects leaders to promote, model, and establish policies that ensure safe, legal, and ethical use of technology. Responsible use of technology and social interactions in a digital environment are also expected (Knezek, 2009).

Systemic improvement emphasizes data-driven decision making. This subscale guides leaders to recruit and retain tech-savvy teachers and staff. Leaders should also support a technology infrastructure and partner with business for technology operations and support (Sykora, 2009).

Excellence in professional practice is the fourth NETS-A subscale. Leaders demonstrate this subscale by empowering teachers and ensuring time and resources for technology professional development. Leaders are expected to promote and model digital tools as well as remain current in technology research and trends (ISTE, 2009).

Digital age culture includes improving instruction through technology integration. Technology should be utilized to meet individual student needs. Leaders should model and promote effective use of technology while keeping up with local, national, and global innovations (Sykora, 2009). The standards reflect the pervasive role of technology in society and the need to prepare students for the 21st century.

Today's administrators need to have a strategic vision supported by technology to help tomorrow's students compete globally. These standards were "meant to inspire administrators to become 21st century leaders and provide guideposts to get there" (Sykora, 2007, p. 48) and provide a framework to inform leader preparation in the area of technology leadership (Knezek, 2009; Miller, 2008). Having reviewed the standards for successful technology leaders we reviewed the literature on leadership preparation.

Leadership Preparation

It is widely accepted that school leadership has great influence on student outcomes (Leithwood & Riehl, 2005). Therefore, how principals are prepared for their role has never been more important. Most of today's school leaders came into their positions through a traditional education and certification process. The triad responsible for passage to administration starts with college or university leadership programs. Once completed, a state professional standards committee grants a leadership certificate. Finally, a school district hires for a leadership position (Mitgang, 2008; Young, 2010). Unfortunately, this traditional path is not leading to the preparation of leaders for today's schools (Schrum et al., 2011). This is supported by Levine (2005) and Hess and Kelly (2007) as they examined the environment and curriculum for traditional leader preparation. These researchers suggested that although the educational environment is quickly changing, leader preparation is not changing as fast. Due to this gap, there is a growing acceptance that leaders need on-going training to bridge between learning situations and work situations (Bush, 2008; Mitgang, 2008). Due to the mismatch of traditional leader preparation and daily activities, districts are creating their own programs to fill the gap (Bush, 2008; Levin, 2005; Mitgang, 2008; Young, 2010). One program where leaders are getting these skills is the Quality-Plus Leader Academy.

Quality-Plus Leader Academy

The Quality-Plus Leader Academy (QPLA) is one of the member organizations of the Rainwater Leadership Alliance (RLA). This supplemental leader preparation program was developed in 2007 in response to one district's need to prepare future principals for 35 new schools opening between 2006 and 2011 in addition to other vacancies that would naturally occur. The goal of the academy is to "train and develop future school principals, with a curriculum created and developed by school system leaders" (Cheney, 2010, p. 131).

QPLA and the other RLA programs select one cohort of 25-30 aspiring leaders per year. Cohort applicants are identified within the district and recommended by their immediate supervisor as an aspiring leader. The selection process relies on multiple measures to get a complete picture of each candidate. The screening and selection process includes: interviews, simulated in-basket items, written reflections, and oral competency

evaluations. QPLA uses commercially produced leadership instruments such as Principal Insight, a Gallup Organization instrument, to identify some soft skills and adult leadership tendencies. Candidates also participate in a full-day diagnostic skills assessment process entitled "Selecting and Developing the 21st Century Leader," developed by the National Association of Secondary School Principals.

Likewise, in order to provide a complete training program, multiple development opportunities make up QPLA. Coursework, residency, and coaching are the three training and development components. The first phase is a year-long series of practical sessions designed to support a principal's daily tasks and activities. During this time aspiring principals experience in-depth training in the areas of human resources, budget, facilities, data management, and technology. These practical sessions are developed and conducted by system-level leaders. Because most of the QPLA participants are internal candidates in the leadership pipeline that are familiar with each other and grounded in the district culture (Cheney, 2010).

Several of the sessions include the NETS-A standards. However, one of the sessions specifically targets technology leadership and vision. Participants learn about digital citizenship and digital-age culture with activities that explore the impact of social media, federal internet regulations, and technology-infused quality instruction. Excellence in professional practice is instilled through data integrity, total-cost of ownership, and communication strategies. In all QPLA sessions, systemic improvement is addressed.

The second component of the Academy is participation in two 25-day residency experiences with successful principals. This residency experience is overseen by an experienced principal who serves as a mentor. Academy members may choose the school level for each of the residencies. During the residency, participants follow an individual plan that includes goals, targeted areas of growth, detailed rationale, and measurable results. Participants also submit a reflective summary of each residency.

Coaching is the third component of the QPLA program. Program graduates who are in a principal position are assigned a mentor for the first two years of a principalship. Mentors provide individual support for new leaders through "one-on-one meetings, small group support sessions, and just-in-time training on essential leadership topics" (Cheney, 2010, p. 195). One of the purposes of mentoring is to establish non-evaluative partnerships between new leaders and experienced leaders who have consistently demonstrated the characteristics of QPLA leaders.

Beyond the coursework, residencies, and coaching, Academy members receive ongoing support. When Academy members graduate, they participate in ongoing professional learning activities. These include a yearly Summer Leadership Conference, monthly leadership development sessions, and periodic initiative-specific training. Sample topics

and speakers for ongoing professional learning include quality-plus teaching strategies, continuous quality improvement, Dr. John Antoinetti, author of *The Engagement Cube: What's Engaging Today's Learners*? and Dr. Anthony Muhammad, author of *Transforming School Culture* (Cheney, 2010).

Summary

The role of the principal has changed significantly in the past two decades and includes an increasing number of responsibilities. Increasingly, leaders need the requisite knowledge and skills to respond to changes brought about by technology. However, school leaders are often underprepared to support technology-rich environments. In an effort to provide guidance for technology leadership, ISTE developed educational technology standards targeting administrators called NETS-A. Research suggests that these nationally recognized standards should be incorporated in traditional and supplemental leadership development. Since many traditional leader preparation programs have not integrated these skills into coursework, supplemental leader preparation programs have been developed by educational organizations and school districts to bridge the gap between what formal education provides and what is needed for the changing role of the principal. QPLA is one example of a supplemental leadership preparation program.

Given the growing importance of these skills for school leaders we examined how leaders perceive their own skills and analyzed the impact of QPLA training on the development of technology leadership skills.

Methodology

Research Design

The research was guided by the overarching question: What is the perceived technology leadership preparedness level of school administrators as measured by their understanding of the 2009 ISTE NETS-A standards? The following sub-question added clarity:

How do technology leadership preparedness perceptions differ between principals who attended the Quality-Plus Leader Academy and those who did not, across the five NETS-A themes: visionary leadership, digital age culture, excellence in professional practice, systemic improvement, and digital citizenship?

This quantitative study was designed to examine the perceptions of K-12 principals regarding their technology leadership preparedness based on the 2009 NETS-A and the impact of QPLA on those perceptions. In this case, some of the school principals had participated in QPLA and some had not. This study examined an ex post facto treatment

enacted on the participants. Participation in QPLA was the experimental treatment that occurred during the four years preceding this study. Therefore, this study was quasi-experimental (Creswell, 2009).

Sample and Sampling

This study was conducted in a large metropolitan public school district in the southeastern United States. The school district comprised 135 schools and more than 160,000 students. There were 22 high schools, 25 middle schools, 80 elementary schools, and 8 special program facilities. The student demographics were approximately 1% American Indian, 30% African American, 10% Asian American, 25% Hispanic, 5% multiracial, and 30% Caucasian. In addition to being ethnically diverse, the system was socioeconomically diverse with more than 50% of the student population qualifying for free or reduced-cost lunch.The district was chosen based on their use of a nationally recognized leader preparation program, QPLA.

The response rate was calculated by the number of respondents divided by the number of eligible respondents (Fink, 2006). In this study, 134 principals from all school levels were asked to participate. According to Krejcie and Morgan (1970), the number of respondents should be greater than or equal to 97 in order to meet the requirements for a 95% confidence interval. A total of 102 responses were gathered for a 76% response rate, meeting this requirement.

Respondents

An email was sent to all principals in the district of study with a link to the web-based survey. Within one week of the request, 62 principals had responded. After an email reminder, a total of 102 responses were gathered for a 76% response rate. On the survey 57 principals indicated they had participated in the Quality-Plus Leader Academy (QPLA). The respondents who did not participate in QPLA numbered 45. This rate is consistent with the 54% of participants that attended QPLA training district-wide. All survey responses (N=102) were used when compiling descriptive statistics.

An initial review of the responses indicated that 10 participants did not respond to one survey question. One respondent skipped two questions. All other survey responses were complete. The 11 surveys with missing data were excluded in inferential analysis resulting in 91 surveys used for calculations.

Instrumentation

The Center for the Advanced Study of Technology Leadership in Education (CASTLE) developed a statistically validated assessment entitled *The Principals' Technology Leadership Assessment* (PTLA) based on ISTE's 2002 NETS-A (McLeod, 2005). The 2002 PTLA surveyed administrators' participation in several tasks involved in technology leadership. The tasks were developed from 2002 NETS-A, developed by the International Society for Technology in Education (ISTE). In 2009, ISTE updated the NETS-A standards. The overall reliability of the 2002 PTLA instrument is high, with a Chronbach's alpha (a) = .95. The 2002 PTLA also exhibited high internal reliability which was neither enhanced nor diminished by removal of individual items (McLeod, 2005).

The 2002 PTLA was the basis for instrument development for this study. With the permission and collaboration of the Center for Advanced Study of Technology Leadership in Education (CASTLE), an updated survey was developed by replacing the 2002 NETS-A standards with the 2009 NETS-A standards. Each survey item was written to operationalize the NETS-A standards (S. McLeod, July 2, 2011, personal communication). The updated PTLA survey utilized the same format by grouping questions based on the NETS-A subscales. An additional demographic question was included in the survey to support the research question based on participation in QPLA. Both surveys used the same rating scale for participant responses. Principals were asked to indicate their perception of preparedness on 21 technology leadership skills. Each question had a 5-point scale where 1 represented *not at all* prepared, 2 represented *minimally* prepared, 3 represented *somewhat* prepared, 4 represented *significantly* prepared, and 5 indicated *fully* prepared. Subscale ratios were calculated to account for variances in the number of questions in each subscale.

The 2009 PTLA survey was piloted to establish content validity and improve questions (Creswell, 2009). The pilot included five school administrators outside the sample population. The survey was revised to improve clarity based on the pilot respondents' feedback.

Data Collection

After procuring approval for the research to be conducted, principals' email addresses were obtained from the district administrator database, which listed every building administrator in the school system. Participants were contacted via electronic mail with a request to participate in the survey. A link to the web-based survey was sent to the sample principals. An additional request for participation was sent seven days after the original request to increase responses.

The survey instrument was an anonymous web-based survey created and accessed through *SurveyMonkey*®. There was no identifying information captured as part of the survey. Survey data was collected through the *SurveyMonkey*® password protected website and exported to Microsoft® Excel. Next, the data was formatted and imported into SPSS 19.0 to generate descriptive statistics and inferential analysis.

Data Analysis and Reporting

Using SPSS 19.0, the first level of data analysis was a table of descriptive statistics including frequency, mean, range, and standard deviation. The descriptive statistics were analyzed for anomalies such as empty survey responses.

The next level of analysis was a multivariate analysis of variance (MANOVA) to evaluate the effect of the independent variable across the five NETS-A subscales: visionary leadership, digital age culture, excellence in professional practice, systemic improvement, and digital citizenship. The independent variable was participation in the Quality-Plus Leader Academy. The dependent variables were the five NETS-A subscales. The results compared the perception of preparedness based on whether or not the principal participated in the leader preparation program. Further analysis using a one-way analysis of variance was performed to reveal any subscale statistical significance.

Results

Perceived Technology Leadership Preparedness

The results are organized by research question. First, data was analyzed to investigate the perceived technology leadership preparedness level of school administrators as measured by their understanding of the 2009 ISTE NETS-A standards. The first level of data analysis used descriptive statistics for each of the non-demographic survey questions. Each of these questions referenced one of the technology leadership indicators. The number of responses for each question ranged from 99 to 102. P*romote, model and establish policies for safe, legal and ethical use of digital information and technology* had the lowest response rate with 99 out of 102 participants responding. There were seven other questions where one or two respondents did not answer. The remaining 13 indicators were answered by all respondents.

Responses ranged between 2, indicating *minimally* prepared and 5, indicating *fully* prepared for all except two questions. Responses for *ensure instructional innovation focused on continuous improvement of digital learning* ranged from 3, indicating *somewhat* prepared, to 5. *Ensuring access to appropriate digital tools and resources to meet the needs of all learners* had the widest response range of 1 to 5.

For the second level of analysis, each survey question had a possible response mean range from 1, indicating *not at all* prepared, to 5, indicating *fully* prepared, for each of the 21 indicators. The mean range was from a low score of 3.85 on a scale of 5 to a high score of 4.30 on a scale of 5. The lowest ranked mean (m = 3.85) was the same for three questions. These were: *facilitate a change that maximizes learning goals using digital resources; promote programs and funding to support implementation of technology – infused plans*; and *establish and leverage strategic partnerships to support systemic improvement*. The highest ranked mean (m = 4.38) was for *promote, model, and establish policies for safe, legal, and ethical use of digital information and technology*. The next highest mean (m = 4.3) was for *promote and model responsible social interactions related to the use of technology and information*.

Principals indicated the highest level of preparation on the subscale digital citizenship. Out of a total possible mean score of 20, the subscale scored 16.74 (ratio = .796). The subscale ratio for excellence in professional practice was 20.83 out of 25 (ratio = .790). Digital age learning culture scored 16.03 out of 20 (ratio = .752). The subscale ratio for system improvement was 19.98 out of 25 (ratio = .749). Finally, the subscale visionary leadership scored 11.57 out of 15 (ratio = .714).

Principals indicated they were most prepared for safe, legal and ethical use of technology (m =4.38) as well as responsible social interactions related to the use of technology (m =4.3). The next highest scoring indicator concerned using learning communities to stimulate and support faculty in the study and use of technology (m =4.28).

Impact of QPLA on Perceptions

The second research question focused on whether technology leadership preparedness perceptions differed between principals who attended the Quality-Plus Leader Academy and those who did not, across the five NETS-A themes. This analysis involved descriptive statistics for the five NETS-A subscales: visionary leader, digital age culture, excellence in professional practice, systemic improvement, and digital citizenship related to QPLA participation. Compiling the indicators for each subscale provided a better representation of the constructs of technology leadership. The five subscales had unequal associated indicators that accounted for additional variation in mean scores. Therefore, subscale ratios were included for comparison.

The first subscale, visionary leadership, was determined by three indicators, Question 1 through Question 3. The possible range for the mean of this subscale was 3 to 15. The mean score for QPLA participants was 11.62 versus 11.61 for those who did not participate. The digital age culture subscale was comprised of Question 4 through Question 8 with a possible range of mean scores from 5 to 25. The mean for QPLA participants was 20.80 and 19.47 for non-participants. The third subscale, excellence in

professional practice, had a mean range of 4 to 20 and was calculated using Question 9 through Question 12. The mean score for QPLA participants was 16.95 versus 16.1944 for non-QPLA participants. Systemic improvement, the fourth subscale, with a mean range of 5 to 25 was generated from responses to Question 13 through Question 17. QPLA participants reported a mean of 20.58 compared to non-participants with a mean of 19.22. The last subscale, digital citizenship, included Question 18 through Question 21 with a mean range of 4 to 20. The mean score for QPLA participants was 17.55 versus 15.78 for non-QPLA participants.

Prior to performing inferential analyses, preliminary assumption testing was conducted to check for normality, linearity, univariate, and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. A multivariate analysis of variance (MANOVA) was used to investigate the differences between QPLA participation and perceived technology leadership preparedness level across the five subscales. For this analysis a Wilks' Lambda value of .84 was generated. A Wilks' Lambda value of 1 indicated no difference in the means; therefore, this analysis showed a difference in means. The F ratio calculated for this MANOVA was 3.33. This value indicated that the variability between groups is 3.33 times greater than the variability within the groups. The F ratio of 3.33 exceeded the statistical significance level with alpha level .05. Further analysis showed that the probability of the responses being attributed to chance is 1 in 100 (p =.01) or a 1% chance. Finally, the eta square value (n^2 =.16) indicated that the effect size is large, which further indicated a difference between the QPLA and non-QPLA participants.

With statistical significance being reached, analysis of the individual subscales was performed to determine which subscales differed. An analysis of variance (ANOVA) for each subscale was performed to provide this information. A Bonferroni adjustment generated an alpha level of .01 (.05/5). This adjustment was made to reduce Type I errors that can be generated by repeated ANOVA tests. The subscale with the least variance between QPLA and non-QPLA participants was visionary leadership with an eta square of .00. An effect size of n^2 =.03 was calculated for excellence in professional practice. Subscales, digital age culture and systemic improvement, had a .04 effect size. The largest effect size of .10 was for digital citizenship. In addition to a large effect size for digital citizenship, the level of significance, p =.00 rounded from .002, was the only subscale to reach statistical significance of variance. This level indicated that there is no probable chance that the difference between groups is random. Approaching statistical significance was the subscale systemic improvement with a significance level of p =.05.

To determine if there was a statistically significant difference between QPLA and non-QPLA participants, a multivariate analysis of variance (MANOVA) was performed. Overall, there was a statistically significant difference between QPLA participation on the combined dependent variables, F (5, 85) = 3.33, p = .009; Wilks' Lambda = .84;

partial eta squared = .16. In all five subscales, QPLA participants reported a higher mean score than principals who did not participate in QPLA.

Once it was determined that there was a statistically significant difference, further analysis was conducted to determine which of the five subscales demonstrated a significant difference. A one-way analysis of variance (ANOVA) was conducted for each of the five subscales. To reduce type 1 errors, a Bonferroni adjusted alpha level of .01 was set for the level of significance. The only subscale to reach statistical significance was digital citizenship, F (1, 89) = 9.76, p = .002, partial eta squared = .10.

Results Summary

The 102 principals perceived themselves to be the best prepared in the area of digital citizenship (subscale ratio = .796). The subscale that principals indicated they felt least prepared was visionary leadership (subscale ratio = .714). For all participants the mean scores on the 21 indicators ranged from 3.85 on a scale of 5 to 4.30 on a scale of 5. These scores reflect a high level of perceived technology leadership preparedness among those who responded to the survey.

There were 57 respondents who participated in QPLA and 45 who did not. A one-way between-groups multivariate analysis of variance was performed to investigate the differences in perceived technology leadership preparedness between QPLA and non QPLA participants. Five dependent variables were used: visionary leadership, digital age culture, excellence in professional practice, systemic improvement, and digital citizenship. The independent variable was QPLA participation. There was a statistically significant difference between QPLA participation on the combined dependent variables, F (5, 85) = 3.33, p = .009; Wilks' Lambda = .84; partial eta squared = .16. When the results for the dependent variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of .01, was digital citizenship, F (1, 89) = 9.76, p = .002, partial eta squared = .10. An inspection of the mean scores indicated that principals who attended QPLA reported slightly higher perception levels in digital citizenship (M = 17.55, SD = 2.16) than those principals who did not participate in QPLA (M = 15.78, SD = 3.24).

Discussion

If we take Dewey's statement regarding preparing students for the future at face value we realize that technology will increasingly be a part of the educational experience for children. Considering that a leader who is being prepared today may be leading for the next 20 to 30 years, it seems certain that they will be leading technology rich schools. As such, school leaders must be engaged in activities which prepare them to lead these schools. This research gives some insight into how current leaders perceive their technology leadership skills and how QPLA impacted those perceptions.

Technology Leadership Preparedness

The primary purpose of this study was to evaluate how principals perceived their preparedness for technology integration. This study revealed principals' perceptions of technology leadership preparedness in the following order based on the subscale mean ratio: digital citizenship (.837), excellence in professional practice (.833), digital age learning culture (.801), systemic improvement (.799), and visionary leadership (.771).

Principals reported their highest level of technology leadership preparedness as digital citizenship (F (1, 89) = 9.76, p = .002, partial eta squared = .10). This subscale called for leaders to ensure equitable access to technology resources. Digital citizenship expected leaders to promote, model, and establish policies that ensured safe, legal, and ethical use of technology. Responsible use of technology and social interactions in a digital environment were also expected. This finding may be the result of the QPLA activities where participants learned about digital citizenship and digital-age culture. These activities explored the impact of social media, federal internet regulations, and technology-infused quality instruction.

This finding was consistent with the results of a study by Hess and Kelly (2007) that indicated leader preparation programs had the highest prevalence of curriculum related to policies, management, and school law. Anderson and Dexter (2005) also reported that 82% of schools had technology and staff development policies in place. The high level of technology leadership preparedness was also found to be in the top half of the subscale scores in a study by Redish and Chan (2007).

Conversely, other studies found skills common to digital citizenship were lacking among administrators. Macaulay (2009) and Grey-Bowen (2010) reported that the social, legal, and ethical issues indicator was the lowest NETS-A subscale score. Garcia (2009) reported that total cost of ownership (TCO) and equity of access were the lowest scored areas for principals which contradicted the findings of this study.

Visionary leadership was identified as the NETS-A subscale with the lowest perceived preparation level by the respondents (F (1, 89) = .00, p = .99, partial eta squared = .00). This subscale guides leaders to inspire a shared vision with stakeholders to maximize positive instructional change. A visionary leader is expected to advocate technology efforts by committing time and resources to support change. This finding was particularly interesting in that one session specifically targeted technology leadership and vision.

Studies by Levine (2005), Hess and Kelly (2007), and Leonard and Leonard (2006) indicated that technology leadership preparation was lacking in traditional leader preparation programs. Due to this perceived gap, Garcia (2009) recommended more involvement in long-term technology planning for principals.

Additional research supported the finding of visionary leadership as the lowest score. Studies using the 2002 NETS-A showed the subscale for leadership and vision as the greatest professional development need (Grey-Bowen, 2010; Miller, 2008). Redish and Chan's (2007) study of a supplemental leadership program showed that leadership and vision ranked fourth out of the six 2002 NETS-A standards. Next we discuss the impact of QPLA on these perceptions.

Quality-Plus Leader Academy Impact

Differences in technology leadership preparedness perceptions among principals who attended the Quality-Plus Leader Academy (QPLA) and those who did not across the five NETS-A themes were also examined. There was a statistically significant difference between technology leadership preparedness perceptions of QPLA participants and non-QPLA participants (F (5, 85) = 3.33, p = .009; Wilks' Lambda = .84; partial eta squared = .16). Further review indicated that for all five subscales, QPLA participants had a higher mean score than non-QPLA participants. Therefore, QPLA participants' perceptions were higher than non-QPLA participants on the five NETS-A subscales. Several of the QPLA sessions included NETS-A standards. Given that professional development activities addressed technology leadership and vision, digital citizenship, digital –age culture, and systemic improvement these findings are to be expected. These findings are also supported by research which suggested that traditional leadership preparation alone is insufficient for today's schools (Hess & Kelly, 2007; Leonard, 2006; Levine, 2005; Mitgang, 2008; Young, 2010). Frequently, principals who had high levels of technology leadership skills credited technology-related workshops for their knowledge (Garcia, 2009). Furthermore, Grey-Bowen (2010) recommended that district and regional educational entities should supplement traditional programs with ongoing professional development related to NETS-A. The findings from this study indicate that this advice is relevant since leaders who participated in QPLA perceived that they were better prepared to lead technologically rich schools than that those who had not anticipated.

Recommendations

This research has implications for Educational leadership faculty and school districts that prepare school leaders. The review of literature suggested that the role of the principals is changing due to increased technology use and leadership preparation in this area is limited in traditional leader preparation programs. The findings of this study also indicate that principals' technology leadership skills have room for improvement. Considering these findings we recommend that Educational Leadership programs align coursework with NETS-A standards to help leaders develop the knowledge and skills necessary to

lead technology rich schools. In addition, school districts should consider using supplemental principal preparation programs that incorporate the NETS-A standards to further prepare their building leaders. Technology leadership skills should be embedded in the standard dimensions of leader development.

While this research examined principals' perceptions of their technology leadership skills and the impact of QPLA on those perceptions, future researchers may consider:

Further study of the NETS-A subscale, digital citizenship to provide better understanding of the divergent study results.

Examination by school level to provide insight about how technology leadership differs among elementary, middle, and high schools.

A qualitative study focused on the causes of higher perceived technology leadership preparedness.

Conclusions

The National Educational Technology Plan calls for transforming education through effective use of engaging technology and suggests that successful implementation relies on strong leadership. Unfortunately, literature has indicated that technology skills are scarcely addressed in formal educational leadership programs and supplemental programs are developing to meet this need.

The findings in this study further solidify the vast body of research indicating that principals are not adequately prepared for leadership in a technology-rich environment. Principals must leverage resources beyond formal leadership preparation to develop technology leadership skills. There is evidence that principals perceive themselves to be better prepared in the area of digital citizenship than the other four NETS-A subscales. However, there is a wide gap to be closed with the remaining NETS-A subscales: visionary leadership, systemic improvement, digital age culture, and excellence in professional practice. Based on these findings, we argue for changing foundational and on-going leadership development to include technology leadership is imperative. The ISTE 2009 NETS-A standards provide a framework for developing these skills. Traditional leader preparation programs, regional education centers, and school districts should include the NETS-A standards in leadership development activities. This is imperative so that leaders are not leading schools that teach today as we taught yesterday and rob our children of tomorrow.

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Improving Metacognition in a College Classroom: Does Enough Practice Work?

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Abstract

Metacognition is often described as knowledge and control over one's cognitive processes. Models of metacognition often include knowledge monitoring as the foundation of metacognitive skills. The current study was designed to determine whether the ability to accurately assess one's knowledge can increase throughout a semester long course, when students are provided knowledge monitoring practice. Undergraduates' enrolled in an educational psychology course were administered 13 exams during the course of a semester and provided a number of opportunities to practice knowledge monitoring. Prior to each exam students were required to predict their exam scores. Calibration (the difference between predicted scores and actual performance) improved over the course of the semester. However, the data also revealed improved calibration might have been an artifact of the data. Put differently, calibration was poor at the beginning of the semester as students were on average overconfident. By the end of the semester, students predicted scores had not changed, but exam scores increased thus improving calibration.

Knowledge monitoring is a basic metacognitive process essential to learning. Imagine a student preparing for an upcoming examination in her educational psychology course. To prepare efficiently and to be well prepared for the exam, the student must be able to identify those concepts she has already mastered and those concepts that will require more effort and study time. This ability to monitor one's own knowledge is a key to metacognitive and self-regulation processes during learning. Indeed, Tobias and Everson (2009) proposed a hierarchy of metacognitive processes with monitoring knowledge as the foundation. In the Tobias and Everson (2009) model, higher-level metacognitive processes, such as selecting strategies, evaluating learning, and planning are dependent upon accurate knowledge monitoring. Tobias and colleagues have demonstrated that the

ability to accurately judge one's knowledge (knowledge monitoring accuracy) is predictive of math achievement, reading achievement and even GPA scores (see Tobias & Everson, 2009 for a review).

Other theories of metacognition also propose that effective knowledge monitoring leads to better regulation during studying (e.g., Metcalfe, 2009; Nelson & Narens, 1990). One goal of the current investigation was to determine if individual differences in knowledge monitoring accuracy are related to academic success within a classroom setting. A second goal was to determine if training improves students' knowledge monitoring accuracy as measured by calibration.

The Knowledge Monitoring Assessment

As noted by Serra and Metcalfe (2009) metacognition is not flawless and poor metacognition can have a negative impact on studying and performance. Previous research has demonstrated that college students who are better at knowledge monitoring, as measured by predicting scores on an exam (i.e., calibration) are also likely to outperform those students who are not accurate knowledge monitors (Hacker, Bol, Hogan & Rakow, 2000; Isaacson & Fujita, 2001). Hartwig, Was, Isaacson, & Dunlosky, (2012) demonstrated a clear connection between knowledge monitoring accuracy and academic performance. In their investigation Hartwig, et al. (2012) developed a knowledge monitoring assessment based on the method presented by Tobias and Everson (2002; 2009).

The knowledge monitoring assessment used by Hartwig, et al. (2012) required participants to judge whether they knew the definition of a word or not. Participants made a yes (known) or no (not known) judgment for each of 50 vocabulary words, and were then required to complete a multiple choice test in which they were presented with each of the 50 vocabulary items and five possible synonyms. Four of the possible synonyms were distractors and a fifth was an actual synonym of the vocabulary items. The knowledge monitoring assessment generated the following possible outcomes. Students indicate the word is: 1) known and correctly responded to the item on the vocabulary test [hits]; 2) known but responded to incorrectly on the test [false alarms]; 3) unknown but the correct response was given on the test [misses]; and 4) unknown and responded to incorrectly on the test [correct rejections]. Hits and correct rejections represent accurate knowledge assessment, whereas false alarms and misses represent inaccurate knowledge assessments.

Hartwig et al. (2012) administered this knowledge monitoring assessment in the first two weeks of the semester of an undergraduate course in educational psychology and found that accuracy on the knowledge monitoring assessment was correlated to final exams

scores. Although the correlation between the knowledge monitoring assessment and final exam score was moderate (r = .39) it represented a substantial amount of variance in final exam scores when one considers the knowledge monitoring assessment was completed at the start of the semester and the final exam was administered at the end of the semester. Furthermore, the number of variables that might influence final exam performance is quite large. The finding that the knowledge monitoring assessment accounted for variance in final exam scores is therefore notable. Indeed, Hartwig et al. (2012) split the participants into quartiles based on the knowledge monitoring assessment scores and found the quartiles differed in exam performance such that students who monitored more accurately also earned higher grades, on average, on the final exam.

Improving Monitoring Accuracy

The results of Hartwig, et al. (2012) and others (e.g., Hacker, et al., 2000; Isaacson & Fujita, 2001) provide evidence that knowledge monitoring accuracy is related to performance on exams. Although these findings are important, it is even more important to know if knowledge monitoring accuracy can be improved. If successful knowledge monitoring leads to positive academic outcomes, it follows that teaching students to be better knowledge monitors would make them better and more successful students. In an attempt to determine if students' knowledge monitoring accuracy could be improved through pedagogical practices, Isaacson and Was (2010a) designed a classroom study in which they measured the knowledge monitoring accuracy at the beginning and the end of the semester of 106 undergraduates enrolled in an educational psychology class. Throughout the semester the students were required to frequently make monitoring judgments about their knowledge. Several opportunities were provided to the students to practice knowledge monitoring (cf. Isaacson & Was, 2010b). The most important of which was a weekly variable-weight and variable-difficulty exam (the exam format is described in detail in the methods section).

Isaacson and Was (2010a) used the same stimuli in both administrations of the knowledge monitoring assessment. It was found that the knowledge monitoring assessment completed at the beginning of the semester and the one completed at the end of the semester were both correlated to the score on the final exam in the course. This finding supports the conclusions of Hartwig, et al (2012). More importantly, Isaacson and Was (2010a) found a significant increase in students' knowledge monitoring accuracy from the knowledge monitoring assessment scores at the beginning of the semester to scores at the end of the semester. Isaacson and Was (2010a) proposed that the weekly monitoring practice provided throughout the semester increased students' general knowledge monitoring ability.

In an attempt to replicate the findings of increased knowledge monitoring accuracy over the course of the semester, Was, Issacson, Beziat, and Dippel (2011) conducted a study using the same methodology. Again, a significant increase in knowledge monitoring accuracy was found. However, Was et al. (2011) discovered that although there was a significant increase in the number of hits and a significant decrease in the number of misses, the rate of false alarms did not change. Therefore, the increase in gamma may reflect an artifact of the data. Put differently, if students are overconfident in their knowledge assessments the increase in hits at the end of the semester may reflect an increase in knowledge (i.e. items answered correctly), not an increase in accurately identifying known items. This may indicate that students have difficulty changing an optimistic bias or overconfidence (Hacker et al., 2000). The lack of change in the rate of false alarms and the increase in hits raised two important questions.

Overconfidence

The first question is whether there is a general overconfidence bias in students' knowledge monitoring? The most common method in the extant literature used to measure knowledge monitoring within a classroom context is calibration between exam score prediction and exam scores (e.g., Hacker, Bol, Hogan & Rakow 2000; Isaacson & Fujita 2001, Miller & Geraci, 2011). Calibration is operationalized as the difference between predicted performance and actual performance. A common, yet not surprising finding involving undergraduate students, is a striking difference between high and low performing students in their ability to predict their test scores. Typically, successful students demonstrate better calibration, whereas poorer performing students over-estimate their future performance. For example, Hacker et al. (2000) administered three multiple-choice exams to undergraduates over the course of a semester. Before each exam, students were required to predict their test scores. Immediately following the exam, but before it was graded, students again estimated their test scores (postdiction). Results indicated that the highest performing students were more accurate in their predictions of exam scores as well as the post-diction of performance. In turn, the lowest performing students' calibration was poor in both prediction and postdiction of exam scores, with the lower performing students greatly over estimating their performance even after completing the exam.

Isaacson and Fujita (2001) administered 10 weekly examinations to undergraduate students over the course of a semester. Again, lower achieving students had a tendency to make predictions that were higher than their actual test scores. Overconfidence bias was also demonstrated in an investigation conducted by Vadhan and Stander (1994). The results of these studies suggest that high performing students are able to predict how they are going to do on a test and can also accurately assess how they have performed.

However, in general, students have a tendency to be overconfident when predicting their test scores, with the lower performing students having the most difficulty with calibration, with a tendency to be overconfident. Clearly, knowledge monitoring accuracy, as measure by calibration, has an impact on students' academic outcomes.

Improvement

This leads to our second question. Can classroom practices decrease students' overconfidence? There is inconsistency in the literature regarding the improvement in students' ability to predict their performance on test of knowledge and understanding. For example, Hacker, et al. (2000) found that undergraduates' predictions of exam scores were more accurate on a third exam as compared to the first exam. However, the third exam was a cumulative examination of material contained in the first and second exam, and this may in part account for the increased accuracy. Contrary to the Hacker et. al. (2000) results Bol, Hacker, O'Shea and Allen (2005), also, Nietfeld, Cao and Osbourne (2005) found no improvement in monitoring accuracy even after a semester of monitoring practice, but a more recent study conducted Nietfeld, Cao and Osbourne (2006) found that an intervention of monitoring exercises and feedback had a significant impact of students' calibration and test performance.

In a recent investigation involving undergraduate in two semester long studies, Miller and Geraci (2011) again found that students were overconfident in their predictions of test scores and again the lower performing students were particularly poor at predicting their test scores. Germane to the current study, Miller and Geraci (2011) attempted to increase metacognition (as measured by improved calibration) by providing incentives for calibration accuracy and feedback regarding how to improve calibration. The data from Experiment 1 indicated that providing incentives and only minimal feedback did not improve calibration or exam performance. However, in Experiment 2 increasing the salience of the feedback increased calibration for lower performing students without increasing their exam performance.

The investigation conducted by Miller and Geraci (2011) had two limitations that may have contributed to their limited findings. First, in both experiments, Miller and Geraci administered only four exams across the semester. This provided limited opportunities for the participants to practice predicting their test scores.

Second, Miller and Geraci (2011) required students to record a letter grade as the prediction of their exam outcomes (e.g. "A-"). For analyses this letter grade prediction was converted into a numeric value based on the grading scale used in the course. For example, if a student recorded a "B+" that prediction would be converted into an 88%. A prediction of "B" was converted to 85% as that was the midrange of a B on the grading scale. To calculate calibration, the percent correct on the exam was subtracted from the

converted prediction and divided by 100. This was then subtracted from one and multiplied by 100 to account for the fact that 100% was the maximum percentage correct. The students participating in the two experiments were informed via the course syllabi that they could earn two percentage points extra credit for each of the four exams if they predicted any version of the grade earned. For example, if a student predicted an "A" but received an "A-" they would be given the extra credit. The formula used to measure calibration and the awarding of credit for limited accuracy may have contributed to the lack of substantial improvement in both calibration and performance. For example, the student who predicted a B+ (88%) but received a B- (82%) would receive the credit, but the student who predicted a C+ (78%) and received a B- (82%) would not. Thus the less accurate student in this case would receive positive feedback and reinforcement for being less accurate.

Another contributor to the lack of change in calibration in the Miller and Geraci (2011) investigation may have been the treatment used to improve calibration. The instruction given to participants to improve their predictions was that improving their scores (performance) or lowering their predictions would improve calibration. It is unlikely that such feedback would increase actual metacognition. Although the lower performing students did state that they increased their studying or lowered their predictions, this does not translate to better understanding of knowledge monitoring or metacognition. The most common response among high performing students was that the feedback did not influence their predictions.

Goal of the Current Investigation

The current investigation was undertaken in order to improve upon what we see as limitations in the extant literature. To date, researchers' attempts to determine if practice could improve calibration have provided students limited opportunities to practice predicting the outcomes of examinations, limited and delayed feedback on performance, and a focus on improving predictions, not improving metacognition. In the current investigation, we provided students with much more opportunities to practice knowledge monitoring and reflect on their own knowledge than any study we were able to find. Furthermore, we feel that extensive practice and training is necessary to increase students' metacognition, beyond simply decreasing the difference between predicted test scores and actual performance.

We conducted the current investigation to determine if more practice would lead to improved metacognition as measured by calibration. It was our hypothesis that weekly practice of prediction and postdiction of test scores, and the opportunity to reflect on calibration based on immediate feedback, would improve students' calibration.

Methods

Participants:

250 students enrolled in and introductory educational psychology course participated in exchange for course credit. Females represent 77% of the participants. All students did not complete every exam and/or every prediction questionnaire and therefore, there is missing data. All analyses were completed using listwise deletion.

Design and Procedure:

Weekly Examinations: Students were administered weekly objective examinations throughout the duration of the semester in which they were enrolled in the course for a total of 13 examinations. Each examination was based on a variable weight, variable difficulty format. Each examination contained a total of 35 questions composed of 15 Level I questions that were at the knowledge level, 15 Level II questions at the evaluation level, and 5 Level III questions at the application/synthesis level. Scoring of the exam was based on a system that increased points for correct responses in relation to the increasing difficulty of the questions: Level I questions were worth 2 points each, Level II questions were worth 5 points each, and 5 Level III questions were worth 6 points each. Students were also required to choose the questions they were least confident about and these questions were only worth one point (5 of the 15 Level I and II questions, and 2 of the 5 Level III questions). The scoring equaled a possible 100 points for each exam. Correlations between total score and absolute score (number correct out of 35) ranged from r = .87 to r = .94. Therefore, all analyses were completed using total score.

Knowledge Monitoring Practice Opportunities.

Throughout the semester long course, students were presented with a number of resources in the curriculum to improve knowledge monitoring. For example, students were encouraged to take on-line practice quizzes each week that have a format similar to the weekly exams (variable weight and variable difficulty) in which students are asked about their confidence of each answer before the practice quiz was graded on-line. The course also used a web-based course management system with a variety of resources developed to improve metacognition (e.g., students completed weekly self-reflections which focused on self-regulated learning and metacognition). The course had small discussion classes led by peer mentors where students were given a quiz each week also using a format similar to the weekly exams. Students also submitted a journal to their peer mentor each week that focused on self-regulated learning and metacognition. The class had two lectures each week and students were presented with a Question of the Day at the start of every class with their answer to these questions recorded using a student response system (i.e., ”clickers”) that required students to indicate whether they are absolutely sure, fairly sure, or just guessing at the answers. Students could earn 200 points (8% of the total course grade) across the semester for their Question of the Day

responses. Students earned points for correct answers, but also for accurate knowledge monitoring. For example, if a student indicated she was absolutely sure, she earned 9 points if she was correct, but no points if she was wrong. However, if a student indicated he was unsure or just guessing, he earned 3 points if he was correct and 2 points if he was wrong.

Calibration:

Prior to beginning each exam students completed a pre-test questionnaire asking them to predict the total number of points they would receive on the exam. Immediately following the examination students completed the remainder of the questionnaire requiring them to indicate the total number of points they believed they had earned. Exams were then immediately scored for the student using an Apperson® test scoring scanner. Students were then allowed to review their exams, predictions as postdictions.

As an incentive to increase calibration accuracy, students were awarded two extra points toward their exam score if the accurately predicted their test scores, and two points if they accurately postdicted their exam score. One point was awarded for both prediction and postdiction if students were within one point of their score (e.g. if a student predicted a 90, she would receive one extra point if her exam score was between 89 and 91).

Results

Table 1 presents the means and standard deviations of exam scores, predicted scores, and calibration across the semester. Two participants were removed from the analyses. The first was removed because the participants' mean calibration score across the semester was greater than four standard deviations above the mean. The second participant was removed because his or her mean calibration was four standard deviations below the mean. The current analysis is based on 12 of the 13 exams completed during the semester because the last weekly exam was not included in the analysis. The course syllabi allowed for students to drop one exam score and the majority of the students (over 65%) choose not to take Exam 13 and the mean score of those who did was far below the mean of the other weekly exams. Reliability analysis revealed that total scores were reliable across the 12 included exams ($\alpha = .93$) as were predicted scores ($\alpha = .96$).

Calibration was measured as the difference between the predicted test score for each exam and actual total points earned on that respective exam. Therefore, a positive calibration score represents an overestimate of performance and a negative calibration score represents an underestimate of exam performance. A calibration score of zero reflects perfect calibration of prediction and test performance. We chose this simple calibration score due to ease of interpretation. For example, a calibration score of 6 indicates that the student predicted she would get a score six points higher than the actual score obtained on the exam. This represents overconfidence. We created a mean

calibration score by averaging each students calibration scores for all exams (M =2.04) and determined that on average students were overconfident, $t(248) = 5.61$, $p < .001$, Mean Difference = 2.04, CI = 1.33; 2.75. Calibration and exam scores were averaged across exams and were found to have a strong correlation, $r = -.62$, $p < .001$. This negative correlation indicates that as calibration scores decrease exam scores increase. The scatterplot presented in Figure 1 graphically represents this relationship. The line positioned at 0 on the Y-axis indicates perfect calibration.

To further examine this relationship we calculated the mean of all calibration scores and the mean of all exam scores across the semester for each participant. We then divided participants into two groups based on the mean calibration score (M = 2.04). Figure 2 presents the mean examination scores across the semester for the mean groups. We conducted an independent samples *t*-test to determine if the mean exam scores across the semester were different for those above and below the mean calibration score. The mean exam score for those above and below the mean calibration score were M = 86.06 (N = 134) and M = 76.59 (N =127) respectively. The Levene's test for equality of variance revealed inequality of variance, $F = 39.10$, $p < .001$. We therefore report the t value with equality of variances not assumed. This analysis revealed a significant difference in average test scores between the calibration mean-split groups, $t(190.07) = 9.01$, $p <$ .001(CI: 7.39, 11.54). There is a clear difference in test scores across the semester for students above and below the calibration mean with students scoring above the mean scoring lower on exams on average than students below the calibration mean. Put differently, students who were more accurate, or even under predicted their test scores performed better than those less accurate and overconfident in their predictions.

As in previous studies, our data demonstrate that students performing at the highest levels more accurately predict their future performance, with a tendency to underestimate, whereas the poorest performing students are poor calibrators with a tendency to overestimate future performance with a greater magnitude of error. This is also the case for each exam measured separately (Appendix A).

The major focus of the current study was to test the hypothesis that extensive practice at calibration would increase students' ability to accurately predict performance. Figure 3 displays mean calibration score on each exam. The line positioned at zero on the Y-axis represents perfect calibration. As is evident from the figure, students' calibration accuracy improved as the semester progressed. Table 2 displays a series of *t*-tests completed to determine if calibration scores were significantly different from zero. Analyses indicated that calibration scores on exams 1 - 8 were significantly different than 0. Of these, all calibration means were above zero (indicating students were overconfident) with the exception of Exam 6. The mean calibration score for Exam 6 was below zero. Most importantly, for Exams 9, 11 and 12 the mean calibration score did not differ from zero. The mean calibration score at Exam 10 was significantly different than

0, but the calibration mean was below 0 and not above. These results, although based on a null result, indicate that by exam 9 students on average were accurate predictors of exam performance.

Discussion

The current data support the conclusion of previous research that students performing poorly on objective examinations are likely to overestimate their performance. The current data also align with previous findings that indicate the best performing students are more accurate in their predictions of performance, if not slightly under confident. More important, the data provide evidence that practice may support the development of effective metacognitive knowledge monitoring. Put differently, calibration is a metacognitive skill and students provided with regular practice can improve this skill. Perhaps opportunities to practice calibration (e.g., quizzes, exams, self-testing and reflection) in turn influence higher order metacognition and self-regulation.

The current results also expand upon the extant literature. Previous findings regarding increased knowledge monitoring accuracy were minimally impressive at best and were often based on limited metacognitive practice. In the current study, we provided students with what we consider deliberate metacognitive practice. We did not simply have students practice predicting their test scores (although that was a part of our procedures), but we also had them practice simple knowledge monitoring strategies. For example, having students regularly judge whether they were absolute sure, somewhat sure, or just guessing in response to each question. We also had students practice more deep processing of their metacognition. The weekly journals in which students wrote about their metacognitive and self-regulating strategies were designed to encourage this type of deep processing.

A further contribution to existing literature was made by using calibration between predicted test score and actual test score as the measure of increased knowledge monitoring. Many previous investigations as noted above had used this measure with a minimal number of tests (e.g, Hacker, et al., 2000; Miller & Geraci, 2011). Others had used similar extensive, deliberate metacognitive practice, but used an external measure of knowledge monitoring (e.g, Hartwig, et al., 2012; Isaacson & Was, 2010a) not calibration of exam scores. We feel these are important contributions to the understanding of knowledge monitoring as a trainable skill.

Although the results of our investigation are encouraging, they must be interpreted with caution. Figure 4 displays the mean predicted test scores and the mean actual scores across the semester. Review of Figure 4 suggests that the increase in calibration is not a result of better knowledge monitoring, but instead a result from students' test scores increasing. Put differently, as is evident in Figure 4, test scores changed dramatically over

the semester. The mean exam score across exams was 82.94 with a standard deviation of 2.95. The lowest mean test score occurred at test 1 and was 76.52. The mean score of the last exam of the semester was 84.22.[1] This is stark contrast to the predicted scores of which the mean across the semester was 84.43 with a standard deviation of .71. The lowest mean predicted score was 82.66 and the highest was 85.53. The change in calibration may be simply the increase in mean test scores over the course of the semester, whereas the predicted scores did not change. However, another interpretation is that increased knowledge monitoring lead to an increase in test scores. As instructors, we were pleased to see this increase in test scores. However, as investigators we were disappointed that we did not have conclusive evidence of an improvement in knowledge monitoring.

Implications

The results of this study support the idea that providing multiple opportunities for metacognitive practice leads to better knowledge monitoring. Based on these results, it is possible for classroom teachers to improve their students' knowledge monitoring and in turn their academic performance. In order to do this the classroom teacher must provide a significant number of opportunities for the student to practice their knowledge monitoring and the student must receive prompt and informative feedback about their performance.

Evidence from the current research also suggests that poor performing students can improve their knowledge monitoring when provided ample practice. As previous research has shown poor performing students often overestimate their performance on quizzes and exams (Isaacson & Fujita, 2001; Vadhan & Stander, 1994). The current research provides evidence that when provided with multiple opportunities to practice their knowledge monitoring these poor performing students can improve their calibration and therefore better estimate their performance. If poor performing student continue to improve the accuracy of their knowledge monitoring, this may in turn lead to better preparation for upcoming assessments. When students are more accurate at identifying what they know and what they do not know they tend to perform better on assessments. Taken together, it is possible for teachers to improve the academic achievement of their poor performing students by providing training in knowledge monitoring.

Suggestions for future research

Recall that Isaacson and Was (2010a) and Was, Isaacson, Beziat, and Dippel (2011) found improvement in general knowledge monitoring using a simple knowledge monitoring assessment. However, as with the majority of research interested in improved metacognition, these studies used a measure of relative accuracy (gamma) to measure

change in knowledge monitoring across the semester. Indeed, a great deal of research in metacognition has focused on the accuracy of monitoring through calibration and relative accuracy (Serra & Metcalfe, 2009). Investigations such as that conducted by Miller and Geraci (2011) and the study described here have relied on measures of calibration (the prediction of test scores).

To our knowledge, absolute accuracy of knowledge monitoring as measured by item-by-item confidence ratings, has not been investigated relative to improvement in metacognition and classroom performance. It is evident that a student's overall sense that she understands the material to be presented on a test would relate to performance on that test. However, as students study and prepare for exams it is likely that they make judgments of learning (JOL's) on a more item specific basis. Put differently, students may make general JOL's (e.g., at the chapter level) but are also likely to make more fine-grain JOL's (e.g., at the definition or concept level). More than one model has been proposed that explains how JOL's at the item-specific level influence study time and effort (e.g., Dunloksy & Theide, 1998; Metcalfe, 2002). However, there is a lack of research in classroom settings that has examined how these item-by-item judgments relate to performance. We suggest that future research investigate absolute accuracy on exams as a way to capture knowledge monitoring and knowledge monitoring improvement.

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Footnotes

1. A paired samples *t*-test indicated a significant difference between scores on Exam 1 and Exam 12, $t(206) = -6.25$, Mean Difference = 6.00, $p < .001$, CI = -7.89; -4.11.

Table 1. Means of Exam Scores, Predicted scores, and Calibration Across the Semester.

Exam	Mean Score	Mean Predicted	Calibration
1	76.52 (13.49)	82.66 (7.72)	5.45 (11.78)
2	82.56 (9.80)	84.62 (8.14)	2.06 (8.44)
3	80.26 (12.41)	83.22 (8.31)	2.92 (10.49)
4	80.80 (10.72)	83.67 (7.90)	3.00 (10.09)
5	79.34 (13.11)	83.79 (8.46)	4.12 (9.62)
6	87.04 (10.25)	85.34 (7.56)	-2.61 (8.71)
7	79.63 (10.31)	84.89 (8.62)	4.75 (9.27)
8	82.64 (13.71)	85.53 (8.00)	1.95 (9.93)
9	83.07 (12.05)	82.72 (8.51)	-.30 (9.79)
10	84.94 (13.24)	83.82 (8.72)	-1.42 (10.39)
11	84.47 (11.40)	84.83 (8.71)	.13 (9.01)
12	82.88 (11.97)	84.00 (8.31)	1.14 (9.82)

*Note: Standard deviations in parentheses.

Table 2. One Sample t-Tests of Calibration Mean of the Twelve Exams Compared to Zero.

Exam	Mean Calibration	*t*	df	*p*	95% CI
1	5.47	7.33	247	> .001	4.00; 6.94
2	2.17	3.84	235	> .001	1.06; 3.28
3	2.79	4.12	240	> .001	1.46; 4.12
4	3.36	4.83	229	> .001	1.99; 4.73
5	3.97	6.07	212	> .001	2.68; 5.26
6	-2.47	-4.10	203	> .001	-3.65; -1.28
7	4.65	7.13	210	> .001	3.37; 5.94
8	2.09	2.99	198	.003	.71; 3.47
9	-.39	-.59	217	.553	-1.66; .89
10	-1.56	-2.21	215	.028	-2.95; -.17
11	.04	.67	177	.947	-1.27; 1.36
12	1.12	1.76	210	.080	-.14; 2.37

Figure Captions.

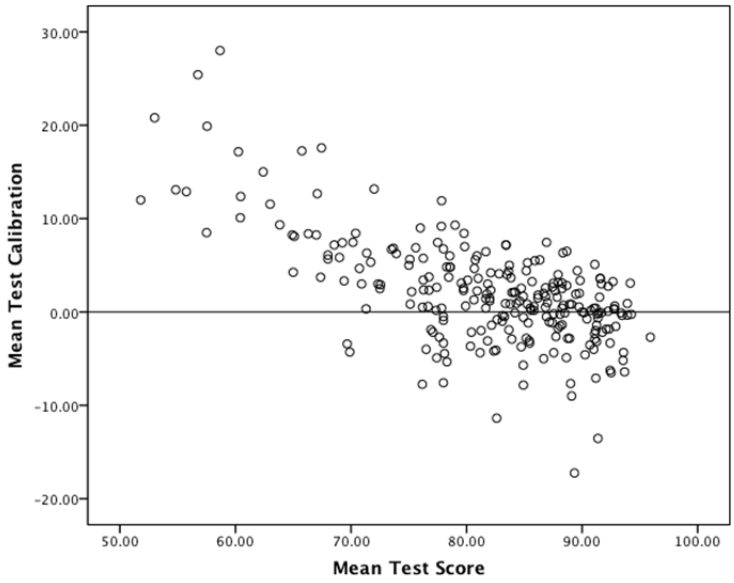

Figure 1. Mean test calibration by mean test score averaged across the semester.

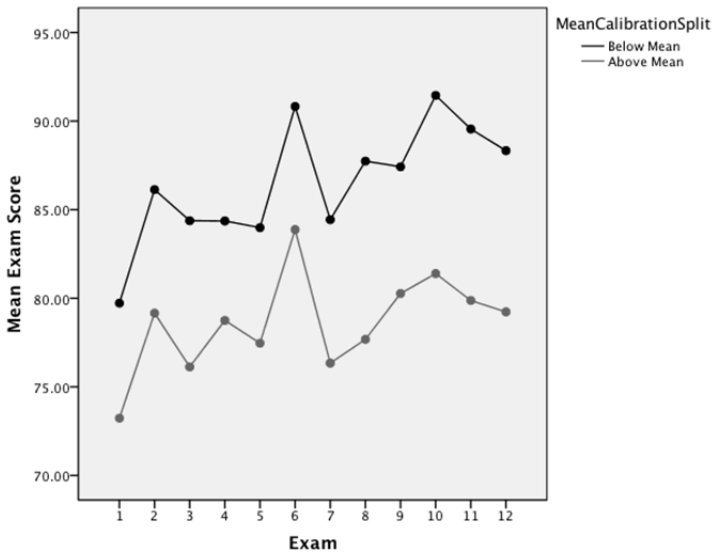

Figure 2. Mean exam scores across the semester by mean calibration split.

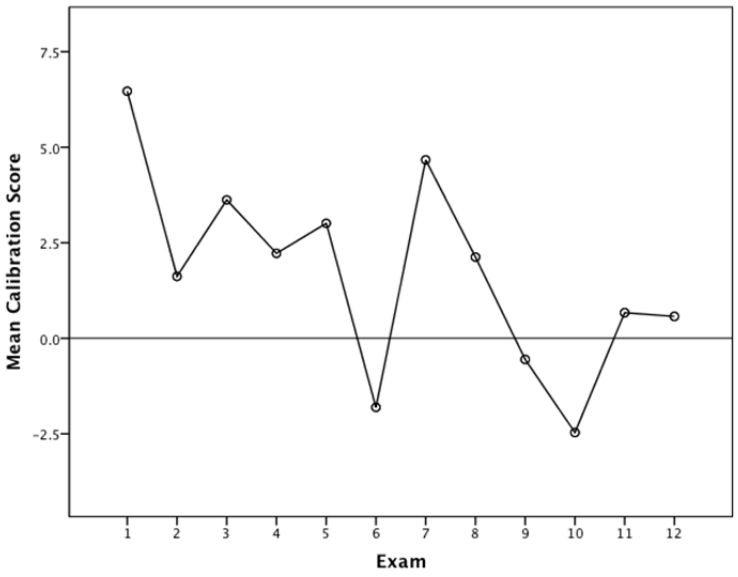

Figure 3. Mean calibration score by exam.

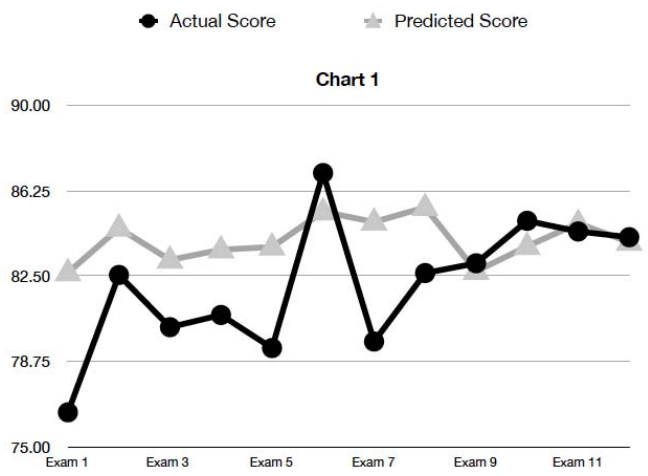

Figure 4. Mean predicted score and mean actual score by exam.

Taxation and Education: Using Educational Research to Inform Coherent Policy for the Public Good

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Abstract

In 2006, following a 30-year trend among the US states to remove the property tax from the revenue for public schools, the South Carolina General Assembly enacted Act 388 which replaced the property tax with a one-cent sales tax. The law decreased the budget capacity of school districts thus impacting educational equity and adequacy. This paper describes key policy makers' and stakeholders' interpretations of the pressure for property tax relief and highlight the importance of policy coherence in education finance, taxation, and accountability.

Taxation and Education:

Using Educational Research to Inform Coherent Policy for the Public Good

Throughout history, the property tax has been the principal source of funding for public education although the percentage of funding for public education that comes from local sources has varied and the reliance on property tax is different in different regions of the country (Kent & Sowards, 2009; McGuire & Papke, 2008). Property taxes have provided a stable revenue source for public schools, yet historically remain vulnerable to challenges on the grounds of equity and adequacy tied to local wealth. Most notably, critics contend that since property wealth is

unevenly distributed, the reliance on this source of funding results in uneven tax rates, inconsistent revenues per pupil, and variance in spending across districts (McGuire & Papke, 2008). Nevertheless, California voters approved Proposition 13 over 30 years ago, and since then, other states have removed property taxes from public schools' revenue streams and replaced such taxes with more dynamic and in some cases less predictable funding (Courant, Gramlich & Loeb, 1995; McGuire & Papke, 2008). South Carolina followed these states in 2006.

In the literature on school finance, myriad studies have been conducted to examine the equity and adequacy of revenue allocated in support of public education. Beginning with the seminal work of Berne and Steifel (1984), scholars have both attempted to define and quantify the concepts of horizontal and vertical equity. Due in large part to judicial interpretations of state constitutions regarding the requirement to provide for a system of public education, the debate has evolved from a focus on equity, defined as equal, to one of adequacy, defined as sufficient (Ladd, 2008; Darling-Hammond & Snyder, 2003: Verstegen, 2002; Reschovsky & Imazeki, 2001). Relatively fewer studies exist that examine revenue generation in support of public education. The capacity to budget greatly impacts the ability of educational leaders to deliver an adequate education to children; to do so require both a stable and sufficient source of revenue. Because the competing policy goals of taxpayer equity and the provision of educational services must be balanced, more studies that seek to examine how policy makers deliberate these issues as well as the impact of their decisions must be conducted.

In 2006, South Carolina's General Assembly passed legislation to relieve taxes on owner occupied property valued at more than $100,000 and typically found in attractive locations on waterfronts or in retirement communities. Simultaneously, SC legislators also limited municipalities' and school boards' ability to levy higher rates. The General Assembly removed

the property tax on owner occupied property and replaced it with a penny addition to the state's sales tax on specified retail items. With several of Act 388's provisions rolling into implementation from 2007 through 2008, this study took place in 2010 to obtain key policy makers' and stakeholders' perceptions of the consequences of this act on both taxpayers and schools and their political forecast of the next steps in balancing both the tax burden among diverse taxpayers and stabilizing adequate resources for public schools. The research described in this study focused on several questions: What motivated legislators to cut the property tax in South Carolina?; Did the legislators consider the potential impact on the ability to adequately fund the state system of public education by removing the property tax?; In what ways did beliefs about tax burden and ability to pay impact the enacted legislation? This paper further developed answers to these questions: How did the shift in tax impact the capacity of school districts to budget? And, what are the implications for practitioners who must now deliver the same educational program with diminished resources?

Competing Priorities of Equity

According to Dinan (2007) and Guthrie, Springer, Rolle and Houck (2007), scholars have examined the language of the education clause of each state constitution and categorized states according to the duty to provide a system of education. These classifications range from weak clauses that simply establish a school system to clauses mandating a thorough and efficient school system. Furthermore, state education clauses range from containing language regarding the purpose and/or benefit of a quality education to clauses proclaiming education to be a paramount duty or mandating other specific duties. The South Carolina Constitution offers a limited statement (Umpsted, 2007) concerning the operation of schools:

> ... the General Assembly shall provide for the maintenance and support of a system of free public schools open to all children in the State and shall establish, organize, and support other public institutions of learning, as may be desirable. (South Carolina Constitution Article IX, Section 3).

The interpretation of the education clause in class action suits heard in 45 of the 50 states has led to recommendations for reform, particularly in the areas of finance and accountability policy (Levine, 1991; Springer, Liu & Guthrie, 2009; Griffith, 2005). At issue in these class action suits are the evolving notions of equity and adequacy. The unit of analysis in these cases is the student with equity being conceptualized as either an input or an output. When measuring equity by the more traditional focus on inputs, an equitable finance system would be measured by what Berne and Steifel (1984) identified as horizontal equity. Under such a system, all students would have access to a similar amount, or "package" or resources (Ladd, 2008 p. 404). Studies that attempt to discern horizontal equity compare expenditures per child. The definition of equity in terms of outputs would, according to Ladd (2008), require that schools be provided sufficient resources to achieve similar outcomes. Because schools are differentially situated, some schools require more or different resources than others. Differential treatment of unequals is termed vertical equity by Berne and Steifel (1984). This concept is especially relevant in the current policy context of schooling that requires equitable outcomes for all children. Some have characterized vertical equity in the ideal as adequacy (King, Swanson, & Sweetland, 2003) while Ladd (2008) made the distinction that adequacy is not just about differential treatment, but rather sufficiency of resources to achieve desired outputs.

Equity may also be viewed through the lens of the taxpayer. Ulbrich (2005) noted that a good revenue system is characterized by adequacy, equity, and efficiency. An adequate revenue

system is defined as one that contains a mix of revenue sources that provide a stable foundation so that the revenue grows when the economy does. An equitable tax system distributes tax burden in a fair manner among differential levels of income and between households and businesses. Finally, an efficient system does not distort individual behavior in the market. Tax equity considers issues such as who should pay for government services, ability to pay, and burden.

Policy Coherence, Budgeting, Taxation and the Public Discourse

The seminal work of Smith and O'Day (1991) outlined the need for systemic reform in education policy and advanced the notion that an alignment of policy proposals: standards, testing, teacher licensing, instructional materials, professional development, and sanctions for school performance were required. Recently, finance scholars have advocated the importance of the alignment of funding mechanisms with standards (Adams, 2008; Verstegen, 2002). According to Ryan (2008), the fields of education law and policy have been dominated by the intersection of standards and testing with challenges to school finance distribution systems.

Budgeting may be thought of as comprising three elements: (a) decisions on the amount of funds to be raised, (b) requests for funds, and (c) the allocation of funds. Succinctly stated, budgeting is the process of generating, claiming, and rationing resources (Schick, 1990). The capacity to budget is determined by how well a government or agency can claim and allocate resources in order to produce specified outcome (Schick, 1990). "It is no exaggeration to state that the capacity to govern depends on the capacity to budget" (Schick, 1990, p. 1). By extension, the ability of schools and districts to adequately educate children is impacted by the ability to claim sufficient funds and to align those resources in such a way as to maximize student achievement.

King, Swanson, and Sweetland (2003) noted that taxes serve many purposes including the redistribution of wealth and power, the creation of an economic climate that supports the growth of business, the discouragement of the use of certain products (i.e., tobacco), and the encouragement of various social and economic policies. These issues influence policy choices among the merits of different types of taxes. Tax yield is the amount of revenue that is raised as a result of a tax. Without adequate yield, the government may not be able to provide specific services, balance the budget, and avoid debt. Finally, tax stability or elasticity is a consideration when adopting a tax. Succinctly stated, elasticity refers to the change in revenue based on a change in market conditions or tax rates. According to Odden and Picus (2007), an elasticity of at least 1.0 is highly desirable for revenue generation for schools.

As noted, the property tax has been and continues to be the primary source of local revenues for public schools. McGuire and Papke (2008) noted that 65.3% of local revenues for public education were raised through property taxes in 2003-2004. Scholars have noted that this number is actually an underestimate of the reliance on the property tax for local sources of education funding since additional revenues are distributed from municipal and other parent governments; these revenues are also raised through property taxes. As such, there is agreement that property taxes account for over 80% of all local sources of revenue for public schools (Kent & Sowards, 2009; McGuire & Papke, 2008).

Education finance reform, starting in the 1970s, saw a move away from the use of property taxes to support public education. These reforms shifted the percentage of funds that were received from local sources to the state. Public data on education finance reveal that the percentage of revenues for public education from local sources dropped from approximately 62% in 1957 to approximately 40% today (NCES, 2010). Concurrently, the percentage of total

revenues for public education raised from the property tax has declined. Although the total percent of revenue raised from property taxes has declined over time, one cannot underestimate the importance of the tax. The literature points to the fact that decreases to the property tax have often been accompanied by restrictions on the locality to raise additional sources of revenue (Downes & Figlio, 2008; Kent & Sowards, 2009; McGuire & Papke, 2008). These restrictions have resulted in losses in efficiency for localities to administer services.

Changes to the education finance systems and the reduced reliance on the property tax were largely a part of class action suits brought in state supreme courts that challenged the finance systems in the respective states. Concurrent with the court action for greater equity and adequacy in school finance has been public demand for decreased property taxes (Blankenau & Skidmore, 2002; Downes & Figlio, 2008). Yinger (2006) found that increased state aid resulted in reductions to property taxes in 75% of the cases. Changes to the tax code have been seen across the United States. For example, both Michigan and California have both capped the ability of local education agencies to use the property tax and have instead implemented a state property tax to raise revenues for public schools. Other states, such as New Hampshire, have included a local provision as part of their foundation system which is labeled a statewide property tax. Still other states, such as Massachusetts have adopted laws that limit the amount of annual increases to property taxes. Despite the historical reliance on this revenue source to fund education and other services, the property tax is perhaps the most unpopular tax in the United States. According to Dornfest (as cited in Kent & Sowards, 2009), “the public continues to express resentment toward this tax and politically empowered groups whittle it away through demand for exemption or other favored treatment” (p. 34).

Criticisms of the property tax abound. It is largely seen as inefficient, inequitable, and difficult to administer. Property taxes are multifaceted. They include a tax on land, tax on the improvements to the land, and a tax on personal property. These multiple dimensions invariably lead to criticisms of valuation. Research on the criticism of the property tax shows clear themes in attempting to explain inefficiency, inequity, and administrative difficulties. These themes include: the impact on consumer behavior as a result of the tax (inefficiency), the burden imposed or incidence of the tax (inequity), and the degree to which the system is fairly administered. Specific to this inquiry are questions of burden and property valuation. These stakeholder concerns largely drove the tax revolt in South Carolina.

In a review of the impact of tax and expenditure limits, Downes and Figlio (2008) noted that while tax and expenditure limits slowed the growth of property tax revenue, they found no evidence that there was not a significant decline in revenues available to local governments. The authors stated that these findings were in the aggregate for all functions of local government and that this finding was likely the result of three factors: increased state aid funded through increased state taxes, provisions in the law that allowed voters in localities to choose to continue historical levels of spending patterns, and an increase in other local taxes or user fees. In South Carolina, Act 388 included an increase in state sales taxes to offset the lost local revenue, but lost sales tax revenue due to the economic downturn coupled with strict limits on localities to limit tax increases has limited the amount of both state and local revenue to school districts. Downes and Figlio (2008) concluded their review by considering the impact of tax and expenditure limitations on student achievement. They suggested that it is difficult to discern how tax and expenditure limitations will impact student performance because one must examine changes to spending patterns to see if districts are spending efficiently. It has long been argued that school

spending patterns have not changed over time. Because districts are not aligning resources to achieve intended outcomes, there may be no reason to believe that decreased availability of revenues will impact student performance at all. On the other hand, schools are serving an increasingly heterogeneous population of students. Research tells us that it is more costly to educate diverse populations because all students have different levels of need. Reduced funding could be catastrophic for student achievement given the current need.

Despite calls for change and the politically unpopular nature of the property tax, the literature suggests that the property tax will continue, in some form, to fund public education (Augenblick, 2008). Research seems to conclude that the ability to fund public education has been eroded by efforts to enact exemptions and other forms of tax relief (Kent & Sowards, 2009). Further, scholars have stated that it is imperative that the property tax be administered properly so as to achieve both horizontal and vertical equity. Because it is believed that property taxes will not be completely eliminated, Poole (2007) introduced steps to include in the political discourse surrounding the use of property taxes to fund local government. Specifically, he noted the need to educate politicians and taxpayers about property tax reform, the benefits of the property tax, the economic consequences of change to property taxes, and the need to demystify property tax and valuation processes.

Funding Public Education in South Carolina

Funding for the system of public education in South Carolina was established in the Education Finance Act of 1977 (EFA). The EFA is a foundation program that includes a weighting system designed to equitably distribute funds among districts based on local property wealth (Flanigan & Richardson, 1993). The goals of the EFA were to guarantee each student in the public schools in South Carolina the availability of at least a minimum educational program,

appropriate to the needs of each student and substantially equal to that which is available to other students in the state with similar need without regard to geographic location of socioeconomic status (South Carolina Code of Laws, Title 59, Chapter 20, § 30). The law required that 70% of the cost of the program would be borne by the state with the remaining 30% of funding to be raised locally (Flanigan & Richardson, 1993; Tetrault & Chandler, n.d.). The EFA required each locality to raise funds according to their taxpaying ability which is calculated to be a measure of local wealth. The EFA placed the determination of a per pupil cost each fiscal year based on revenue projections. The base student cost, initially provided to all students to ensure horizontal equity, is then weighted based on grade level, handicapping condition, homebound instruction, and vocational education as a means to provide a degree of vertical equity. This calculation provides a cost of the educational program for each district. Local districts must raise a portion of the total cost of the program in order to be eligible for state matching funds.

A second component of education funding in South Carolina is the Education Improvement Act (EIA) of 1984. While this component of education funding does not have an explicit requirement for local funding, it's worth briefly examining the provisions of the law since the loss of fiscal capacity due to changes in tax policy coupled with the current economic climate has implications for how school districts can use their limited funds. The EIA was an attempt to raise and distribute additional funds for education to improve the quality of the system of public education in South Carolina. EIA raised the state sales tax from 4% to 5% and allocated funds for improved academic standards, the teaching and testing of basic skills, improvements in leadership, management and fiscal efficiency, increases in teacher salaries, the creation of effective partnerships between schools, parents, communities, and businesses, and school construction (Tetrault & Chandler, n.d.).

The ability to raise local funds for education in South Carolina varies. Of the 85 school districts in South Carolina, 23 have fiscal autonomy, 36 school districts have authority to set millage rates within parameters established by statute, referenda, legislative action, or county council action, and 26 districts must call upon the legislative delegation or county governments to establish millage. Fiscally autonomous school districts have the authority to establish a millage rate for the operation of schools. Local funds are used to satisfy the local effort requirements of the EFA, to provide supplements to state and federal funds deemed appropriate by local communities, and to provide school facilities or to offer special initiatives or services with costs beyond the constitutional debt limit.

Act 388

In Fiscal Year (FY) 2006, the SC Legislature passed Act 388, also known as the *Property Tax Relief Act*, which changed the means by which localities could raise funds in support of public education. Until then, property taxes had been the main source of local funding for public education in South Carolina. That changed to a reliance on ad valorem taxes, revenue transfers from the state in lieu of taxes, and revenues from fees. Localities were given the legislative authority to determine fees as necessary. Three major components of this act pertained directly to public school finance (Schunk, 2006). The first included a sales tax increase from 5% to 6%. According to the law, the revenue generated by this increase flowed into the newly created Homestead Exemption Fund. Secondly, all owner-occupied residential property became exempt from property taxes for school operations. By FY 2008, money in the Homestead Exemption Fund became the source for reimbursements to school districts for the lost property tax revenue. The last component of Act 388 imposed millage caps for all local governing bodies including school districts. The millage cap limited local governments to a percentage less than or equal to

the percentage increase in local population plus the rate of inflation of the Consumer Price Index (CPI) (Schunk, 2006). The projections for FY 2008 were that Act 388's allocations of the property tax relief funds were distributed to districts as a direct reimbursement for the funds that would have been collected by each district through property tax collections. Each subsequent year, the property tax fund was supposed to grow by the percent of state population growth plus the prior year CPI, or 4% whichever was greater. Beginning in FY 2009, districts were projected to receive the base amount set in FY 2008 plus the growth funds, distributed by Weighted Pupil Units (WPU) and a poverty factor.

Method

The study relied heavily on oral histories from key participants in the 2006 legislative process (Kvale & Brinkman, 2009; Marshall & Rossman, 2006) as well as data detailing tax revenues as published by the South Carolina Department of Revenue and the South Carolina Budget and Control Board. These recounts of personal roles and discussions with others were triangulated with participants' documents and media accounts of the time (Corbin & Strauss, 2008). Sixteen people representing state legislators, media and public analysts, and grassroots taxpayer organizations participated in the study. Key political elites, including around 10 legislators and media representatives, were identified prior to the study. Then, additional participants were nominated by the initial participants in a technique known as snowballing (Marshall & Rossman, 2006).

The theoretical framework provided the structure for interview questions, which appear as an appendix. All of the interviews were conducted by one member of the research team; 12 over the phone and 4 in face-to-face settings. All of the interviews were audio-recorded and transcribed into documents for the analysis. The analysis began with a set of start-codes derived

from the theoretical framework and attached to specific interview questions. However, these codes proved too fine-grained and orthogonal for the complexity and density of the participants' narratives. Instead, the researchers used a reiterative coding process to access findings among the responses.

To discern the impact of the policy change, descriptive statistics were collected on tax revenues (Table 1) as well as the base student cost expenditures (Table 2) for each the past ten years. The tax elasticity for each tax, income, state sales and use tax, as well as the property tax was calculated. For the purposes of this study, tax elasticity was defined as the change in revenue given the change in income.

Findings

Two findings are presented: first stakeholder perceptions of the efforts to change the tax policy as recorded during the oral histories as well; second, descriptive statistics on tax revenues and the elasticity calculations. The oral histories yielded results including six categories that illustrated the political contrasts over Act 388: (a) equity for taxpayers, (b) shift in tax burden, (c) adequacy of resources, (d) Act 388 effects on education in South Carolina, (e) local control of schools, and (f) possible changes to Act 388. In the paper, quotes from transcripts are cited with participants' surnames (their own or their selected pseudonym) and the date of the interview with the page number of the transcript.

Participants' perceptions regarding taxpayer equity was examined prior to and following the passage of Act 388 and from two different equity perspectives - taxpayer equity and educational equity for children. One of the interviewees described taxpayer equity features of Act 388 as follows:

> ... the guys that owned the $10 million-dollar homes along the battery in Charleston, they are the ones that saw the big break. The wealthiest of the wealthy saw the biggest property tax break. The average person in South Carolina did not see much of a property tax break unless their home was valued at more than $100,000, then you got a little bit of a break (Anthony, March 7, 2010, p. 2).

Educational equity fared even worse in the Act 388 design. Most of the participants admitted that the legislative focus was on taxpayers, not on education. Although some saw the discourse over Act 388 as a bait-and-switch con game.

"It has nothing to do with education. Absolutely nothing. Part of the rhetoric to sell the idea was the concept to separate the pitting of the homeowner against the local education community" (Jones, March 19, 2010, pp. 3-4).

"It was sold that way but it really had nothing to do with education; it was all about taxation. It doesn't have anything to do with education. It has nothing to do with education" (Read, February 25, 2010, pp. 5, 8).

Thus, the strongest perspective among the responses focused on the purpose of Act 388 as a means of resetting the tax burden from one set of constituents to others. "... in some cases, the lower income people do not have to pay those taxes because they get food stamps. They said this was much better for us" (Doe, March 8, 2010, p. 7). This particular participant rationalized the removal of the higher value home property from tax rolls with the notion that the passage of the additional penny sales tax was fairer since poor people do not own homes. Essentially, the shift of the tax burden moved from property of owner-occupied homes to consumers, which calculated as a 20% sales tax increase on goods and services. However, the business community

also reacted to the shift as a 6% increase in tax devolved to manufacturing and industry when high-valued homes were removed under Act 388.

The research examined the participants' perceptions of adequacy of resources for education. Although some participants cited waste in schools, others identified a reduction in funding since the economic decline, beginning in 2008. The 2008 recession immediately affected consumer sales, and thus dropped sales tax revenues. Sales tax collections in South Carolina experienced deficient collections of 6.3% in fiscal year 2008, or $165 million. These lower-than-projected revenues had a simultaneously impact on school resources as noted by one of the participants:

> So you're just screwed in terms of your [school] operating revenues. That's hard to come by these days. ... It's just staggering. ... Personally I don't like to pay property taxes but there are certain things that we have to do to make the world work. One of [then-Governor] Mark Sanford's efforts was to reduce the size of government and one way to do that was to bankrupt government. ... To bankrupt the government! I don't know if it was intended or it was just a byproduct (Miley, March 9, 2010, pp. 3-4).

The notion that government should be diminished was also a feature of Act 388 in that it capped the ability of both school districts and municipalities in raising revenues through property taxes. The Act limits the ability to raise millage by the consumer price index plus the rate of inflation. South Carolina and local school districts have historically clung to local control of schools. The curtailing of local control appeared to be the policy intent of one supporter of Act 388:

> ...the wild, reckless spending... reign them in some to get them where… they had no respect for a person's home. They thought that a retired person's life savings was their piggy bank. We could no longer afford them to have free access to our savings account (Bowen, March 7, 2010, p. 5).

The study sought to determine if participants believed there would be any changes to Act 388. Some participants advocated for comprehensive tax reform - a broad based tax base with low rates. Those advocating for reform were concerned with both the imbalance in tax burden on businesses and consumer as well as those who recognized the instability for local government and school revenues. Others, among who were those depending on continued support among retirees and realtors/developers with investments in with high value waterfront property, felt that efforts to reverse Act 388 would fail.

Descriptive statistics in Tables 1 & 2 illustrate the impact of the changed tax policy. Tax estimates, actual collections, and the difference between the two are displayed in Table 1 as is the mean household income in the state and tax elasticity calculations. Several patterns emerge. First, the property tax was by far the most stable tax. The property tax was the only tax that resulted in actual collections above the estimate. Both the income and sales taxes were below the projection in six of the ten years of study with the largest deficit taking place in a year of declining income (FY 08-09). Conversely, property taxes remained stable and actually grew in nine of the ten years of study. Both income and sales tax revenues declined in years when the state and country were experiencing recession (2000-2003 and FY 2007-2010) while property taxes performed above expectations. Elasticity calculations were impacted by flat and declining median household income in the state. Recalling the standard of 1.0 for elasticity for revenue generation in schools, the income tax was the least reliable tax in terms of generating sufficient

income to fund public education. The income tax only met the standard three times (FY 03-04, FY 04-05, and FY 08-09). The property tax met the standard a total of four times while the sales tax met the standard a total of five times.

The impact on revenue allocations to public schools as a result of a change to a reliance on a less stable source of revenue has been drastic. These data appear in Table 2. The base student cost in South Carolina is allocated based on revenue projections. In examining the data in Tables 1 & 2, it appears that the greatest surplus in funds occurred in FY 05-06. Coincidentally, that is the same year that Act 388 was signed in to law. Based on increased revenues, the base student cost rose from $2290 in FY 06 to $2367 in FY 07 and $2476 in FY when the law was fully implemented. Unfortunately, the housing market crash in 2008 coupled with the ensuing recession resulted in huge revenue shortfalls. The base student cost decreased to $2191 in FY 08-09 and $1756 in FY 09-10. That allocation in FY was a cut of over $900 per student below the budget and control board estimate of the cost of educating a student in South Carolina.

Discussion

Balancing tax equity and funding education has been an elusive goal in South Carolina. Coherent education policy is premised on the systemic reform of standards, accountability policy as well as the means by which to system is funded. The oral histories recorded as part of this study clearly reveal that the goal of the proponents of Act 388 was to reduce the tax burden on the elites. Although the impact of Act 388 was exacerbated by the 2008 recession, the coincidence of the Act's provisions and the economic downturn provided a dynamic illustration of the issues with replacing a relatively stable revenue stream with a volatile one, the sales tax. The responses from the political elites in this study revealed that the enactment of the law was not merely shortsighted economically, but also in terms of taxpayer equity. The proponents of

Act 388 were primarily retirees, realtors, and developers with high-value waterfront properties intended for owner-occupancy. The taxpayers who lost in the burden shift were consumers and other businesses with large property sites for manufacturing and other purposes. The biggest losers were public schools and students along with local municipalities whose ability to raise revenues was curtailed by Act 388.

More alarming was the total disregard for the impact that the removal of revenues would have on the system of public education in the state. Indeed, the proponents of the Act did not even consider the systemic ramifications of the removal of the most stable source of revenue for public education. The result was a decrease by over one-third in the base student cost resulting in furloughs, layoffs, and a reduction in the number of days in the school year. Each of these resources has been proven to have a positive impact on student achievement in the literature. Interviewees expressed the belief that there was waste in education funding and that shifting the tax burden would decrease the size of government. Wasteful spending and inefficiency are frequent criticisms of public education. Two definitions have emerged in the literature for inefficiency in education finance. Scholars attempting to discern the adequate cost of an education have defined inefficiency as the difference between required costs and actual expenditures. Critics contend that the adequacy calculations are flawed in part because there are multiple goals of public education and that the use of minimum proficiency targets may actually underestimate the true cost of educating children. Economists define efficiency as the allocation of inputs to achieve maximum levels of outputs. Using this argument, it is possible to have underperforming schools that are efficient because output is maximized given inadequate inputs. Inefficiency, as defined by economists, is found in schools where costs exceed outputs. Both

groups agree that there are increased costs for educating students in schools with high concentrations of poverty and other indicators of risk.

Given the findings that stakeholders saw little need to make revisions to Act 388, even given the decrease in revenue to support education, we believe that there is greater need for educational leaders to become involved in advocating for more coherent policies. If the ability to implement a system of public education that meets the needs of all students and provides them with the opportunity to achieve proficiency targets inherent in accountability policy, leaders must be given the capacity to budget. This requires an adequate source of revenues from multiple sources so as to ensure stability. Educational leaders must be willing to work with policymakers and to inform them of the impact of changes to revenues in support of public education. Lastly, educational leaders must be willing to reflect on current resource allocation practices and to advocate for change. Years of production function research have identified school level resources that most impact student achievement. Further inquiries have identified that these resources tend to be concentrated in the least needy schools. An emerging body of research on *x-efficiency* has described the impact that school policies, practices, and culture can have on student achievement (Addonizio, 2009; Leibenstein, 1966). Leaders must be willing to make the difficult choice of reallocating resources to the neediest schools, a decision that few have been willing to make to date, while working to improve the process by which we educate our children. In so doing, perhaps we can create greater understanding of the resources and practices required to better educate all children and move toward greater policy coherence in school finance and taxation policy.

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Appendix - Interview Protocol

1. Since enacting the 2006 legislation known as Act 388, what two or three issues have you heard about from your constituents?

   Follow up questions (if necessary)

   a. How did Act 388 impact the business community? Do you know of any fiscal impact studies about the effects of the Act on the business community? (Burrup, Brimley, & Garfield, 1993)

   b. How did the Act affect homeowners? Do you believe homeowners prefer to be taxed in the form of a sales tax rather than a property tax? (Martin, 2006; Slade, 2007; 2009)

2. As you think about Act 388, do you see it as primarily a tax law or an education law? (Picus, Odden, & Fermanich, 2001)

3. What consideration of tax burden led to the development of Act 388 in 2006? (Burrup et al., 1993)

   a. Do you recall any discussion about the reactions of corporations or manufacturers to a shift from property taxes to sales taxes? If so, what was the nature of that discussion?

      i. Was there any discussion of the possibility that corporations and manufacturers could shift the tax burden onto consumers in the form of higher prices? If so, what was the nature of that discussion? (Odden & Picus, 2007)

      ii. What about speculation on corporations and manufacturers shifting the tax burden backward to workers in the form of lower wages? If so, what was the nature of that discussion? (Odden & Picus, 2007)

   iii. Do you recall any discussion about corporations and manufacturers shifting the tax burden backward to suppliers in the form of lower prices for raw materials? If so, what was the nature of that discussion? (Odden & Picus, 2007)

   iv. To what extent was there any speculation about owners of rental property increasing monthly rent on tenants? (Odden & Picus, 2007)

4. To what extent did escalating assessed values influence the passage of Act 388? (Burrup et al., 1993)

   a. What kinds of estimates about real estate sales surrounded discussions about the Point of Sale price for the purposes of taxation? (Burrup et al., 1993)

      i. Did the property valuation system need overhauling? (Picus et al., 2001) Is there further overhauling of the tax system in South Carolina?

      ii. Are there any repercussions from instituting a tax reassessment cap at 15% (Scoppe, 2008)

   b. How were the exemptions to sales taxes determined? (Burrup et al., 1993)

5. To what extent did the deliberations over Act 388 include consideration of centralized state authority over resources and quality and the tradition of local control of schools? (Guthrie, Rolle, Springer & Houck, 2007)

6. By removing local property taxes from revenue generation for local school districts, did the General Assembly consider who or what agency would oversee the spending of the state tax dollars? In other words, was the loss of local control considered in developing the Act? (Burrup et al., 1993)

7. How did equity of resources play into the development and eventual passage of Act 388? (Picus et al., 2001)
    i. At this point, what do you think the General Assembly will do about Act 388?
    ii. Do you think the response will be primarily a new taxation policy or a new education policy?
    iii. Which constituents likely will be satisfied with the General Assembly's response?
    iv. Which constituents likely will be dissatisfied with the General Assembly's response?

Table 1
South Carolina Tax Revenues, Household Income and Tax Elasticity

	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10
Individual State Income Taxes										
Estimate	2,284,249,442	2,353,988,655	2,307,230,914	1,964,484,931	1,979,363,905	2,158,416,916	2,599,913,486	2,927,383,170	2,969,672,332	2,469,023,143
Actual	2,127,286,899	1,920,136,736	1,859,125,469	1,973,635,422	2,215,376,042	2,608,227,193	2,881,930,422	2,863,839,126	2,326,707,698	2,170,909,624
Over/ (Under)	(156,962,543)	(433,851,919)	(448,105,445)	9,150,491	236,012,137	449,810,277	282,016,936	(63,544,044)	(642,964,634)	(298,113,519)
State Sales and Use Taxes										
Estimate	2,092,964,644	2,178,000,237	2,150,685,980	2,151,994,915	2,249,617,591	2,396,065,472	2,495,764,823	2,599,400,000	2,698,853,250	2,192,353,185
Actual	2,000,208,479	2,026,514,449	2,041,704,530	2,181,357,756	2,318,474,848	2,544,065,472	2,631,222,230	2,463,274,765	2,247,876,029	2,190,976,127
Over/ Under	(92,756,165)	(151,485,788)	(108,981,450)	29,362,841	68,857,257	148,000,000	135,457,407	(136,125,235)	(450,977,221)	(1,377,058)
Property Taxes County, City, and School District Level										
Estimate	2,771,124,427	3,086,707,524	3,242,461,172	3,429,329,344	3,495,878,573	3,829,662,904	4,166,080,985	4,065,064,529	4,360,090,649	4563199593
Actual	2,796,638,298	3,110,484,500	3,267,014,852	3,448,756,640	3,515,806,273	3,846,831,188	4,184,451,598	4,082,471,168	4,377,601,963	4590179930
Over/ Under	25,513,871	23,776,976	24,553,680	19,427,296	19,927,700	17,168,284	18,370,613	17,406,639	17,511,314	26,980,337
Median Household Income										
Estimate	37,736	37,812	38,479	38,691	40,230	39,617	44,213	42,155	41,101	41,699

	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10
Tax Elasticity										
Income		-48.35	-1.80	11.18	3.08	-11.64	.90	.13	7.50	-4.60
Sales		6.53	.42	12.41	1.58	-6.39	.30	1.37	3.50	-1.74
Property		60.81	2.85	10.10	.49	-6.18	.76	.52	-2.89	3.34

* Source: South Carolina Budget and Control Board, Historical Analysis, US Census Bureau

Table 2

South Carolina Base Student Cost

FY	Budget & Control Board BSC Estimate	General Assembly BSC Proviso	Funded BSC
00-01	2012	2012	2002
01-02	2073	2073	1881
02-03	2133	2033	1770
03-04	2201	1701	1754
04-05	2234	1852	1852
05-06	2290	2290	2290
06-07	2367	2367	2367
07-08	2476	2476	2476
08-09	2578	2578	2191
09-10	2687	2034	1756

Source: South Carolina Department of Education