

Current Issues in Education

Mary Lou Fulton Teachers College • Arizona State University PO Box 37100, Phoenix, AZ 85069, USA

Volume 16, Number 3

October 30, 2013

ISSN 1099-839X

An Analysis of Teacher Efficacy and Perspectives about Elementary Literacy Instruction

Joy Abernathy-Dyer Villa del Rey Elementary, Baton Rouge

> Evan Ortlieb Monash University, Australia

Earl H. Cheek Jr. Louisiana State University

At the core of every teacher is a set of beliefs and knowledge regarding teaching and learning. As a teacher develops her expertise, curricular practices are refined and selfefficacy is enhanced. Teachers possess varying degrees of efficacy and perceptions that impact literacy instruction within their classrooms. Yet, often times they are mandated to teach in certain ways to achieve desirable student outcomes, even when they may not agree with the methods or processes wholeheartedly. The purpose of this study is to explore some of the issues that change teachers' instructional practices in the classroom and to reveal some of the issues that influence as well as hinder instructional reform within that setting. This qualitative case study uses observations, interviews, and questionnaires to highlight teacher efficacy from four first-grade teachers. Testing data indicate students achieve both because of instruction and teachers' willingness to implement the reading program with fidelity. Findings from this study can assist in setting up professional development, serving as a guide for providing warranted support for student learning and teacher knowledge, and fostering considerations for including teachers in the important stages regarding the planning and implementation of classroom literacy instruction.

Keywords: teacher efficacy; literacy; reading; perspectives; elementary education

Targeted skills and instructional approaches in literacy education have changed over the last century; however, the reading teacher's role in the classroom has remained much the same. The teacher has the primary role for accelerating literacy growth of elementary school readers (Ainsworth, Ortlieb, Cheek, Pate, & Fetters, 2011; Ortlieb & Cheek, 2008). Barone and Morrow (2003) note that a "recent study of schools in 32 nations found that the most critical element in building an effective reading program is the teacher" (p. 16). The U.S. educational school system relies on efficient teachers to provide the most effective, successful reading instruction to improve students' education. During a time of reform and accountability, school districts closely monitor teachers' instructional decisions, practices, and classroom environments (Cassidy & Ortlieb, 2011). Yet, the question remains: How do teachers make sense of policy context, school site, content, and student demographics

that affect the ways in which they educate elementary learners?

Several studies have shown that individual teacher beliefs and values play a vital role in shaping the objectives, goals, curriculum, and instructional methods of schools (Duffy-Hester, 1999; Hitchens-Smith, Ortlieb, & Cheek, 2011; Hoffman, 1998; Morrow, Tracey, Gee, Woo, & Pressley, 1999; Rivkin & Hanusheck, 1998; Rosenshine & Stevens, 1986; Sanders & Rivers, 1996; Terry, Minor, Onwueglouzie, & Witcher, 2002). Results of research studies show such beliefs and values can spell success or failure for any reform effort imposed by a school or district. A school may publish its goals, objectives, and standards to represent its intended purposes and subject matter coverage; however, any uniformity outside of published lists is largely mythical. The purpose of this study is to explore some of the issues resulting from attempts to change teachers' instructional practices in elementary classrooms, including issues that may influence as well as hinder instructional reform. The following questions guided the exploration of this study:

1. What is the relationship between teacher beliefs about standard, prescribed reading instruction, and their practices in elementary classroom settings?

2. What role, if any, do teachers play in developing the how's and why's of literacy instruction in their classroom?

3. What factors do teachers believe are essential for providing effective reading instruction in an elementary school setting? How do these factors affect reading instruction in the elementary classroom?

Review of Literature Need for Standards-based Reading Reform

The first tenet of standards-based education is that learning goals, known as standards, are specified (McCombs, Kirby, Barney, & Maghee, 2004). Standards, simply defined, are statements of what students should know and be able to do. In a non-standards-based classroom, individual teachers may not be clear about what they think students should know or the best way to implement instruction. Some teachers argue that standards can create holdbacks and restrict the "teachable moments," while others view achievement standards as a means of communicating and informing others teaching the same grade or course have the same ideas about what students should learn.

Other teaching professionals base decisions on individual preferences, and in some cases, what they know best (Fetters, Ortlieb, & Cheek, 2011). One purpose for the standards movement was to address this lack of articulation among teachers at the same grade level, within buildings, and across districts. As one teacher interviewed noted: "When I worked at the elementary school in another district, it was interesting listening to teachers say: 'This child came from this school; this child came from this [other] school" (McCombs, Kirby, Barney, & Maghee, 2004, p. 8). They could tell which schools focused more on reading, which focused more on writing, and which focused more on standardized tests. It was further communicated that by using standards-based education, it would not matter what third grade classroom the child was in (McCombs et al., 2004). Even though some teachers appreciate the consistency that standards can bring to an education program, many do not know about this benefit, or do not appreciate the implications. Before teachers commit time and energy to making the shift to fully embracing standards-based education, they need to understand what standards-based education comprises. They also need concrete reasons for creating these initiatives like National Reading Panel (NRP) Report and Reading First Initiatives or the Common Core State Standards. Reading First Schools are those that are financially supported to implement scientifically based reading practices alongside instructional and assessment tools deemed to be appropriate by the U.S. Department of Education (Cassidy & Ortlieb, 2013).

The NRP was instrumental in providing the foundation of the research in the publication, *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998). The text summarized research literature that made claims about identifying critical skills, ideal classroom and environmental settings, and key interactions that would aid in assisting a student to acquire primary reading skills (NRP, 2003). The expanded efforts of the National Institute of Child Health and Human Development (NICHD) and NRP led to the following goals:

1. To comprehend rich but diverse research and data

2. To communicate the findings to inform parents, teachers, educators, publishers and others who are involved in the instruction of children

3. To provide advice by compiling and transferring the findings at conferences and other learning events

The rising demands for literacy and higher order thinking skills have been cited as factors that are responsible for the reading difficulties (Ortlieb, 2012). The most significant changes concern teachers, testing, and accountability (Cassidy & Ortlieb, 2011, 2012, 2013, in press; Cassidy, Ortlieb, & Shettel, 2010/2011). As for teachers, the No Child Left Behind (NCLB) Act required that Title I schools hire only "highly qualified" teachers for all subjects, and that veteran teachers in such schools demonstrate they are "highly qualified" by 2005–2006 (NCLB, 2001). The Act also reaches beyond Title I schools and requires that all teachers of "core academic subjects" (English, reading, language arts, math, science, foreign languages, civics and government, economics, arts, history, and geography) must be "highly qualified" by 2005–2006. Pursuant to the NCLB and accompanying regulations, teachers are considered "highly qualified" if they are fully certified and have demonstrated competency in the subjects they teach. Competence is assumed if the teacher majored in the subject in college, or alternatively, if it can be demonstrated by passing a state test, or for existing teachers, by convincing state evaluators that they know the subject areas (NCLB).

Teacher Beliefs and Reform Implementation

Teacher beliefs in effectiveness consistently predict desired student outcomes. Bandura (1993) reported it is believed that the achievement impact of Teacher Efficacy (TE) arises from goal-setting and attribution processes. Teachers who anticipate that they will be successful set more challenging goals for themselves and their students accept responsibility for the outcome of instruction, and persist through obstacles. Bandura's 1993 findings suggested student achievement of cognitive and affective goals can be enhanced by strengthening TE. The hypothesis that school improvement will flow from enhanced TE has been tested in a variety of skill-development projects with mixed results. It is proposed that skill-development approaches be augmented by attending to teacher beliefs (particularly about the mutability of intelligence) and to conditions of teacher work.

In 1989, Rosenholtz described research on TE as being in its infancy. Understanding of the origins and outcomes of teachers' beliefs about effectiveness has grown substantially since then, but the use of these findings in teacher development programs has not. As stated previously, the purpose of the present study is to highlight findings that surround what influences TE as a mechanism for how teachers implement the literacy curriculum. The first of the following sections provides a definition of TE, and is an outline of its roots in social learning theory, distinguishing it from related notions. The second section is a review of evidence of a consistent association of TE with student outcomes and presentation of an argument for interpreting these correlations within a causal chain. The final section describes teacher development strategies that have been or could be used to strengthen teacher beliefs as competent literacy instructors, and provides an argument that these strategies must be augmented with attention to teacher beliefs and conditions of teacher work.

Teacher Efficacy and Role in Curriculum Implementation

Teacher efficacy is a type of self-efficacy that can be distinguished from related constructs such as outcome expectancy, locus of control, and self-concept. TE measures the extent to which teachers believe efforts will have a positive effect on student achievement. TE as a form of self-efficacy, and as defined by Bandura (1993), is an individual judgment of the ability to complete future actions. Appraisals are based on personal interpretations of past actions, rather than on external criteria. Over time, these interpretations stabilize as persistent, but not static, performance expectations. Expectations can be modified by new information, especially judgments about the results of subsequent efforts of oneself or peers undertaking similar tasks (Cramer, Ortlieb, & Cheek, 2008). Verbal persuasion (attempts by peers or supervisors to convince subjects that they are competent to perform the target actions) and physiological responses (physical symptoms communicating an inability to perform effectively) also contribute to expectations about future performance.

In Bandura's theory (1995), self-efficacy is a regulatory mechanism that influences behavior in four ways: through (a) enactment of cognitive processes, (b) adoption of loftier goals, (c) creation of increased goal commitment, and (d) expectancy that goals will be achieved despite setbacks along the way. Through motivational processes, high self-efficacy subjects take responsibility for the outcome of actions, and attribute success and failure to efforts rather than to factors beyond their control (Ortlieb & Marinak, 2013). Through affective processes those with high self-efficacy develop coping strategies, enabling them to turn off negative thoughts that lower performance. Through selection processes, self-efficacy shapes lives by influencing the selection of activities and environments (Doepker & Ortlieb, 2011; Ortlieb & Doepker, 2011).

In Social Foundations of Thought and Action: A Social Cognitive Theory (1986), Bandura further contended that human development reflects the complex interaction of the person, the person's behavior, and the environment. The relationship between these elements is called reciprocal determinism. A teacher's cognitive abilities, physical characteristics, personality, beliefs, attitudes, and other factors influence both behavior and environment; these influences are reciprocal. A person's behavior can affect feelings about self and attitudes and beliefs about others. Similarly, much of what a student knows comes from environmental resources such as television, parents, and books. Environment also comes from contextual resources such as television, parents, and books. Environment also affects behavior because what a person observes can powerfully influence what that person does (Ortlieb, 2008).

In a classroom setting, a person's behavior also contributes to the environment in the following ways. Teachers must provide a chance to observe and model the behavior that leads to positive reinforcement and desired outcomes. Educators must encourage collaborative learning, since much of learning happens within important social and environmental contexts. A learned behavior often cannot be performed unless there is the right environment. Educators must provide the incentive and the supportive environment for the behavior to happen as otherwise, assessment may not be accurate and future outcomes may be made based on false judgments.

Teacher Efficacy, Student Standards, and Literacy Characteristics

Bandura (1993) found causal attributions are closely linked to self-efficacy. Individuals with high selfefficacy, in contrast to those with low self-efficacy, attribute the outcomes of actions to themselves rather than to factors beyond their control. From this theory, one could predict that teachers with high professional efficacy would set higher standards for students, would make students accountable for behavior, and would persist until the students had met goals.

Available research supports these predictions. Personal TE has been consistently linked to pupil-control ideology, particularly in pre-service training. Wilson and Wineburg (1998) reported teachers with high personal TE tend to promote student autonomy, are more likely to confront student management problems than to respond permissively, and are more successful at keeping students on task. Those with high general TE have more confidence in classroom-management techniques and rate management problems as less severe (Bandura, 1995; Bullough & Stokes, 1994; Scheiner & Carver 1994). They are more humanistic in orientation and less reliant on custodial methods to control a class. If TE contributes to achievement-oriented student-management strategies, then higher achievement is likely to be the result. Teachers with higher TE may be more successful in producing student achievement because they attend to the needs of lower-ability students more closely. Ashton (1986) found that low TE teachers concentrated efforts on the upper-ability group, and they had less regard for lower-ability students, viewing them as potential sources of disruption. In contrast, those with high TE had positive attitudes toward low achievers, built friendly relationships with them, and set higher academic standards for this group than did teachers with low TE. Midgley (1989) observed that TE had a bigger impact on low than on high achievers, suggesting that lower-ability students are less certain about personal competence and are more likely to be influenced by teacher expectations.

Characteristics of High Teacher Self-Efficacy

There is consistent evidence that teachers with high TE are more willing to develop programs for specialneeds pupils within classrooms, rather than referring these cases to special services. Although these findings are based on teacher responses to hypothetical case studies, Leu and Kinzer (2002) argued teachers who exhibit high levels of effectiveness in literacy instruction have been identified as having the following characteristics:

1) Possess insights. Insightful teachers use appropriate materials, methods, and management to ensure literacy instruction is optimal.

2) Teach decoding skills. Integrate a systematic

program that includes phonological awareness, phonemic awareness, phonic knowledge, context use strategies and fluency.

3) Use exceptional works of literature. Offer students a variety of text types that are linked to background knowledge and personal experience (Rennie & Ortlieb, 2013).

4) Integrate reading and writing. Reading and writing are taught together in most instances to develop the language process and support literacy.

5) Use vocabulary knowledge to aid in comprehension. Vocabulary instruction builds background knowledge to increase reading achievement (Ortlieb, Perkins, & Verlaan, 2012).

6) Teach reading comprehension. Enhance comprehension through instructional strategies as well as accessing background knowledge.

7) Teach reading using different kinds of texts. Use different strategies to read different types of text.

8) Use good assessment strategies. Monitor student progress through use of reading assessment such as criterion-referenced tests, individual skills assessments, and interest surveys.

9) Meet individual needs. Provide small group instruction, and work stations that address various learning styles and skills.

10) Organize and manage classroom environment. Provide an environmental system that promotes literacy learning for all involved. Integrate computer and technology in literacy instruction. Use technology that prepares and enhances all facets of communication that ultimately aid in promoting multiple literacies. 11) Engage in professional development. Provide evidence of state-of-the-art competencies of teacher behaviors and responses during implementation of literacy instruction both in and outside of the classroom

Although the characteristics are limitless (Block & Pressley, 2002; Collins & Cheek, 1999; Darling-Hammond, 1996; Fontas & Pinnell, 2001; Fuller & Brown, 1976), most teachers have echoed that the mandates that are outlined in the literacy reforms present in today's elementary classrooms present difficulties (Krashen, 2005; Proctor, 1984; Snow, Burns, & Griffin, 2005; Strickland, Gankse, & Monroe, 2002; Taylor, 1999; U.S. Department of Education, 2004). By increasing expectations for lower performers and providing greater instructional support, teachers with high TE may create changes in student perceptions of their academic abilities (Ortlieb, 2010). As student efficacy becomes stronger, students may become more enthusiastic about schoolwork

and more willing to initiate contacts with the teacher, which are processes that impact directly on achievement. Evidence that TE has a delayed impact on student achievement (i.e., high correlations between teacher efficacy and achievement months later) is congruent with this view.

Methods

Design

The design for the study was an exploratory, qualitative ethnographic case study. A qualitative study was deemed appropriate because its design is central to inspecting both procedures and mandates geared towards changing instruction, but also how participants, in the present study. elementary teachers, perceive accountability measures. Stake (1995) argued that researchers should think like an artist and embrace the many facets of realities that might arise from a question. This process may emerge and evolve as the researcher tells the story or interprets the case in context. One would identify the issues brought in by the researcher (etic), and those defined by the individuals involved in the study (emic) on a constant basis. Yin (2009), on the other hand, prefers to employ the use of hypotheses intended to be used as a guide to explain a particular instance. Such designs and discoveries that result provide the uniqueness of conducting case study research.

Ethnography is a qualitative research method rooted in anthropology that is an attempt to describe people's perceptions of meanings and events within the context in which they take place (Lincoln & Guba, 1985; Spradley, 1979). Rather than form questions that will largely predetermine the answers, this approach generates hypotheses from participant "rich descriptions." Ethnography requires that investigators learn from people as "informants," rather than regard them as "subjects" (Spradley, 1979). Teachers become informants for ethnographers, who attempt to bridge the participant's "meaning world" with a professional audience's meaning world through an ethnographer's meaning world (Miles & Huberman, 1984).

Ethnographic research is unique in that the goal is theory development rather than theory testing. Theoretical concepts are generated directly from the detailed interviews with and observations from the participants themselves within the setting of interest. Hypotheses are not predetermined, but generated at the end of the ethnographic study after all data have been gathered and analyzed. Typical data collection techniques in ethnographies include both participant and nonparticipant observations in the form of field notes and transcribed interviews from informants. Use of multiple sources provides researchers with triangulated data sources. Typically, triangulation includes the use of multiple data sources, data collection techniques, analysis methods, and investigators to enhance the reliability and validity of study findings (LeCompte, Preissle, & Tesch,

1993).

Participants/Data Collection

Four schools were selected to participate in the study using intensity case sampling (Patton, 2002). An equal number of Reading First and non-Reading First Schools were selected for inclusion. Hollow Brook Elementary and Willow Lane Elementary are currently receiving funding and functioning as Reading First Schools (pseudonyms are used throughout the study to preserve the anonymity of participants). Green Meadows Elementary and Winding Trail Elementary are schools that shadow the Reading First model in similar aspects, but are labeled Non-Reading First Schools due to lack of complete funding for staff and resources. Through the use of intensity sampling and stratified purposeful sampling (Patton, 2002), the district's Curriculum Coordinator was asked to suggest schools with integrity and good intentions for the purposes of the present study. The four first grade teachers were chosen on the same basis with recommendations from the principals. Information gathered reflected the grades, status, school performance score, growth label, and ranking as identified by academic assistance from the beginning of that particular school vear. At the time of study, these are the data the school would use to drive the instructional goals in the school improvement plan.

Data Analysis

To investigate the relationship between teacher efficacy, beliefs, and curriculum, the participants were administered a questionnaire consisting of instruments measuring each variable. The Pre-Observation Survey and Reading Coordinators Site Visit tools were used to document observations, classroom environment, and activities involving the literacy curriculum implementation. The Planning and Evaluation Tool for Effective School-Wide Reading Programs devised by the College of Education at the University of Oregon was instrumental in providing a structure to measure elementary school-wide reading initiatives and implementation, as well as for developing the Mid-Study Survey. The Questions for the Pre-Observation protocol, Question for the Pre-Observation Interview, and the fixed response measure for teachers' beliefs and survey were developed based on Weinstein's (1989) open-ended questionnaire to examine beliefs and actions. These forms were used in conjunction with artifacts such as "teaching moments" and "student responses/reactions" as noted by the observer and peers. Also, additional questions that emerged from the study were used at the end of the study. Some of the questions required teachers to respond on a five-point Likert scale from "well below average" to "well above average."

In the Reading First Schools, recorded observations and the Reading Coordinators' checklists were used to conduct classroom observations. These guides assisted in further communicating the purpose and rationale of the study's findings. These tools were used in combination with the questionnaires and surveys to illustrate what was observed during each designated time period. The information was analyzed to note similarities and insight into the variances of each setting. The observer used an adapted version of the Qualitative Observation Quadrant to list and report findings in summary with the adaptation from *What Makes Professional Development Effective?: Analysis of a National Sample of Teachers* (2002).

To investigate the relationship between teacher efficacy, beliefs, and possible impact on the literacy implementation, the participants were interviewed periodically and individually asked to address questions that emerged throughout the study. The importance of this qualitative study was to provide the reader with collected data and research to discover what teachers' beliefs and actions were within classroom with respect to teacher efficacy.

Results

Each school had a standard, and attempted to provide what was interpreted to be the best reading instruction on varying levels (school, administrators, teachers, students, instructional materials, and execution). As the data began to be revealed, differences in demographics and teacher perspectives became obvious. Both Young and Brown were teaching in Reading First Schools and had the least amount of experience. These schools had low performance scores and received additional instructional support. Hill and Wells, on the other hand, had been teaching first grade in their schools for several years, were holders of advanced degrees, participated in school professional development opportunities, and had commendable school performance scores. It was also noticeable in the level of students that these teachers were instructing. About half of the students in the Reading First classes were reading on or above grade level at the beginning of the year, while well over 90% of the students in the non-Reading First schools had already met the goal at this time.

Testing data indicated students achieved both because of instruction and teachers' willingness to implement the reading program with fidelity. Although two distinct frameworks were employed for the discussion of the research, each teacher individually communicated her beliefs and uniqueness in working with students. The views expressed by all four teachers suggest that teaching is a passion, and that what underpins teaching is a combination of teacher knowledge and what teachers come to believe as "what works well" with their students.

Each school principal believed in the importance of looking at each teacher in the natural setting of their perspective classrooms. Interactions among teachers, students, and literacy leaders helped to develop an understanding of practices in reading instruction. Observations, interviews, and site visits allowed understanding and exploration of details that unveiled discoveries from one teacher to the next. The instruction that was observed in all four first grade classes reflects similar dynamics in the teaching of the skills of learning to read (phonemic awareness, phonics, fluency, vocabulary and comprehension). The consistency in this area was altered, however, due to the differences of materials in the Reading First schools versus the materials in the non-Reading First Schools. This notion was being addressed at the district level by formulating a team to adopt a comprehensive reading program that all schools will use in the future to deliver reading instruction.

Teachers in the non-Reading First schools were allowed to combine skills and add more of their teaching preferences in their reading lessons because of the slightly disjointed reading program and assessments. Teachers in all four schools possessed levels of competencies that reflected their individual teaching styles while incorporating the model of reading instruction for the district. It was also noticed that the teachers went beyond the program to provide rigor, critical thinking opportunities, and extensions to the reading program whenever possible. In the Reading First Schools, materials were not an issue due to an abundance of funding. However, in the non-Reading First Schools, teachers were expected to fill-in gaps of instruction with the use of materials that were similar in skills and context. Overall, the teachers' efforts were geared towards making certain that students were equipped with the foundational skills needed to become successful readers regardless of the student level or circumstances surrounding the schools where they worked.

Instructional Approaches

The diagnostic/prescriptive approach to reading instruction is currently being advanced as an effective means of improving reading achievement in schools across the country (Ortlieb & Cheek, 2012). The basic idea of this approach is to rationalize the teaching of reading by providing teachers with a hierarchical sequence of well-defined reading skills around which to organize their reading instructional program. Reading experts differ on what this sequence of reading skills should be, but, in general, the skill hierarchies that have been developed specify that teachers should begin with simple reading readiness skills and build up progressively to more advanced vocabulary, word analysis, and comprehension tasks (Becker, McLaughlin, Bass, Pauly & Zimmerman, 1986; Block & Pressley, 2002; Bogdon & Biklen, 1998; Ortlieb, Cheek, & Verlaan, 2013). Once a hierarchy of skills is selected, the diagnostic/prescriptive approach involves specifying diagnostic tests for each skill in the hierarchy, administering these tests to children to diagnose their reading skill deficiencies, and finally prescribing specific reading activities to children on an

individual basis based on the results of these tests. As discovered in Pelican School District, all teachers across the district were expected to teach according to the guidelines outlined in the newly adopted prescribed program.

Theoretically, the diagnostic/prescriptive approach leads to reading improvement through logical ordering and individualization of the sequence of reading activities presented to students. One important function of this manner of teaching stemmed from using the reading coaches to serve as change agents in assigned schools to support teachers in transitioning their instructional methods to meet the structured demands of teaching reading (Reading First Schools). In this role, reading coaches worked both formally and informally with the teachers on a one-to-one basis to interest them in adopting the diagnostic/prescriptive approach and in finding solutions to individual problems during implementation. The formal in-service training and the tangible elements of the principal and coach generally appeared to have served a significant role in changing teacher behavior. In the non-Reading First Schools, teachers working together with the principal and the reading coach decided to implement the diagnostic/ prescriptive approach solely on the basis of the formal in-service training and whatever written instructions were provided.

In the case of the non-Reading First Schools, the first grade reading teachers were not monitored as closely by the district when it came to lesson delivery, formation of intervention groups, and topics of professional development at grade level. As success was achieved, all four teachers shifted their efforts to learn more about the district's reading initiative and tried to make it work in their classrooms. The Reading First teachers used the closely monitored guidelines, while the non-Reading First teachers combined the new guidelines with ideas that they used in the past and made the change to the diagnostic/prescriptive approach. Initially it was more of a challenge for the non-Reading First teachers because they were expected to follow the district's plan using two programs inclusive of missing components, whereas reading teachers in the Reading First schools used fully outfitted programs (see Table 1).

Although all teachers seemed apprehensive about what was expected at first, they were all willing to learn and would have appreciated having a say in the rollout of the new initiative, as well as time for more research on the development of the mandate prior to the start of school. All four teachers spent considerable time working towards the needs of the school by listening to those who seemed successful, becoming familiar with the new initiative on a greater level, and discovering how this new way of teaching reading would ultimately impact student achievement. Each teacher in the study felt some sense of success and accomplishment in fulfilling the goals in reading for their students. They all felt that it took them just about the entire school year to change all of their teaching practices, and each teacher had suggestions on how to embrace the reading mandates for next year (Ortlieb, 2013).

All of the teacher participants had changed their pedagogical approach because of working with the reading coach and consultant on a one-to-one basis or being forced into changing by the mandates outlined by the new implementation authority structure of the new reading initiative. After a presentation of the formal elements of in-service held by the district, the first grade teachers typically started to achieve change by working with their principal and/or reading coach (if assigned), grade level teams, and working with their students to implement diagnosis and prescription in their classrooms.

To understand the variance in practice among the four teachers' classrooms, one must understand something about these teachers' opportunities to learn

Table 1 Summary of Results

Results	Туре	Relationship b/w beliefs and practices	Teacher role in developing instruction	Essential Factors
Hollow Brook	RF	high fidelity	Minimal; provided by reading coach	ample support mechanisms
Willow Lane	RF	high fidelity	Minimal; provided by reading coach	ample support mechanisms
Green Meadows	NRF	teacher autonomy	customized but must scour for materials	minimal inst. Coaching
Winding Trail	NRF	teacher autonomy	customized but must scour for materials	minimal inst. Coaching

about their reading instruction and practice. Certainly, the district mobilized an extensive array of opportunities for teachers to learn about reconstructing their practice including workshops in reading, new instructional materials, and curricular guides. To understand teachers' learning opportunities, however, one must focus on more than the "curriculum" (workshops, curriculum guides, and curricular materials) that district administrators mobilize to help them change. What teachers understand from these opportunities is shaped by their prior knowledge, beliefs, and experiences (Educational Evaluation and Policy Analysis, 1990). Just like students, teachers' opportunities to learn about reconstructing their teaching are shaped in important ways by what they bring (knowledge, dispositions, and commitments) to their learning. We must, then, look at more than the district's extensive reform efforts. We must also explore who these teachers are as learners about language arts teaching, especially their personal resources-commitments, dispositions, and knowledge-for learning.

The Reading First teachers and non-Reading First teachers' dispositions to learn about revising their reading instruction varied slightly from one another. Although all teachers were committed to reconstructing their instructional practices, the way they arrived at the knowledge was different. The Reading First teachers were given the information and received on-site assistance, while the non-Reading First teachers felt as if they were being told to do the program with minimal say or support on how to work with all levels of students. They reported that new ideas and dramatic changes in their practice left many unanswered questions, and lacked a rationale for doing so in the beginning. As time went on, teachers began to understand the new initiative and its purpose; thus, the transition to alternative teaching methods was embraced. Wells reported "I'm always trying to improve," she explained, "that's just something that I do." Wells was committed to learning more about reading pedagogy (Wells personal interview, 2008)

Wells partakes in a teacher-advance program in education. Hence, at the time of our study, Ms. Wells was very interested in reflecting on her reading instruction, but like many veteran teachers, she tried to remain calm when dealing with a variety of teaching concerns, mostly classroom management and how to juggle the district's mandates and the program guidelines. Hill, in contrast, believed that she had little space in her life to seriously consider nuances of her reading instruction. She commented that most teachers were still playing catch-up, needing to master what she already knew because of her school and on-site education. These dispositions influenced the manner in which these two teachers viewed the district's reform efforts.

Although they both attended the same district reading workshops, they interpreted these opportunities differently. Mrs. Wells thought a main focus of these workshops was reading and saw them as valuable opportunities for learning new ideas about her teaching. In contrast, Hill said she did not find district workshops as helpful because they explained practices she perceived to be "what I already do." She commented:

I already do a lot of these things, so therefore, I try to put a spin on the concepts to appeal to my students while using a teaching style within the parameter of the school's requirements and our principal's allowances. (Hill's personal interview, 2008)

Hence, it was revealed that all four teachers exhibited levels of teacher efficacy and related those factors through the interviews, surveys, and observations. Each teacher ultimately taught the curriculum in sequence and as outlined to the best of her ability. The end result in the levels of their students was pivotal in how they felt about themselves as teachers. Interestingly enough, all four teachers had students reading at or above first grade and only a few students did not meet the end of the year (study) goals. Teacher ideas about reading instruction emerged as they became more familiar with the program and were able to associate how reading instruction should be implemented similarly with what they believed.

In the end, it was noted that Young had the most confidence in the program "as is" and expressed that she was willing to learn and gain all that she could. Her eagerness to please the administrators and instructional leaders at her school was the key to motivating and giving her students instruction based on what they needed using what was given. Brown, on the other hand, had to work out the challenges of being monitored and working in a new grade level on top of learning the new reading program. Her issues stemmed from dealing with the nuances of balancing classroom management while instructing the students according to the strict pacing guide. Hill discovered that this way of teaching reading was very similar to her philosophy once the academic year commenced. She constantly referred to materials and strategies that mimicked the outline of the new program that was part of her routines in years past. Hill felt as if the district was not as straightforward about the rationale behind the new instructional program, which left a lot for teachers to assume initially. However, Wells, like Hill, also embraced this format of teaching, and found a way to incorporate more literature-response opportunities for students. Both Hill and Wells felt as if materials and messages should have been differentiated in the initial training to allow teachers to situate their thinking and practice in fulfilling the mandates of the district's new reading plan.

All four teachers agreed that the plan offered "good first teaching" opportunities and that "The Reading First Model" can and should be adapted for each individual school. Although materials were not an issue in the Reading First Schools, it became quite the challenge for non-Reading First Schools to carry out due to the lack of an inequitable distribution of materials. (Note: the non-Reading First Schools were expected to use two programs to teach the concepts. The phonemic awareness and phonics program was distributed as new and was completely furnished. However, the fluency, vocabulary, and comprehension program parts were expected to be instructed using a six-year old program that was already in schools. Hence, pieces were missing and not replaced. Teachers were expected to combine all of the skills and fill in the gaps using the Comprehensive Curriculum as a third source to meet the required grade level expectations). Another interesting factor that became apparent during the study was how the Dimensions of Teacher Efficacy (Ashton, 1984, p. 29) began to overlap and merge as the responses and observations began to develop; these include:

- sense of personal accomplishment
- positive expectations for student behavior and achievement
- personal responsibility for student learning
- strategies for achieving objectives
- positive affect
- sense of control
- sense of common teacher-student goals
- democratic decision-making

The subjects involved in the study seem to tap into two or more of the dimensions during their participation and deepened as their understanding developed. From the surveys, observations, and interviews, most of the information received helped to capture the true essence of each participant regardless of the school and years of experience.

Limitations and Implications for Future Research

There are a few limitations to this study that suggest direction for future research. First, the relatively small sample of teachers consisted of four first-grade teachers. four principals. and four reading coaches/contacts from Pelican School District. Although the subjects offered information that varied due to Reading First policy and non-Reading First policy, the population represented a small fraction of the district's entire profile. Adding to this concern was the fact that observations were only made in first grade classrooms. Although first grade is considered to be the most important grade that impacts the student in moving from learning to read to reading to learn, there is certainly value in expanding the study to include teachers of regular, gifted, and exceptional students.

Future variations of this study could be included to better distinguish specific abilities within the construct of teacher efficacy as it pertains to teaching reading to students in grades K-5. Additionally, all participants in this study were chosen based on grade placement, principal recommendation, and willingness to participate. Future research needs to examine the beliefs of all teachers and offer opportunities to express specific teacher needs and input as it relates to implementing literacy initiatives.

Additionally, a study of this caliber would possibly be more informative if the time frame commenced at the very beginning of the school year (including an analysis of teacher efficacy prior to inservice) and followed throughout the school year. This would give a broader spectrum towards understanding how teachers view the instructional practices related to reading at varying points of the school year.

Lastly, more research could provide valuable evidence regarding whether all of the instructional materials used to teach the model were similar between both Reading First and non-Reading First schools. Although the structure and routines were basically identical, the fact that non-Reading First teachers had to use pieces of a program to be in compliance caused uncertainty in delivering the instruction as outlined. Therefore, these teachers longed for a program with all parts present while the Reading First teachers struggled to get everything in and wished that they had time to expose students to more content of interest while incorporating other subject areas using their teacher autonomy.

Conclusion

In summary, implementation of the diagnostic/prescriptive approach appeared to occur through a process of infiltration of the reading plan to teachers into the social structure of the school rather than through formal training activities. New insight into the relationship between teacher beliefs about reading instruction and their practices was revealed alongside adding substantial data to support the role teachers play in developing the how's and why's of literacy instruction in their classrooms. Other factors were also found to be relevant to effective reading instruction, according to the teacher participants in this study. Finally, some questions emerged from the study including the following:

1. Which is more important—content or process, discipline or self-esteem, student respect for the teacher or mutual respect?

2. How can the most important factors from moment to moment be determined? For example, if a child is noticed sleeping in class when explaining a key skill or concept, what should the teacher do? Stop what is going on and wake the child up so she won't miss the content of today's reading lesson, or continue with the whole-class instruction?

3. Would it matter which child it was (low socioeconomic status, affluent background, mentally or emotionally challenged)? How would the interest level of the rest of the class influence one's decision? In other words, what

is valued most highly at that moment?

4. How could the district offer support that is valuable to utilizing best practices in reading instruction? Would this include teacher input or would teachers rely on the so called experts in the area and have confidence that what they recommend is good enough for her and her students?

As in the case the four teachers in this study, teachers in general are very inquisitive and seek to know "Why?" when it comes to curriculum and instructional decisions regarding their students. Each teacher adapted her perspective of the new curriculum due to district mandates within the literacy initiative, but the change became more apparent once the discovery of 'why" was made in progress with the students. Hence, teachers can serve as crucial informants and motivators of a program when they approve and disapprove using firsthand experiences. Future studies in the area of reading instruction, teacher efficacy, and teacher impact on student achievement could investigate how a teacher's sense of efficacy is directly affected by perception of control over instruction in the classroom, indirectly affected by faculty influence on school instructional policy, and directly affected by perception of students' ability to learn.

These data can be used to indicate that teacher efficacy is affected by teacher beliefs about students' ability to learn, faculty influence over school policy, and faculty beliefs about student behavior, which are extensions from previous research findings. Teacher efficacy studies in these areas can also serve as a springboard to the development of related groups that state to what degree teachers are involved in decisions regarding curriculum and student grouping for instruction. Other studies could explore specific student variables by asking the participant to imagine a particular student when responding to items rather than considering her or his ability to achieve an outcome for the classroom as a whole. Future versions of the study should consider student variables as dependent variables rather than some imagined student the teacher may not have in her or his classroom. Because teachers do influence students through their beliefs, attitudes, and values-their individual mental "maps"-is it not time to bring those things into consciousness? How many of our fellow teachers could clearly articulate their most deeply held beliefs and values about education? How many are aware that other teachers, principals, or supervisors may not share those beliefs and values? Just because everyone uses words such as thinking, understanding, learning, or *teaching*, there is no guarantee those words have the same meaning for each person. It is one's own beliefs and values that influence her work, not necessarily what is printed on the pages of a manual. Who better to explore the geography of the mental landscape than educators?

An individual's beliefs, values, and metaphors, and the meaning attached to words and actions generally exist outside of conscious awareness. On a day-to-day basis, these factors drive teacher behavior automatically without their attention. That is not all bad. Imagine what it would be like if teachers had to stop and consciously go through the decision-making process all day long. The point is a teacher's behaviors frequently spring, not from higher-level thinking processes, but from habit and beliefs s/he may exhibit. After all, these habitual factors may unconsciously influence instruction and the beliefs which guide those practices.

References

- Ainsworth, M., Ortlieb, E., Cheek, E., Pate, R., & Fetters, C. (2011). First grade teachers' perception and implementation of a semi-scripted reading curriculum. *Language and Education*, 25(7), 1-14. DOI: 10.1080/09500782.2011.618540.
- Ashton, P. (1984). Teacher efficacy: A motivational paradigm for effective teacher education. *Journal of Teacher Education*, 35(5), 28-32.
- Ashton, P., & Webb, R. (1986). Making a difference: *Teachers sense of efficacy and student achievement*. New York: Longman.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148.
- Bandura, A. (Ed.) (1995). *Self-efficacy in changing societies*. New York: Cambridge University Press.
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.
- Barone, D., & Morrow, L. M. (2003). *Literacy and young children: Research based practices.* New York: Guilford Publications.
- Becker, W. C., Engelmann, S., Carnine, D. W., & Maggs,
 A. (1982). Direct instruction technology: Making learning happen. In P. Karoly and J. J.
 Steffen (Eds.), Improving children's competence: Advances in child behavioral analysis and therapy, Vol.1. Lexington, MA: D.C. Heath.
- Block, C. C., & Pressley, M. (Eds.). (2002). Comprehension instruction: Research-based best practices. New York: Guillard Press.
- Bogdon, R., & Biklen, S. K. (1998). *Qualitative research* for education: An introduction to theory and methods. Boston: Allyn & Bacon.
- Bullough, R., & Stokes, D. (1994). Analyzing personal teaching metaphors in preservice teacher education as a means for encouraging professional development. *American Educational Research Journal*, 31(1), 97-224. Cassidy, J., & Ortlieb, E. (2011). Literacy – The first decade of the new millennium. *Reading*

Horizons, 51(2), 93-102.

- Cassidy, J., & Ortlieb, E. (2012). Looking at literacy in the 21st century. *The Clearing House*, 85(4), 141-145.
- Cassidy, J., & Ortlieb, E. (2013). What was hot (and not) in literacy: What we can learn. *Journal of Adolescent & Adult Literacy*, 57(1), 21-29. doi:10.1002/JAAL.215
- Cassidy, J., & Ortlieb, E. (in press). The evolution of what's hot in literacy. *Journal of Balanced Reading Instruction.*
- Collins, M. D., & Cheek, E. H. (1999). Assessing and guiding classroom reading instruction. New York: McGraw Hill.
- Cooper, P., & Schindler, D. (2006). Business research methods. New York: McGraw-Hill.
- Cramer, N., Ortlieb, E. T., & Cheek, E. H. (2008). Changing our students' perception about reading. *Academic Exchange Quarterly, 12*(1), 29-34.
- Darling-Hammond, L. (1996). The right to learn and the advancement of teaching: Research, policy, and practice for democratic education. *Educational Researcher*, 25, 5-18.
- Doepker, G., & Ortlieb, E. (2011). Preserving adolescent readership through interest and motivation. *International Journal of Education*, 3(1), E3.
- Duffy-Hester, A. (1999). Teaching struggling readers in elementary school classroom: A review of classroom reading programs and principles for instruction. *The Reading Teacher*, 52(5), 480-495.
- Fetters, C., Ortlieb, E., & Cheek, Jr., E. (2011). An exploration of strategy-based reading instruction using expository science texts in the elementary grades. *Studies in Literature and Language*, 2(2), 113-126.
- Fontas, I. C., & Pinnell, G. S. (2001). *Guiding readers* and writers grades 3-6: teaching comprehension, genre, and content literacy. Portsmouth, NH: Heinemann.
- Fuller, F., & Brown, O. (1975). Becoming a teacher. In K. Ryan (Ed.), *Teacher education* (pp. 25-52). Chicago: University of Chicago Press.
- Hitchens-Smith, C., Ortlieb, E., & Cheek, E. H. (2011). Perceptions of struggling readers in a developmental reading course. *Global Education*, 2011(1), 2-24.
- Hoffman, J. (1998). The literature-based basals in firstgrade classrooms: Savior, satan, orsame-old, some-old? *Reading Research Quarterly*, 33(2), 168-193.
- Krashen, S. (2005). From the capital to the classroom: Year 3 of the No Child Left Behind Act. Washington, DC: Author.
- LeCompte, M. D., Preissle, J., & Tesch, R. (1993).

Ethnography and qualitative design in educational research. New York: Academic Press.

- Leu, D., & Kinzer, C. (2002). *Effective literacy instruction*-K-8 (5th ed). New York: Prentice-Hall.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. London: Sage Publications.
- McCombs, J. S., Kirby, S. N., Barney, H. D., Darilek, H.,
 & Maghee, S. J. (2004). Achieving state and national literacy goals, a long uphill road: A report to Carnegie Corporation of New York. Santa Monica, CA: RAND Corporation. Retrieved August 12, 2009 fromhttp://www.rand.org/pubs/technical_reports/ 2004/RAND TR180.pdf
- Midgley, C., Feldlaufer, H., & Eccles, J. (1989). Change in teacher efficacy and student self- and taskrelated beliefs. *Journal of Educational Psychology*, 81(2), 247-258.
- Miles, M., & Huberman A. (1984). Drawing valid meaning from qualitative data: Toward a shared craft: *Educational Researcher*, *13*, 20-30.
- Morrow, L., Tracey, D., Woo, D. G., & Pressley, M. (1999). Characteristics of exemplary first-grade literacy instruction. *The Reading Teacher*, *52*(5), 462-476.
- National Reading Panel. (2000). Teaching children to read: Executive Summary. Washington, DC: Author.
- No Child Left Behind Act. (2001).
- Ortlieb, E. (2008). Empowering preservice teachers: Providing experiences, not opportunities. *Education*, 128(3), 477-485.
- Ortlieb, E. (2010). Beyond just books: Sparking students' interest in reading. *International Journal of Education*, 2(2), E9.
- Ortlieb, E. (2012). The past, present, and future of reading diagnosis and remediation. *Journal of Language Teaching and Research*, *3*(3), 395-400.
- Ortlieb, E. (2013). Struggling to read: Not just an urban problem. *Journal of Sociological Research*, 4(1), 195-206. doi: 10.5296/jsr.v4i1.2046
- Ortlieb, E., & Cheek, E. H. (2008). How geographic location plays a role within instruction: Venturing into both rural and urban elementary schools. *Educational Research Quarterly*, 32(1), 48-64.
- Ortlieb, E., & Cheek, Jr., E. H. (Eds.) (2012). Literacy Research, Practice, and Evaluation: Vol. 1. Using informative assessments for effective literacy instruction. Bingley, UK: Emerald Group.
- Ortlieb, E., Cheek, Jr., E. H., & Verlaan, W. (2013). Vocabulary/comprehension-based models of

reading clinics. In E. Ortlieb & E.H. Cheek, Jr. (Eds.), *Literacy Research, Practice, and Evaluation: Vol. 2.* Advanced literacy practices: From the clinic to the classroom (pp. 117-136). Bingley, UK: Emerald Group.

- Ortlieb, E. T., & Doepker, G. M. (2011). Reaching resistant readers: Explicit approaches to promote and retain reading motivation. *The Oklahoma Reader*, 46(2), 7-14, 37-38.
- Ortlieb, E., & Marinak, B. A. (2013). Surveying digital literacy use and motivation in elementary school students. *Basic Research Journal of Education Research and Review*, 2(5), 81-88.
- Ortlieb, E., Perkins, D. R., & Verlaan, W. (2012). Investigating the effectiveness of vocabulary strategy instruction on content-specific word acquisition. *Elixir Psychology*, 43, 6843-6849.
- Patton, M. Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Proctor, C. (1984, March). Teacher expectations: A model for school improvement. *The Elementary School Journal*, *84*(4), 469-481.
- Rennie, J., & Ortlieb, E. (2013). Diverse literacy learners: Deficit versus productive pedagogies. In E. Ortlieb & E.H. Cheek, Jr. (Eds.), *Literacy Research, Practice, and Evaluation: Vol. 3.* School-based interventions for struggling readers, K-8 (pp. 203-218). Bingley, UK: Emerald Group.
- Rivkin, S G., Hanushek, E. A., & Kain, J. F. (1998). Teachers, schools and academic achievement. National Bureau of Economic Research. Working Paper No. 6691.
- Rosenshine, B., & Stevens, R. (1986). Teaching functions. In M.C. Wittrock (Ed.), *Third handbook of research on teaching* (pp. 376-391). New York: Macmillan.
- Sanders, W. L., & Rivers, J. C. (1996). Cumulative and residual effects of teachers on future academic achievement. Knoxville, TN: University of Tennessee, Value-Added Research Center.
- Scheiner, M. F., & Carver, C. S. (1994). Effects of optimism on psychological and physical well being: Theoretical overview and empirical update. *Cognitive Therapy Research*, 16, 201-222.
- Snow, C. E., Burns, S. M., & Griffin, P. (Eds.). (2005). *Knowledge to support the teaching of reading: Preparing teachers for a changing world.* San Francisco: Jossey-Boss.
- Snow, C. E., Burns, S. M., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, D.C: National Academy Press.
- Spradley, J. P. (1979/1980). *Participant observation*. Belmont: Wadsworth.

- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Strickland, D., Ganske, K., & Monroe, J. (2002). Supporting struggling readers and writers: Strategies for classroom intervention 3-6. Portland, ME: Stenhouse,
- Taylor, R.C. (1999). *The power of reading*. Englewood, CO: Libraries Unlimited.
- Terry, J., Minor, L., Onwuegbuzie, A., & Witcher, E. (2002). Teachers' educational beliefs and their perceptions of characteristics of effective teachers. *The Journal of Educational Research*, 96, 116-127.
- Using Research and Reason. (2004). A publication provided by the U.S. Department of Education. www.nabr.org (National Assessment Governing Board).
- Weinstein, C. (1989). Teacher education students' preconceptions of teaching. *Journal of Teacher Education, 40*(2), 53-60.
- Wilson, S. M., & Wineburg, S. S. (1988). Peering at history through different lenses: The role of disciplinary perspectives in teaching history. *Teachers College Record*, 89(4), 525-539.
- Yin, R. K. (2009). Case study research: Design and methods (4th ed.). Thousand Oaks, CA: Sage Publications.

Article Citation

Abernathy-Dyer, J., Orlieb, E., & Cheek, E. H. (2013). An analysis of teacher efficacy and perspectives about elementary literacy instruction. *Current Issues in Education*, *16*(3). Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1290

Author Notes

Joy Abernathy-Dyer, Ph.D. Elementary School Principal Villa del Rey Elementary Baton Rouge, LA, 70806 United States 1-225-924-1606 jabernathy@ebrschools.org

Joy Abernathy-Dyer currently serves as a principal in East Baton Rouge Parish. She is dedicated to improving reading instruction as evidenced by her many years of classroom teaching and her recent work with the East Baton Rouge Parish School Board.

Evan Ortlieb, Ph.D. Faculty of Education, Monash University Frankston, Victoria, 3199 Australia +61 03 9904 4661 evan.ortlieb@monash.edu

Evan Ortlieb is an internationally recognized leader in the field of literacy education whose expertise centers on struggling readers. His research furthers the development of reading remediation and preparing teacher educators to provide optimal reading instruction.

Earl H. Cheek Jr., Ph.D. Executive Director of the School of Education Louisiana State University Baton Rouge, LA, 70803 United States 1-225-578-6017 echeek@lsu.edu

Earl H. Cheek, Jr. has substantially added to the field of diagnostic and prescriptive reading education as evidenced by over 100 peer-reviewed publications over his career. His areas of expertise include remedial reading instruction, reading teacher preparation, and best practices in primary/adolescent reading education.



Current Issues in Education

Mary Lou Fulton Teachers College • Arizona State University PO Box 37100, Phoenix, AZ 85069, USA

> Manuscript received: 08/28/2013 Revisions received: 10/19/2013 Accepted: 10/19/2013

Current Issues in Education Vol. 16 No. 3



Current Issues in Education

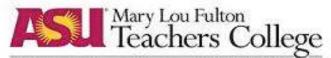
Mary Lou Fulton Teachers College • Arizona State University PO Box 37100, Phoenix, AZ 85069, USA

Volume 16, Number 3

October 30, 2013

ISSN 1099-839X

Authors hold the copyright to articles published in *Current Issues in Education*. Requests to reprint *CIE* articles in other journals should be addressed to the author. Reprints should credit *CIE* as the original publisher and include the URL of the *CIE* publication. Permission is hereby granted to copy any article, provided *CIE* is credited and copies are not sold.



ARIZONA STATE UNIVERSITY

Editorial Team Executive Editors Melinda Hollis Thomas Elizabeth Calhoun Reyes

Assistant Executive Editors

Bonnie Mazza Constantin Schreiber

Layout Editors

Recruitment Editor Hillary Andrelchik Bonnie Mazza Elizabeth Calhoun Reyes

Copy Editor/Proofreader Lucinda Watson

Authentications Editor Lisa Lacy

<u>Technical Advisor</u> Andrew J. Thomas

Section Editors

Hillary Andrelchik Ayfer Gokalp Laura M. Gomez Darlene Michelle Gonzales Jessica Holloway-Libell Nichole Hugo Sultan Kilinc Younsu Kim Linda S. Krecker

Faculty Advisors

Dr. Gustavo E. Fischman Dr. Jeanne M. Powers Bonnie Mazza Kevin Jose Raso Rory O'Neill Schmitt Constantin Schreiber