Education: Issues & Answers

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Education:
Issues & Answers

2015 CEDER Yearbook

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At least two members of the editorial advisory panel reviewed every manuscript submitted to the yearbook editors.

We deeply appreciate their efforts.

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Foreword

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This yearbook is a project of the Consortium for Educational Development, Evaluation and Research (CEDER) in the College of Education and Human Development at Texas A&M University-Corpus Christi. The College of Education and Human Development reflects a wide range of programs and experiences. Our teacher preparation program has an established reputation; it has been cited as 24th in the nation. Our masters and doctoral programs attract in-service teachers, administrators, and future college faculty members. In a traditional College of Education, one expects to find areas of instruction such as teacher education, literacy, curriculum and instruction, educational administration and leadership, educational technology, special education, and bilingual education. You will find those areas represented in this yearbook. However, the College of Education and Human Development at Texas A&M University-Corpus Christi has a broader reach; it also houses programs in counseling education, kinesiology, and military services. Many of these are represented in the yearbook as well.

With such a wide range, it is to be expected that the CEDER Yearbook would attract a variety of topics. This yearbook is no exception. Articles address preservice education, literacy instruction in the schools, and program effectiveness as well as research in digital technology and the physics of pitching a baseball.

A call for proposals was issued to a variety of universities and professional organizations. Eighteen articles from a total of 37 authors were submitted for the yearbook. Those articles were distributed to
a panel of reviewers. Each article was seen by two reviewers and the editor of the yearbook. Finally, 15 articles were selected for inclusion in this yearbook. The CEDER yearbooks and conferences continue to be opportunities for the sharing of important educational ideas, research, and trends. This yearbook continues that tradition.
Partnerships
Public school-university partnerships: A model for effective professional development

Don Beach
Laurie McAdams
Melissa Becker
James Gentry
Bill Larmer
Julie Miller

Abstract
Professional development experiences for educators are a critical part of educational improvement. Over the years, several models of professional development have evolved, but most did not address the complex processes involved with the professional development for teachers. However, one model, public school-university partnerships, possesses numerous benefits for all stakeholders involved and holds promise to best address the professional development needs of educators. The purpose of this paper is to articulate research-based best practices associated with public school-university partnerships and provide an authentic example of an effective public school-university partnership between two educational entities.
Public school-university partnerships: A model for effective professional development

High-stakes accountability within P–12 public schools has created a climate necessitating school reform efforts focused on the improvement of teaching to enhance student achievement (Bartholomew & Sandholtz, 2009; Walsh & Backe, 2013). To meet this goal, recent school reform efforts have concentrated on transforming professional development for teachers. According to Avalos (2011), professional development for teachers must encompass “... learning, learning how to learn, and transforming [teachers’] knowledge into practice for the benefit of their students’ growth” (p. 10).

The professional development for teachers typically follows one of three models: standardized, site-based, or self-directed (Hooker, n.d.). Standardized professional development takes a training-based centralized approach to deliver new content and skills to large groups of teachers. Lewis (1998) referred to these professional development experiences as “packaged workshops and one-shot visits by experts” (p. 70). In contrast, site-based professional development takes more of an individualized approach to address teachers’ or campuses’ situational needs and areas requiring improvement (Hooker, n.d.). Unlike standardized professional development, site-based professional development experiences tend to be more collaborative, flexible, sustained, and intensive. Finally, self-directed professional development provides teachers with the opportunity to initiate and design their own professional development. Each of the three models of professional development for teachers has numerous benefits, such as the improvement of pedagogy, the promotion of best practices, and the potential to positively impact student achievement. However, these professional development experiences usually occur in isolation. According to Darling-Hammond, Wei, Andree, Richardson, and Orphanos (2009), the most impactful professional learning experiences for teachers are sustained over time and occur within the context of a professional learning community.

Professional development for teachers: A complex process

Avalos (2011) described professional development for teachers as
a complex process influenced by four key elements: cognitive and emotional processes of educators, both individually and as a collective group; the potential conflict between educators’ beliefs and proposed action for educational change; the political climate and culture within schools; and the goals and needs of both educators and students. Whitcomb, Borko, and Liston (2009) also asserted that the complex nature of professional development relates to its developmental nature: professional growth takes time.

Goodlad (1994) declared that this complex process is best addressed with a mutually beneficial model for professional development, thus generating simultaneous renewal. Simultaneous renewal occurs through the creation and maintenance of an ongoing collaborative partnership between a public school and a university to address the complexities associated with professional development for educators. Simultaneous renewal provides benefits to all stakeholders involved: schools, teachers, leaders, students, university faculty members, as well as university programs.

Public school-university partnerships: A model for professional development

In a public school-university partnership, public school administrators and teachers partner with university faculty members to create professional development experiences based upon the situational needs of the public school (Le Cornu & Peters, 2009). Typically, the public school administrators identify the professional development needs for the faculty and share this information with the university faculty. Historically, public school-university partnerships were organized and implemented for the purpose of placing student teachers in school classrooms to train future teachers. However, public schools and universities have realized the potential for this model to serve as a vehicle to impact student achievement by way of improved pedagogy through the development of a consistent and ongoing partnership.

MacDonald and Dorr (2006) identified four key elements that create a strong foundation for a successful public school-university partnership. First, trust is needed between stakeholders at both institutions.
Essex (2001) explained that in the beginning stages of a public school-university partnership, trust is developed through an open and honest agreement regarding the role, commitment, purpose, relationships, and outcomes for each stakeholder within the partnership. Over time, trust continues to develop as all stakeholders become more comfortable and familiar with each other. Second, a shared vision is required for the public school and university to work toward achieving common goals identified by both institutions (MacDonald & Dorr, 2006). Without a clearly defined purpose and direction for the public school-university partnership, efforts and energy are wasted. (Essex, 2001). This could potentially cause frustration, which may lead to the demise of a potentially strong partnership. MacDonald and Dorr (2006) also identified explicit assessment and accountability as essential elements for an effective public school-university partnership. Essex (2001) asserted that a strong partnership must frequently and consistently determine whether the outcomes produced are aligned with the established goals. MacDonald and Dorr (2006) recommended the use of both formative and quantitative assessments to document progress, measure achievement, and demonstrate outcomes. Finally, communication is an important element for an effective public school-university partnership, particularly within institutions where frequent staff turnover can occur. Essex (2001) emphasized that communication must be open and free from judgment. Open communication minimizes miscommunication and misperceptions between stakeholders and enables stakeholders to debate and hold agreements, as well as disagreements, without damaging the partnership.

Essex (2001) also articulated additional elements required for effective public school-university partnerships. An effective partnership must be strongly supported by leaders within both institutions. In addition to pledging support for the partnership, the leaders at both institutions must also be willing to commit resources required to develop a successful public school-university partnership. Essex also acknowledged the need for public schools and universities to have mutual respect for each other. University professors may think public educators lack expertise, and public educators may perceive university professors as being out of touch with the realities public school face. In order for an effective
public school-university partnership to be developed, these thought processes must be altered for all stakeholders to develop a level of mutual respect for each other. Finally, public schools and universities must see value in the partnership and have an incentive to invest time and effort into the partnership. Possible incentives include (a) improved instruction and curricula to enhance student achievement at both the public school level and university level, (b) frequent opportunities for stakeholders to collaborate with members at the partnering institution engaged in related work, and (c) opportunities for the intersection of research and practice to develop new understandings about the teaching profession and how it impacts student learning.

**Benefits and challenges associated with public school-university partnerships**

Goodlad (1994) asserted that the creation of public school-university partnerships was an effective form of professional development within schools. Goodlad purported that public school-university partnerships have the potential to renew education, which in turn would produce improved schools and more knowledgeable teachers. Bartholomew and Sandholtz (2009) described several benefits associated with public school-university partnerships:

- Stakeholders within the public school and university, as well as the institutions themselves, benefit from the two-directional flow of expertise and knowledge.
- The collaboration between the public school and university provides opportunities for the exchange of valuable resources.
- Public schools are able to abandon the traditional professional development model and facilitate educational change by meeting the needs of teachers at all stages of their career. While the experienced teachers at the public school serve as mentors for the university’s pre-service teachers, the faculty members at the university use their expertise to address the professional development needs of the public school’s experienced teachers.
- The public school-university partnership fosters the development of professional learning communities.
• The public school-university partnership creates a bridge connecting school improvement, professional development, and teacher education.

Bartholomew and Sandholtz (2009) also identified challenges that arise within public school-university partnerships. A lack of knowledge about the challenges that exist within each other’s institutions can create conflict. A public school-university partnership also presents logistical issues, such as the amount of time required for optimal collaboration, as well as securing adequate funding to initiate, as well as maintain, the partnership. Bartholomew and Sandholtz also pointed out that institutional issues have the potential to affect the partnership, such as the differences between the institutions’ missions, structures, and cultures.

An exemplary model of public school-university partnerships

An exemplary model of a public school-university partnership exists between two very different educational institutions: a rural-based university and an urban-based high school. This section outlines each institution’s approach, which has made this public school-university partnership a success.

Public school-university partnership: The university

At the university, collaboration with public schools is an integral part of the College of Education’s mission. With the founding of a professional development network in 1988, an on-going program of professional development between the university and several public school partners was established based on the correlates of effective schools. Throughout its history, this public school-university partnership has brought together teachers and administrators from public schools and the university to focus on strategically identified goals for educational improvement. Annual professional development themes are drawn from the body of research regarding effective schools and have included topics such as instructional leadership, curriculum alignment, authentic assessment, educating students from poverty, differentiating instruction, and 21st century learning skills.
Public school membership in the public school-university network is voluntary, and public schools are recruited on an annual basis. Throughout the year, faculty within the university’s College of Education work alongside faculty from the public schools. During the initial year of operation, 24 public school campuses joined the public school-university partnership, but in recent years, the number of public school members has grown to include 75 campuses.

Professional development activities constitute the “core” of this public school-university partnership. A series of four or five day-long programs led by prominent authorities in the field of education are provided during each academic year. The representatives from the public schools that attend these professional development events share what was learned with their colleagues back on campus to continue the professional development experience. Moreover, university faculty attend the professional development programs with faculty from the public schools, thus enabling the continued development of relationships between the public school and university.

An annual planning retreat has also been incorporated as part of the university’s planned professional development activities for the public schools. The planning retreat affords both the public school members and university faculty the opportunity to evaluate past performance at their institutions. Conducted each spring, the planning retreat commences with participants reviewing their accomplishments from the current year. From this point, attention shifts to the challenges of the upcoming year. Challenges are then translated into goals, and goals provide the focus for action plans. The annual planning retreat offers a unique opportunity for faculty from the university and public schools to share ideas and learn from each other.

Recognition and celebrations are extremely important features of the public school-university partnership. At the conclusion of each year, faculty from the public schools celebrate the outstanding efforts of individual teachers, as well as the special accomplishments of campus administrators. The Teaching Excellence Award and the Instructional Leadership Award are given to one outstanding teacher and one administrator respectively who have been nominated by their public school
Public school-university partnerships: A model for effective professional development

campus. From a field of several nominees, faculty from the university select and recognize a single recipient for each award.

The publication of a peer-reviewed journal is a final component of this public school-university partnership. Published annually, the journal accepts manuscripts that detail research-based best practices in education related to a specific theme. Faculty from the public schools are encouraged to author manuscripts; however, the call for papers is open to the general public. An editorial board reviews manuscript submissions and makes decisions on the acceptance of articles. The journal is an excellent tool that the public schools use for campus-based professional development throughout the year.

Public school-university partnership: The public school

During the past several years, one of the public schools in this partnership contracted with the university to engage in additional strategically-planned professional development experiences to support the professional development of the school’s teachers. The public school was implementing a new classroom/instructional evaluation system from the school district. The emphasis of the new evaluation system was directed toward the learning behaviors of students, which was a significant alteration from the previous classroom/instructional evaluation systems that focused on teacher behaviors.

The summer retreat in 2011 marked the beginning of an effective public school-university partnership between the two educational institutions. As requested by the public school administrator, university faculty planned content and activities to address topics related to effective instructional design. The model for instructional design was based upon the lesson cycle (see Figure 2) and Wiggins and McTighe’s (2005) backwards curriculum design.

During the summer retreat, university faculty guided public school faculty to develop a deeper understanding of instructional design through carefully planned stages. During the first stage, university faculty guided public school faculty through the process of identifying learning objectives using relevant state curriculum standards. This step identified what the students should know, understand, or be able to do as
a result of the units of study. In the second stage, university faculty assisted public school faculty with designing authentic assessments based on real-world applications of the learning. The product, performance, model, or demonstration of mastery learning was first determined through the creation of authentic assessment tools (i.e., rubrics, rating scales, and checklists). The third stage consisted of university faculty providing public school faculty with a methodology to design instruction: the lesson cycle (see Figure 1). During this stage, university faculty also provided information regarding brain-based education (Jensen, 1998; Kagan, 2009). University faculty also relayed to public school faculty the importance of checking for students’ understanding throughout the delivery of a lesson, as well as during guided and independent practices, to address any misunderstandings as they occurred. The final

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**Figure 1**

Flowchart showing the instructional design of a lesson using the lesson cycle (McGregor, n.d.). The lesson cycle is highly structured and adapted from Madeline Hunter’s (1994) Instructional Theory into Practice (ITIP) model. The ITIP model is a linear framework that involves teacher decision-making throughout the process. As shown in Figure 1, the lesson cycle shows the recursive process of instructional design.
stage of the summer retreat focused on the integration of instructional technology. Public school faculty sought ways to supplement instruction with digital tools and enhance students’ mastery of 21st century skills. Therefore, university faculty modeled several innovative uses of various digital tools to foster students’ understanding of content subject matter.

The summer retreat was a success. Both entities realized the importance of consistency with this partnership; therefore, the university faculty has been invited back every year since then to conduct additional professional development experiences for the public school faculty. Throughout these professional development experiences, each stakeholder has ensured each of the four elements of a strong public school-university partnership has been addressed (MacDonald & Dorr, 2006). Therefore, as university faculty work to provide public school faculty with quality, individualized professional development experiences, both entities work diligently toward a common goal: educational improvement for students.
References
Public school-university partnerships: A model for effective professional development


Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

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Abstract
School-university collaborations can help emerging and practicing teachers learn to view themselves as researchers and to use action research as a tool for problem solving and strategy building. This article describes how an action research project, designed as a graduate class assignment, was used by a practicing teacher in her school as part of a successful plan to facilitate a campus-wide positive behavioral support program.
Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

Who hasn’t thought, “If I only knew then what I know now?” Reflective practice leads to a chance of doing future things in a better way (Schön, 1983). Teachers may not use best practices because they lack experience, fail to use reflective practice, or do not value the role of research in improving teaching and learning.

Action research is one tool that can be used to improve a teacher’s reflective skill and enhance problem-solving abilities. Sagor (2000) describes action research as a “disciplined process of inquiry conducted by and for those taking the action. The primary reason for engaging in action research is to assist the ‘actor’ in improving and/or refining his or her actions” (p. 3). Holly, Arhar, and Kasten (2009) characterize action research as a journey that provides teachers a “powerful tool for transforming the educational environment” (p. 5). This journey, they explain, includes the following:

- A powerful process and structure for professional growth and development and lifelong learning;
- A structure that supports critically reflective practice that can become a natural part of teaching and learning;
- A process made possible by intentional and conscious learning from experience;
- Continuing staff development, cultural transformation, and educational change; and
- Research-enabled curriculum and program development. (p. 5)

Other terms associated with action research include teacher inquiry, practitioner research, teacher research, reflective teaching, and critical reflective practice.

Each of these terms refers to educational research done in a learning context (e.g., classroom) by the instructor (Lassonde & Israel, 2008). While these terms are relatively new, they are based on a concept that is not new. For over 50 years, educators have been encouraged to engage in action research as a way to solve problems and improve practice (Corey, 1953). John Dewey (1904) and, more recently Donald Schön (1983), emphasized the importance of teachers reflecting on their
practices and becoming producers, not just consumers, of knowledge about teaching (Bognar, B., 2013, p. 5; Cochran-Smith & Lytle, 1993). Price (2001) notes that teachers should be reflective practitioners who use research, problem-solving skills, and insight developed in the process. A concept of a systematic framework can be especially helpful to those who have difficulty viewing themselves as sophisticated researchers (Hine, G. 2013).

As reflective practitioners, teachers focus on the results of their work and consider the impact of their practice on the students in their classrooms (Lassonde, Ritchie, & Fox, 2008). Similarly, Mills (2007) defines this reflective stance as “the willingness to critically examine one’s teaching in order to improve or enhance it” (p. 10).

This emphasis on the teacher as researcher and constructor of knowledge about practical classroom or school-wide issues is how action research differs from traditional research. Instead of being the recipients of research conducted by “outsiders” (e.g., university-based researchers), teacher researchers study phenomena as “insiders” in the school context. Cochran-Smith and Lytle (1993) argue that ... it is possible to imagine a different knowledge base for teaching—one that is not drawn exclusively from university-based research but is also drawn from research conducted by teachers, one that is not designed so that teachers function simply as objects of study and recipients of knowledge but also function as architects of study and generators of knowledge. (p. 2)

Cochran-Smith and Lytle (2009) support their earlier contentions related to the importance of teacher inquiry. They state, ... practitioners are deliberative intellectuals who constantly theorize practice as part of practice itself and . . . the goal of teacher learning initiatives is the joint construction of local knowledge, the questioning of common assumptions, and thoughtful critique of the usefulness of research generated by others both inside and outside contexts of practice. (p. 2)

While there are a number of models for doing action research, the basic process includes the following four steps: (a) identify an area of focus,
Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

(b) collect data, (c) analyze and interpret data, and (d) develop an action plan (Mills, 2007). These steps are explained more fully as follows.

- **Step 1:** Identifying an area of focus involves defining the problem. For example, the teacher researcher or team of action researchers determine what elements of their practice or what aspect of student performance they want to examine. The focus is usually presented in the form of an open-ended question such as “How does cooperative learning affect students’ social skills?”

- **Step 2:** Data collection involves gathering information that will help answer the research question. This information typically involves sources of data such as student surveys and interviews, teacher observations, examination of student work samples (Ross-Fisher, 2008). Using multiple sources, known as triangulation, increases the credibility and trustworthiness of the findings (Hubbard & Power, 2003; Mills, 2007; Sagor, 2000).

- **Step 3:** Analyzing and interpreting the data involves examining the data sources to look for patterns of evidence, or trends, over the duration of the study (Ross-Fisher, 2008) and drawing conclusions based on this review of data. In this phase of the process, Sagor (2000) suggests sorting, sifting, ranking and examining the data to answer the following questions: “What is the story told by these data?” and “Why did the story play itself out this way?” (p. 6).

- **Step 4:** Developing an action plan involves “taking informed action” (Sagor, 2000, p. 6). Ideally, the action research process results in new learning that teacher researchers can use to inform their practice (Brighton, 2009). This might mean changing an instructional strategy, modifying the curriculum, implementing a new behavior plan, or some other action based on what has been learned during the process. Reflecting on the entire process is also important at the end of the project. Frequently, reflection leads to asking new questions based on what has been learned, thus making action research a cyclical process, which involves reflecting, acting, and evaluating (Mills, 2007).

The action research process may take various forms. For example, it can be engaged in by a single teacher, by a group of educators who share
an interest in a common problem, or by the whole faculty of a school. Numerous authors have advocated the concept of collaborative action research, in which teams of practitioners investigate a common problem or area of interest (Gordon, 2008; Lassonde, & Israel, 2009; Mitchell, Reilly, & Logue, 2008; and Sagor, 1992, 2005).

Pre-service and continuing education are good places to help emerging and practicing teachers learn to use action research to focus their thinking about themselves as researchers who can take a proactive stance in finding answers to their problems. The structure of the action research process provides them a “next step” when they are unsure of choices to make, how to proceed, or to address a challenge they are unsure how to tackle.

School-university partnerships represent a valuable form of collaborative action research. In this model, teachers and/or administrators team with university faculty to plan and implement research projects that are conducted in school-based settings. Thus, the research attempts to inform teaching practice and solve practical educational problems. These collaborative partnerships can create what Mitchell et al. (2008) call “climates of inquiry in communities of practice” (p. 345). These learning communities may consist of different stakeholders who function as co-researchers.

Gordon (2008) points out, “The integration of school and university efforts in collaborative action research offers advantages to both parties” (p. 8). The university can offer technical assistance in designing the study, selecting data collection methods, and analyzing the results. Working in schools helps university faculty stay grounded in the realities of teaching in authentic settings. As Tillotson (2000) put it, collaborative action research provides professors with “a dose of practical reality concerning school-based issues” (p. 33). This involvement in school-based research can inform university-based educators’ teaching and make it more relevant (Gordon, 2008).

In this article we describe one such school-university partnership. A teacher developed an action research project as a course requirement in a graduate-level course. After reflecting on various concerns she faced as a teacher, she selected implementing Positive Behavior Supports
Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

(PBS) as the focus of her project. Shortly after the class concluded, she started implementing PBS at her school. She had learned about this program in a previous special education course she took as part of her master’s degree program. She decided to use the class project as a starting point to provide structure for implementing positive behavioral supports at her school. Research has shown positive behavioral supports can significantly improve student and campus success; therefore, her professor asked permission to track the action research plan to see how it influenced the outcome of the PBS program.

Background for the program
One of the many challenges facing teachers of all levels of experience is classroom management. Teachers of all grade levels and subject areas consistently cite classroom management and discipline as a major concern (Rose & Gallup, 2004; Langdon, 1999), stating that their teacher preparation programs did not prepare them for the realities of discipline problems.

Classroom discipline problems are cause for concern for several reasons. First, there is a well-documented inverse relationship between behavior problems and learning: high levels of behavior problems tend to interfere with learning and academic achievement. There are many reasons for this, including the fact that students who misbehave are more likely to be removed from the classroom for disciplinary reasons, thus missing valuable instructional time (Leone, Christie, Nelson, Skiba, Frey, & Jolivette, 2003). In addition, research shows that students who exhibit high levels of misbehavior receive less instruction from teachers than students who engage in appropriate classroom behaviors (Nelson & Roberts, 2000).

A second cause for concern regarding classroom discipline problems is that misbehavior that persists without effective intervention tends to spread to other students in a process known as behavioral contagion (Safran & Safran, 1987). Finally, discipline problems undermine school and classroom safety. Even minor discipline problems (e.g., talking out, tardies), if allowed to persist unchecked, can escalate to more serious problems (Goldstein, 1999).
Traditional approaches to discipline have focused primarily on responding to behavioral infractions; usually, these responses are punitive in nature, often applied under a general philosophy of “zero tolerance” for persistent or serious misbehavior. Students are expected to know how to behave in school, and are expected to exhibit appropriate, responsible behavior. When they do not, consequences are administered, such as talking to the student, calling parents, assigning detention or in-school suspension, or suspending the student from school. Unfortunately, not only is the efficacy of such practices not supported by research; but, research shows that such punitive responses are disproportionately applied to students with disabilities and minorities (Skiba & Peterson, 2000). Given the fact that behavior problems continue to be a main concern for teachers, educators need more effective tools for addressing discipline.

Alternatives to traditional approaches to discipline
Fortunately, the strategies required for effective classroom management are not a mystery. Since the 1970s, researchers have systematically identified the practices that result in positive, orderly, safe classrooms that are conducive to student learning and achievement. Kounin (1970) was one of the first researchers to attempt to identify effective classroom management practices. Kounin observed thousands of hours of videotaped documentation of well-managed classrooms that ran smoothly with few discipline problems, and poorly managed classrooms that had high levels of inattentive and disruptive behaviors.

One of the most interesting findings that emerged from analyses of these videotaped observations was that all teachers responded to students’ misbehavior in similar ways – there were no significant differences in responses to misbehavior by effective behavior managers versus ineffective behavior managers. Teachers in well-managed classes, however, employed significantly more preventive management techniques than did teachers in the poorly managed classrooms. Other researchers documented the importance of a core set of classroom management principles and techniques that focus on preventing misbehavior, acknowledging appropriate behavior, and responding
Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

consistently and effectively to misbehavior (Brophy & Evertson, 1976; Brophy & Good, 1986; Emmer, Evertson, & Anderson, 1980; Emmer, Sanford, Clements, & Martin, 1983).

Positive behavioral supports
Over the years, classroom management technology has been continually refined and improved as the salient elements have been more clearly delineated. One approach to classroom management is known as positive behavioral supports (PBS) or positive behavioral interventions and supports (PBIS). PBS is a proactive approach to classroom management with the goal of preventing the majority of behavior problems by establishing, teaching, and acknowledging expected behaviors (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Of course, some misbehavior will still occur, so PBS also provides tools for responding to misbehavior with consistent, effective consequences.

The components of PBS for classroom management build upon the work of Kounin and other early researchers in this area. The goal of PBS for the classroom is to prevent problem behavior by creating a clear and unambiguous, positive, and consistent classroom environment. The basic elements of PBS as applied to the classroom are (a) establish class rules and procedures, (b) teach rules and procedures, (c) acknowledge appropriate behavior, and (d) provide meaningful and consistent consequences for misbehavior. There are additional elements of PBS for classroom management, such as providing sufficient supervision and keeping students actively and successfully engaged in instruction; however, a comprehensive discussion of PBS for classroom management is beyond the scope of this writing.

The Teaching Zone is an online professional development website, developed to provide educators with research-based content in classroom management, inclusion, and other topics. Content is presented in multi-media modules, each of which takes approximately one hour to complete. To increase ease of use and to facilitate generalization of skills, each module contains multiple handouts, note-taking guides, self-assessments, and application activities. Preliminary studies in schools using The Teaching Zone indicate that the most powerful results are
attained when structure is provided for using the modules and applying module content. School personnel may provide this structure in a variety of ways, such as viewing the modules in faculty meetings, completing the modules independently on a campus-wide schedule, discussing module content in faculty meetings, asking teachers to submit planning forms to show how they will apply the skills presented in the modules, or setting campus-wide goals for improvement based on module content. Such structure helps bridge the research-to-practice gap that so often accompanies any type of professional development activities.

**The class project and campus-wide implementation of positive behavioral supports**

The action research project described in this paper was conducted as part of a graduate class assignment in curriculum and development that is taken by practicing and emerging teachers. As part of their assignment for the class, the students were encouraged to develop an action plan for solving a dilemma or problem they have or anticipate having when teaching. They could choose to project to a future situation that they fear or a concern that they felt unprepared to address. This scenario-based learning creates an environment where they can plan ahead and develop skills and strategies to deal with situations before they are encountered. They adapt the steps of the action research model to serve as a theoretical framework for constructing a potential learning environment.

This approach is refocused for the class needs as the students are predicting situations and what they will do rather than being in the midst of a problem and seeking a solution. The steps for the class project action plan are:

1. Describe in writing fears or concerns you have as an educator. Next rank these and identify the one you consider to be of greatest concern.

2. Share this concern this with classmates, your professor, and others to ensure you have clearly identified the area of
Using action research as a reflective strategy to facilitate a campus-wide positive behavioral support project

concern, have situated a condition in which it might occur, and thought about why it is of concern.

2. Conduct a literature review to document research and reports in the area and tell why these artifacts are important.

3. Map out a plan/strategy for study/intervention (include timelines and check points).

4. Share your plan with your peers, professor, and others and elicit feedback so that you can identify key components of the plan and how they fit together.

5. Reflect in writing what you have learned from your sharing.

6. Revise the plan for implementation in your future classroom/ environment.

7. Implement the plan if possible.

8. Reflect and redirect for future benefit.

Teaching students about the value of reflective practice helps nurture skills and strategies that can serve them well throughout their career. Helping them to view themselves as researchers promotes a confidence that they can find solutions to problems as they arise. To help the students begin their journeys as researchers, it is helpful to have them write, journal, and discuss their fears and concerns about situations and events that may occur in their job roles. Talking about issues helps them clarify in their minds what they are concerned about and identify contributing factors. Based on their writing and conversations, they can develop a list of fears, concerns, or challenges and then can rank the components to determine which one is of greatest or most immediate concern. It is often something related to classroom management, bridging home-school connections, or fears of not helping students
develop literacy or computation skills. According to Fite (2008), some of the students will be entering new grade levels, schools, or positions; therefore, even if they are experienced teachers, the anticipated transitions may be creating anxiety or doubt. Addressing who, what, when, where, why, and how of the situation helps them frame the scenario.

This project, though university-based, allows students to project reflection on, in, and for action (Fite, 2008). It gives them a chance to think about what they would do in a specific situation and engage in conversation with others about the situation before it occurs. Even though they may not exactly replicate the situation, using this reflective experience gives them a confidence for dealing with a novel or challenging situation and gives them a proposed plan of action, a “what if” scenario to guide them through their actions. Informed instinct usually reflects what real-time reactions will be.

Another way of looking at the process is “plan, share, revise, do, reflect, revise (for future use).” The assignment takes them through a reflective loop: reflection on, for, in, and of action. They think about what can be done, what they will do, what they actually do, and what they have done and the actions’ effects (Fite, 2008). Using a scenario-based simulation, students plan how they might address a problem of concern to them. Sharing their plan with peers and professionals who can then scaffold their thinking helps them to envision strengths, shortcomings, and/or potential pitfalls they might encounter. As they revise their plan and develop a timeline for implementation they begin to identify key points in the process and benchmarks for determining progress. Then, they review and reflect again over their actions, recording what actually happened so that they have reinforced their learning, revised their plan, and prepared for their next steps. Though the implementation of their plan is often delayed a semester until they are actually teaching, or until they have the opportunity to begin, the process of systematic planning has created a sense of expectation and confidence that is nurturing. Many students report back that the structure of the process helped them when they encountered similar situations in their classrooms. Classroom management is the most common challenge
chosen to address; however, helping students who struggle to learn English or learn to read is also frequently selected.

**The project**

An experienced teacher, who will remain unnamed, took a class requiring action research as one of her last classes before completing her master’s degree and entering into a new job role. She had taught 1st grade for seven years, the last two years in inclusion. She planned to continue teaching 1st grade; however, she was given the position of a behavior specialist in an elementary school. She was excited about the position. In one of her class journal entries she wrote, “First grade was safe to me. Accepting this position meant I was leaving my comfort zone, and I feel like it is my first year teaching all over again.” She would be instrumental in incorporating Positive Behavioral Interventions and Supports (PBIS) also known as School Wide Positive Behavior Supports (SWPBS), or Positive Behavioral Support (PBS).

She did an extensive review of the literature. The following excerpt from her project reflection addresses what she found:

There is a vast amount of research on PBIS and the positive effects it has had on many school districts. There are also several resources with suggestions for steps involved in setting up a school-wide system of discipline. Those resources were helpful for coming up with an action plan. I usually do not like to read research articles; however, I found them very interesting and read several of them. One thing I discovered was I did not find any contradicting information. While, the literature was not exactly alike it was very similar. I did not find any negative implications of PBIS as long as the program was ran correctly and consistently. I know that PBIS is part of the Individuals with Disabilities Act (IDEA), and I found there is discussion to add it into No Child Left Behind (NCLB).

Our school district focuses very heavily on closing the achievement gap and making sure students with diverse academic abilities make adequate yearly progress (AYP) ... By using this information and applying PBIS to our school, we will have a plan to decrease problem behavior and increase academic achievement.
Table 1  
**Action plan/timeline for implementing PBS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/4</td>
<td>• Meet with principal to review PBS and secure administrator agreement and active support and participation</td>
</tr>
</tbody>
</table>
| 1st week of teacher in-service (3rd week of August) | • Conduct a self-assessment of the current school-wide discipline system  
• View The Teaching Zone models for continuing professional development for classroom teachers and administrators by Dr. Brenda Scheuermann  
• Secure a commitment and agreement from at least 80% of the staff for active support and participation  
• Establish a school-wide leadership or behavior support team to guide and direct the process. This team will be made up of an administrator, grade level representative, support staff, and parents. |
| Teacher in-service    | The Behavior Support Team will establish:  
• A positive statement of purpose  
• A small number of positively stated expectations for students and staff  
• Procedures for teaching these expectations to students  
• Procedures for encouraging displays and maintenance of these expectations  
• Procedures for discouraging displays of rule-violating behavior  
• Procedures for monitoring and evaluating the effectiveness of the discipline system on a regular and frequent basis |
| Bi-weekly Sept.—Dec.  | • Meet with Behavior Support Team  
• Set a time period for staff to complete more modules and set support meetings for staff development                                                                                                  |
| One time monthly Jan.—May | • Meet with Behavior Support Team  
• Set a time period for staff to complete more modules and set support meetings for staff development                                                                                             |
Finding out that there was not contradicting information was an important point that helped her to formulate her plan. Next, she developed a plan of intervention. The timetable shown in Table 1 depicts a select part of what she wanted to do.

**Value of action research project**

Follow-up interviews with her principal and assistant principal echoed the success of her planning and the PBS program. Interviews were recorded and scribed during process. She also kept a journal of her thoughts and actions.

At the end of the school year, she was asked to reflect over her action research project and the effect it had on the children and across the campus. This is what she had to say:

Reading all the research was very insightful and offered a concrete foundation of information to present to my administration and staff. Along with the research, the action plan offered a path and

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**Figure 1**

Changes in office referrals from across the school over a two-year period

![Bar graph showing changes in office referrals from across the school over a two-year period.](image)

Key: □ year 1 □ year 2

Year two with the addition of the FOCUS program, the Teaching Zone Behavior Modules and the PBS Education Model
final destination. When I accepted the new position, I had an idea of where I needed to go, but had no idea how to get there. It’s like getting into the car and knowing where you want to end up; however, you do not know the best route to take based on traffic or distance. Although I was leaving my comfort zone of first grade, I felt assurance in knowing where I was going and how I was going to get there based on my research. Frequently, you must refer to your directions or map to make sure you are proceeding along the right path. Having the action plan in place for the year allowed us to do just that. We were able to refer to the action plan and make sure we continued on the right path. Data collected from the previous school year and compared to the current school year where the action plan was implemented, proved to be successful.

The office discipline referral data revealed a significant reduction in office referrals from the first to second school year.

**Conclusion**

The authors echo their support of the action research process for emerging and practicing teachers and administrators. The process has merit for use to address current issues as well as help prepare the educator or administrator for future situations. The process of becoming a teacher researcher enhances skill in planning, implementing, reflecting, and revisiting the designated plan as other situations arise. Introducing the process in college classes enhances the possibility of use in the field.

Here is what the teacher had to say about her action plan: “It has been a very fulfilling journey to discover that there is a successful method to address the challenges and fears for both practicing and novice teachers. As a practicing teacher on a new journey, I feel I must give the Action Research Plan credit for the success of Implementing PBS.”
References


Diversity
Diversity of Texas high school teachers and students: A multiyear analysis

Jamie A. Bone
John R. Slate
Cynthia Martinez-Garcia

Abstract
In this article, we examined the teacher employment and student enrollment at all Texas public high schools for the 1999–2000 through the 2009–2010 school years, with respect to ethnic diversity. Using data from the Academic Excellence Indicator System for the State of Texas, we documented that the majority of teachers at the high school level across the 11 school years of data were white teachers (between 78.45% and 91.00%). The percentage of white teachers at the high school level has decreased over the 11 school years as the percentage of Hispanic teachers (from 3.40% to 8.75%) increased, as did the percentage of black teachers (from 0.30% to 2.59%). Similar results were present for student ethnicity, with the majority of students at the high school level across the 11 school years of data being white (between 33.30% and 56.60%). This percentage of white students at the high school level decreased over the 11 school years, with increases noted in the percentage of Hispanic students (from 22.20% to 40.20%) and black students (from 5.00% to 6.90%). Nevertheless, given the dramatic increase in the Hispanic student population, the population of Hispanic teachers remained relatively low. Implications of our findings are discussed.
Diversity of Texas high school teachers and students: A multiyear analysis

Just as it is with any business, school leaders are also under pressure to produce results. Principals must hire teachers they can trust to teach students and to generate standardized test scores that meet standards for the school district, the state, and the nation so that schools can remain competitive. Because of this pressure for performance, principals pursue teacher applicants with whom the principals can facilitate communication, discretion, and trust (Kanter, 1977). U.S. school leaders, as well as teaching staff, are overwhelmingly white (Taylor, 1998). According to the theory of homosocial reproduction (Kanter, 1977), the ethnic makeup of the U.S. teaching force will not change in the future because the current white school administration is likely to hire and cultivate leaders who are similar to themselves, who, in turn, will hire teachers who are similar to themselves.

Kanter (1977) argued with the theory of homosocial reproduction that members of a dominant group tend to hire individuals who are most like themselves. In a business world where the product is essential, managers are under pressure to hire individuals who can assist in obtaining that quality product. Individuals who are homogenous, particularly in appearance, talk, and dress, are perceived as workers who will accept authority and conform to behavioral norms (Kanter, 1977). Those individuals who resemble the management group in terms of race, ethnicity, gender, and social class are the most likely to be trusted by the management group (Kanter, 1977).

We believe that it is critical to have a diverse teacher population (Bone & Slate, 2011). Underrepresented teachers have the ability to positively impact the academic success of underrepresented high school students. For example, Fraga, Meier, and England (1986) documented that an increased numbers of Hispanic teachers in urban high schools with high Hispanic student enrollment reduced drop-out rates and increased their college-going rates. Additionally, Klopfenstein (2005) demonstrated that black student enrollment in Algebra II courses after the completion of geometry grew drastically as the percentage of black math teachers increased. Furthermore, in high schools where teacher
ethnicity more closely mirrored student ethnicity, underrepresented students achieved drastically higher passing rates on graduation exams (Pitts, 2007). By and large, underrepresented teacher representation at the high school level has lead to more positive academic gains among underrepresented high school students.

Regardless of the age, underrepresented students stand to benefit academically from the presence of underrepresented teachers. In fact, researchers identified five practices of underrepresented teachers that result in more successful academic outcomes for underrepresented students at all levels. The five practices include: (a) having high expectations of students; (b) using culturally relevant teaching; (c) developing caring and trusting relationships with students; (d) confronting issues of racism through teaching; and (e) serving as advocates and cultural brokers (Villegas & Irvine, 2010). Should underrepresented students be provided with more opportunities for academic success, the percentage of underrepresented students attending college would increase. In turn, the number of potential underrepresented teacher candidates would also increase.

**Purpose of the study**

The purpose of this study is to describe the employment of teachers and membership of students in Texas public high schools by. Archival data from the Texas Education Agency Academic Excellence Indicator System (2010) were utilized. The data included the ethnicity of teachers and students in Texas public high schools for each school year from 1999–2000 through 2009–2010. An examination of teacher ethnicity and student ethnicity at the high school level across an 11-school-year period assists in analyzing both the teacher employment practices and student membership in Texas public high schools with regard to ethnicity. Additionally, analyzing such data aids in understanding the extent to which Texas public high schools have made successful efforts to match teacher ethnicity to student ethnicity at the high school level.
Research questions
The following research questions were addressed in this investigation: (a) What is the ethnic diversity (i.e., black, Hispanic, and white) of teachers employed in Texas public high schools for each school year from 1999–2000–2009–2010? and (b) What is the ethnic diversity (i.e., black, Hispanic, and white) of students in Texas public high schools for each school year from 1999–2000–2009–2010?

Method

Selection of participants
Data from all public high schools in the state of Texas were gathered for the 1999–2000 through the 2009–2010 school years, using the Academic Excellence Indicator System (AEIS). Through the AEIS database, information is collected on approximately 1,220 public school districts in Texas. For the purpose of the study, the data gathered focused on black, Hispanic, and white teachers and students.

Instrumentation
Archival data were gathered using the Texas AEIS for the 11 academic years 1999–2000 through 2009–2010. The AEIS is a comprehensive reporting system, used to generate reports about campuses, school districts, and the state, and these data are used to determine accountability ratings (TEA, 2009a). Data for this study were collected by the TEA and reported through AEIS. Collected data were used to determine the percentages of black, Hispanic, and white teachers and students at the high school level for each of the academic years 1999–2000 through 2009–2010.

High school level
School types were assigned to all campuses within the AEIS database according to the lowest and highest grade levels of the students. In an instance where the grade levels served at a campus were not exactly as specified in the AEIS database, the schools were associated with the school type most similar to their grade span. For the purpose of this
study, “high school” referred to campuses at which students in grades 9-12 are served (TEA, 2009b).

**Procedures**

Once the IRB granted approval, data were downloaded from the AEIS to the Statistical Package for the Social Sciences (SPSS), version 17.0. Next, statistical procedures were conducted on the variables in question to determine the percentages of black, Hispanic, and white teachers employed at the high school level for each of the 11 academic years. These procedures were repeated to determine the percentages of black, Hispanic, and white students at the high school level for each of the 11 academic years.

**Results**

*Research question 1: Ethnic diversity of teachers*

This research question was addressed by obtaining descriptive statistics for the percentages of black teachers, Hispanic, and white teachers in Texas public high schools for the 11 school years from 1999–2000 to 2009–2010. Descriptive statistics for black teachers, Hispanic teachers, and white teachers in Texas public high schools are represented in Tables 1, 2, and 3, respectively. Overall, the majority of teachers at the high school level across the 11 school years were white teachers (between 78.45% and 91.00%). A high percentage of white teachers were employed at the high school level. However, the percentage of white teachers at the high school level decreased over the 11 school years. The percentage of Hispanic teachers at the high school level increased over the 11 school years from 3.40% to 8.75%. Similarly, the percentage of black teachers at the high school level increased over the 11 school years from 0.30% to 2.59%. Median percentages of black teachers, Hispanic teachers, and white teachers in Texas public high schools are represented in Figures 1, 2, and 3, respectively.

The relatively low median percentage of black teachers in Texas public high schools over an 11 school-year time period is a notable characteristic of Figure 1. The median percentage of black teachers at the
high school level consistently increased from 1999–2000 to 2009–2010. However, a more drastic increase in the median percentage was documented in more recent school years.

The percentage of Hispanic teachers in Texas public high schools was much higher than the percentage of black teachers at the high school level. Additionally, the mean and median percentages of Hispanic teachers at the high school level increased over the 11 academic years. Nevertheless, given the drastic rise in the Hispanic student population in Texas public schools, the percentage of Hispanic teachers remained rela-

<table>
<thead>
<tr>
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<th>SD</th>
</tr>
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<td>2009–2010</td>
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<td>2.59</td>
<td>8.64</td>
<td>16.11</td>
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Table 1
Descriptive statistics for percentage of black teachers in Texas public high schools from 1999–2000 through 2009–2010
tively low. The median percentage of Hispanic teachers in Texas public high schools over the 11 school years is represented in Figure 2. A distinguishable characteristic of Figure 2 is the continuous increase in the median percentage of Hispanic teachers in Texas public high schools. In fact, the median percentage of Hispanic teachers in Texas public high schools almost doubled between 1999–2000 and 2009–2010.

Table 3 represents the descriptive statistics for the percentage of white teachers in Texas public high schools from 1999–2000 to 2009–2010. A remarkable difference in the employment of white teachers

<table>
<thead>
<tr>
<th>Year</th>
<th>n of Schools</th>
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<td>8.75</td>
<td>21.88</td>
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from the employment of minority teachers existed in Texas public high schools. For example, the mean percentage of white teachers employed in Texas public high schools was higher than any other ethnic group studied. Although the median percentage of white teachers employed in Texas public high schools was considerably higher than the other ethnic groups, remarkable characteristics were noted as well. For example, the median percentage of white teachers at the high school level decreased from 1999–2000 to 2009–2010. This phenomenon did not occur among the median percentages of any other ethnic group studied.

Table 3
Descriptive statistics for percentage of white teachers in Texas public high schools from 1999–2000 through 2009–2010

<table>
<thead>
<tr>
<th>Year</th>
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<td>79.35</td>
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<td>2006–2007</td>
<td>1,418</td>
<td>87.74</td>
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<tr>
<td>2007–2008</td>
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<td>87.06</td>
<td>76.27</td>
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<td>2008–2009</td>
<td>1,450</td>
<td>85.90</td>
<td>74.81</td>
<td>27.02</td>
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<tr>
<td>2009–2010</td>
<td>1,600</td>
<td>78.45</td>
<td>67.81</td>
<td>30.38</td>
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</table>
A substantial gap was present between the percentage of minority teachers and the percentage of white teachers employed in Texas public high schools. Although gains were made toward increasing the number of minority teachers, Texas public high schools were still staffed overwhelmingly by white teachers. Figure 4 represents the median percentage of black teachers, Hispanic teachers, and white teachers in Texas public high schools across the 11 school years analyzed.

**Figure 1**
Median percentage of black teachers in Texas public high schools from 1999–2000 through 2009–2010

![Median percentage of black teachers](image1)

**Figure 2**
Median percentage of Hispanic teachers in Texas public high schools from 1999–2000 through 2009–2010

![Median percentage of Hispanic teachers](image2)
Research question 2: Ethnic diversity of students

This research question was addressed by obtaining descriptive statistics for the percentages of black, Hispanic students, and white students in Texas public high schools for the 11 school years from 1999–2000 to 2009–2010. Descriptive statistics for black students, Hispanic students,
and white students in Texas public high schools are represented in Tables 4, 5, and 6, respectively.

Overall, the majority of students at the high school level across the 11 school years were white students (between 33.30% and 56.60%). A large percentage of white students were enrolled at the high school level. However, the percentage of white students at the high school level decreased over the 11 school years. The percentage of Hispanic students at the high school level increased over the 11 school years from 22.20%

<table>
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<th>SD</th>
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</thead>
<tbody>
<tr>
<td>1999–2000</td>
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<td>5.00</td>
<td>12.84</td>
<td>18.83</td>
</tr>
<tr>
<td>2001–2002</td>
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<tr>
<td>2002–2003</td>
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<tr>
<td>2003–2004</td>
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<td>4.75</td>
<td>12.21</td>
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<tr>
<td>2004–2005</td>
<td>1,574</td>
<td>5.45</td>
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<td>2005–2006</td>
<td>1,598</td>
<td>5.00</td>
<td>12.34</td>
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</tr>
<tr>
<td>2006–2007</td>
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<td>5.00</td>
<td>12.15</td>
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<tr>
<td>2007–2008</td>
<td>1,617</td>
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</tr>
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<td>1,613</td>
<td>5.70</td>
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<td>2009–2010</td>
<td>1,653</td>
<td>6.90</td>
<td>13.39</td>
<td>7.60</td>
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to 40.20%. Similarly, the percentage of black students at the high school level increased over the 11 school years from 5.00% to 6.90%, although the increase of black students was only slight. Median percentages of black, Hispanic, and white students in Texas public high schools are represented in Figures 5, 6, and 7, respectively.

The consistency in the percentage of black students in Texas public high schools over an 11 school year time period is a notable characteristic of Figure 5. The percentage of black students at the high school

<table>
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<tr>
<th>Year</th>
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<td>30.84</td>
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<td>2000–2001</td>
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<td>24.05</td>
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<td>2002–2003</td>
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<td>31.30</td>
<td>39.85</td>
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</tr>
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<td>2008–2009</td>
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<td>32.90</td>
<td>40.79</td>
<td>30.88</td>
</tr>
<tr>
<td>2009–2010</td>
<td>1,653</td>
<td>40.20</td>
<td>46.40</td>
<td>31.34</td>
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</tbody>
</table>
level underwent a larger increase between the 2006-2007 and 2007-2008 academic years, whereas the percentages remained somewhat consistent during the other school years. Still, the percentages of black students continued to rise slowly. The percentage of Hispanic students in Texas public high schools was much higher than the percentage of black students at the high school level. Additionally, the mean and median percentages of Hispanic students at the high school level increased over the 11 academic years. The median percentage of Hispanic students in Texas

<table>
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<td>2003–2004</td>
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<tr>
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<td>2005–2006</td>
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<td>2006–2007</td>
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<td>2007–2008</td>
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<td>2008–2009</td>
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<td>44.05</td>
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<tr>
<td>2009–2010</td>
<td>1,653</td>
<td>33.30</td>
<td>36.95</td>
<td>30.31</td>
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</tbody>
</table>
public high schools over the 11 school years is depicted in Figure 6. A distinguishable characteristic of Figure 6 is the steady increase in the median percentage of Hispanic students in Texas public high schools.

Table 6 represents the descriptive statistics for the percentage of white students in Texas public high schools from 1999–2000 to 2009–2010. A remarkable difference in the membership of white students from the membership of minority students existed in Texas public high schools.
schools. For example, the white student group was the only student group that had an overall decrease in student membership over the 11 school years. The median percentage of white students enrolled in Texas public high schools was higher than the other ethnic groups. Still, the median percentage of white students decreased from 1999–2000 to 2009–2010. This phenomenon did not occur among the median percentages of any other ethnic group studied. Figure 7 portrays the median percentage of white students enrolled in Texas public high schools from 1999–2000 through 2009–2010.

**Discussion**

Schools throughout the United States, and particularly within Texas, have undergone radical changes in the ethnic makeup of the student population over the past 20 school years (Fry, 2007). The ethnic makeup of the teaching population, however, has remained overwhelmingly white (Frankenberg & Siegel-Hawley, 2008). Furthermore, the gap in achievement between white students and ethnically diverse students has persisted (United States Department of Education, 2003). Nevertheless, a positive relationship between teacher ethnicity and student achievement has been demonstrated in a number of studies (Alliance for

![Figure 7](image)

**Figure 7**

Median percentage of white students in Texas public high schools from 1999–2000 through 2009–2010
Excellent Education, 2005; Branch & Kritsonis, 2006; Tyler, Yzquierdo, Lopez-Reyna, & Saunders-Flippin, 2004). However, a limited number of studies exist on the topic of teacher ethnicity as it relates to student ethnicity and the efforts being made toward providing an ethnically diverse teaching staff. Therefore, in this study, attention was placed on teacher ethnicity and student ethnicity in Texas public high schools.

An estimated $2.2 billion is spent nationally each year on replacing teachers who have left the teaching profession (Alliance for Excellent Education, 2005). In Texas alone, the estimated cost of teacher recruitment reaches more than a half billion dollars annually (Alliance for Excellent Education, 2005). Furthermore, in schools with high percentages of underrepresented students, the rate of attrition is roughly 50% higher than in schools with lower percentages of underrepresented students (Alliance for Excellent Education, 2005). Consequently, some of the neediest schools are spending precious funds on recruiting teachers, rather than on meeting the needs of students. The implications of this study provide the groundwork needed to examine the effectiveness of the underrepresented teacher recruitment efforts at the high school level throughout Texas over the 11 academic years.

Across the 11 school years of data examined, the majority of teachers employed in Texas public high schools were white teachers. However, the percentage of white teachers at the high school level decreased (from 91.00% to 78.45%) over the 11 school year time period. Hispanic teachers constituted the second largest ethnic group of teachers in high schools. Unlike the trend in white teachers, Hispanic teacher percentages increased (from 3.40% to 8.75%) over the 11 school years. Nevertheless, given the dramatic increase in the Hispanic student population, the population of Hispanic teachers remained relatively low. Black teachers, whose percentages in high schools were relatively small in comparison to white and Hispanic teachers, comprised the third largest teacher ethnic group in Texas public high schools. The percentages of black teachers increased slightly (from 0.30% to 2.59%) over the 11 school years. Overall, a massive gap existed between the percentage of minority teachers and the percentage of white teachers employed in Texas public high schools. Although gains were made toward increasing the
number of minority teachers, Texas public high schools were still staffed overwhelmingly by white teachers.

By and large, the majority of students at the high school level across the 11 school years of data were white students. A larger percentage of white students were enrolled at the high school level than at the elementary or middle school level. However, the percentage of white students at the high school level decreased (from 56.60% to 33.30%) over the 11 school years. The percentage of Hispanic students at the high school level increased (from 22.20% to 40.20%) over the 11 school years. Similarly, the percentage of black students at the high school level increased (from 5.00% to 6.90%) over the 11 school years, although the increase of black students was only slight. The percentage of Hispanic students in Texas public high schools was much higher than the percentage of black students at the high school level. Additionally, the mean and median percentages of Hispanic students at the high school level notably increased over the 11 academic years. The median percentages of Hispanic students at the high school level were consistent with the median percentages of Hispanic students at the elementary and middle school level.

The median percentage of white students enrolled in Texas public high schools was higher than the other ethnic groups. Unlike the patterns set at the elementary (Bone, Slate, & Martinez-Garcia, 2013) and middle school (Bone, Slate, & Martinez-Garcia, 2011) levels, by the end of the 11 academic years examined, the white student group remained the largest ethnic group in Texas public high schools. Still, the median percentage of white students decreased from 1999–2000 to 2009–2010. This phenomenon did not occur among the median percentages of any other ethnic group studied.

A likely explanation for why the white high school student population remained the largest ethnic group in Texas public high schools across the 11 school years studied concerns the high school completion rate of minority students in Texas public schools. Martinez-Garcia and Slate (2010) noted that the percentages of minority students were not as great at the high school level as at the elementary school level. This difference was attributed to the high dropout rate of minority students at
the high school level (Martinez-Garcia & Slate, 2010). According to the National Center for Education Statistics (2007), more black and Hispanic students in secondary school had been suspended from school at some point than students of any other ethnicity. Moreover, more black and Hispanic students in secondary school had been retained a grade level than students of any other ethnicity (NCES, 2007b). Both the suspension rates and the retention rates are factors contributing to student dropout rates (NCES, 2007b). Accordingly, enrollment patterns in Texas public secondary schools indicate that black and Hispanic students are three times more likely to drop out of school than are white students (Clarke, Haney, & Madaus, 2000). The results of this study confirm the findings reported by the National Center for Education Statistics (2007b) and Clarke et al. (2000) in that the student population of Texas public high schools consisted of more white students than minority students, because a large number of minority students likely did not remain enrolled in high school.

Overall, the student population in Texas public high schools increased, although the increase was not as dramatic over the 11 school years studied as the increase in student population in Texas public middle schools (Bone et al., 2011) or elementary schools (Bone et al., 2013). However, the changes in student population in Texas public high schools were similar to the changes in Texas public middle schools (Bone et al., 2011) and elementary schools (Bone et al., 2013).

Results of this study were congruent with the theory of homosocial reproduction. In this study, high schools at which more minority students were enrolled also employed more minority teachers. However, the ethnicity of the high school teaching staff consistently remained disproportionate to the ethnicity of the students enrolled in Texas public high schools. Moreover, the ethnicity of the high school teaching staff remained consistent over the 11 school years studied, in spite of the fact that student ethnic groups in high schools were growing, particularly among the Hispanic population. According to the Schools and Staffing Survey (USDE, 2004), 95% of public high school teachers throughout the nation were white. Thus, the consistency demonstrated in the results of this study was an indication that Texas public high school adminis-
trators continued largely to hire individuals who were most like themselves. If these trends persist, student ethnic minority groups will continue to diversify, yet school districts will continue to employ a mostly white teaching staff. Accordingly, school districts must implement successful strategies to recruit more minority teachers. Additionally, school districts must begin to hold school administrators accountable for hiring a teaching staff whose ethnicity is reflective of the students’ ethnicity.

Implications for policy
Implications for policy can be ascertained from the results of this study. At a minimum, an examination of the results of this study should convince local, state, and national education agencies to take a critical look at the emphasis currently placed on minority teacher recruitment, as evidenced in policy. Additionally, the results of this study generate the need for policy reform from social, academic, and economic standpoints. Some underrepresented students graduate high school without ever having been taught by a teacher of the same ethnicity (NCES, 2003). The disparity between the percentage of underrepresented teachers and the percentage of underrepresented students on campuses throughout Texas is an indication of the lack of understanding of the importance of providing a diverse teaching staff. Furthermore, employing a teaching staff whose ethnicity mirrors that of their students helps to create more equitable and participatory communities (Villegas & Lucas, 2002). According to Villegas and Lucas (2002), efforts to hire more underrepresented teachers assist in the interruption of discriminatory policies and practices in classrooms.

When school districts do not hold administrators accountable for hiring a diverse teaching force, a message is sent to students and to the community regarding the value placed on diversity (Villegas, 1993). In fact, Clewell, Anderson, Bruschi, Goertz, and Villegas (1993) contended that one way an organization, such as a public school district, demonstrates a commitment to diversity is by recruiting, hiring, and retaining underrepresented teachers. However, schools that do not actively recruit and employ underrepresented groups in teaching and leadership positions do not reflect a commitment to an inclusive, multicultural climate.
(Villegas, 1993). If citizens of the United States truly want to promote a culture of equality, then the schools must embody that desire. Thus, from a social standpoint, an examination of the outcomes of this study should result in changes to policy. Guidelines must be put into place that would require school administrators to implement strategies to recruit and retain underrepresented teachers. Furthermore, these guidelines must provide for instruments to measure and gauge the effectiveness of the strategies implemented.

Accordingly, the implementation of policies to promote the diversification of the teaching force is critical. Additionally, national, state, and local educational agencies must hold school districts accountable to those policies. Publicly promoting the desire to diversify the teaching staff is not adequate, yet it is often the limit to the actions taken by school districts to provide a more ethnically diverse teaching staff. Additionally, policy changes to address the shortage of minority teacher candidates must be enacted. Shortages in the number of underrepresented individuals entering the teaching profession create difficulties for school districts that are genuinely trying to diversify their teaching staff.

Specific, data-driven strategies for underrepresented teacher recruitment by the public education system, as well as institutions of higher learning, must be implemented. Furthermore, measures must be employed for determining the effectiveness of those strategies. Administrators must provide evidence of efforts made toward hiring a teaching staff whose ethnicity better represents the ethnicity of the students enrolled. If such policies were implemented in school districts across Texas, progress would surely be made toward providing a more ethnically diverse teaching staff for the underrepresented students in Texas public schools.

Recommendations for future research
Relatively few studies concerning teacher ethnicity and student ethnicity have been conducted. However, given the impact teacher ethnicity and student ethnicity may have on student achievement, it is critical for the topic to be examined from as many perspectives as possible. Because this study represents one of only a few studies on teacher ethnicity and student ethnicity, several suggestions for future research will be noted.
One of the most vital studies recommended for future research is to obtain the necessary data to determine which teachers teach which students. With data from the Academic Excellence System, a determination can be made regarding the percentage of minority teachers, as well as the percentage of minority students. However, the Academic Excellence Indicator System does not provide the number of ethnic minority students by course assignment. Therefore, it is impossible to determine which teachers are teaching which students. In this study, teacher and student ethnicity were examined on a campus level, rather than on a teacher-to-student level. Thus, a recommendation for future research is for researchers who have access to student-level data to pursue a study of teacher ethnicity and student ethnicity at the student level.

A second suggestion for future research is to compare teacher ethnicity and student ethnicity in Texas charter schools, Texas private schools, and Texas alternative placement schools. Such comparisons would shed light on the equal opportunities for employment in charter, private, and alternative schools. Additionally, studies performed in these settings would most definitely provide some insight into the racial achievement gap. Moreover, a study of teacher ethnicity and student ethnicity in Texas alternative schools would add to the existing body of knowledge on the relationship between teacher ethnicity and student ethnicity and referrals to alternative placement schools.
Diversity of Texas high school teachers and students: A multiyear analysis

References


Diversity of Texas high school teachers and students: A multiyear analysis


An option for accessibility for English language learners: Newcomer programs

Frank Lucido
David Leo

Abstract
English learners are the fastest growing population in K–12 programs. Are these students going to have an equal education opportunity accessible? Newcomer programs are one option to help newly-arrived immigrant students transition into bilingual education/ESL programs and eventually be successful in the all-English school curriculum.
An option for accessibility for English language learners: Newcomer programs

It is well known that the fastest growing populations in K–12 programs are English language learners. Compared with their English language speaking learner counterparts, English language learners have struggled to succeed in school, particularly on content achievement measures and high school graduation achievement (National Center for Education Statistics, 2009). Approximately “49.9 million students were enrolled in US public schools (pre–K to 12th grade) in the 2007-2008 academic year, according to US Department of Education statistics. Of them, 10.7%, or more than 5.3 million children, were English language learners (ELLs)” (Batalova & McHugh, 2010, p. 1). In regard to ELL students by state, Batalova & McHugh (2010) report the following:

More than one in four of the nation’s ELL students (about 1.5 million children) lived in California, the state with the largest number of students in need of English instruction. The size of California’s ELL enrollment was greater than the next five states combined: Texas (701,799 ELL students), Florida (234,934), New York (213,000), Illinois (175,454), and Arizona (166,572). (p. 1)

Additionally, Batalova & McHugh (2010) point out that “while the number of all pre-K–12 students increased by 8.5%, from 46.0 million in 1997-1998 to 49.9 million in 2007-2008, the number of ELL students increased by 53.2% (from 3.5 million to 5.3 million) in the same period” (p. 2). Today, half of all ELL students are kindergarten and elementary school age, while the other half are roughly split between middle and high school age. Over three quarters of elementary school age ELLs were born in the United States. With the growth of these school age minority language students, administrators and teachers need to focus on addressing ELLs’ educational needs. The need is not only an educational issue, but an economic and social justice issue as well.

Although there is a long history of laws, legislation, and court decisions to improve the education of ELLs, much is left to be done for them to be successful in this age of scholastic accountability. In 1968, the US government seized on the success of Dade County’s (FL) Coral Way bilingual program to push for bilingual schooling (Faltis & Hudel-
The initiative was led by Texas Senator Ralph Yarborough via Senate Bill 428. President Lyndon B. Johnson signed into law the Bilingual Education Act on January 2, 1968, “making bilingual education a federal policy for the first time in the history of the United States” (Faltis & Coulter, 2008, p. 9). While Senate Bill 428 was originally intended for Spanish-speaking students, especially students of Mexican-American descent, the Bilingual Education Act “adopted the broader approach” (Leibowitz, 1980, p. 17) and authorized the use of federal monies to educate ELLs (Baker, 2011). In early 1970, a class-action suit “brought attention to inequities in schooling of ethnic and language minority students” (Jones & Fuller, 2003, p. 61). In Lau v. Nichols, the plaintiffs claimed that a substantial number of non-English-speaking Chinese students in the San Francisco Unified School District were not receiving equal educational opportunities in English-only mainstream classrooms. Because the school district was providing the same curriculum in the same classrooms through the language of the school to all students, the lower federal courts sided with the defendants (Crawford, 2004). On January 21, 1974, however, the Supreme Court ruled unanimously in favor of the plaintiffs, noting, in part, that “there is no equality of treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from any meaningful education” (Lau v. Nichols, 414 U.S. 563, 1974). Although the Lau decision did not mandate bilingual or English as a second language education—the common remedies for many school districts—or prescribe any particular instructional treatment to remedy the problem, the Court noted that school systems had to provide special services to students dysfunctional in English language skills so that they have equal educational opportunities (Faltis & Hudelson, 1998).

The Lau v. Nichols decision, a landmark ruling which “legitimized and gave impetus to the movement for equal educational opportunity for students who do not speak English” (Teitelbaum & Hiller, 1977, p. 139), triggered the passage of two federal statutes on August 21, 1974. First, the Equal Educational Opportunities Act was enacted to give “legislative backing to the Lau decision” (Ovando & Combs, 2012, p. 78). The
Act required school districts with ethnolinguistically and socioculturally diverse students “to take appropriate action to overcome language barriers that impede equal participation by its students in its instructional programs” (§ 1703f, 1974). Second, the Bilingual Education Act was reauthorized to address the changing needs of potential English learners.

Reauthorizations of the Bilingual Education Act, as Title VII of the Elementary and Secondary Education Act (ESEA) of 1965, followed in 1978, 1984, 1988 and 1994. The latter Bilingual Education Act remained in effect for over seven years. On January 8, 2002, President George W. Bush signed into law the No Child Left Behind Act of 2001, replacing the Bilingual Education Act or Title VII of the ESEA with Title III, the English Language Acquisition, Language Enhancement, and Academic Achievement Act. While Title III addresses language instruction for ELLs and immigrant students, it makes no reference to “bilingualism, biliteracy, or native language instruction” (González, Yawkey, & Minaya-Rowe, 2006, p. 85). Interestingly, bilingual education is still permitted, but Title III centers solely on English (Wright, 2010).

Other litigations that focused on improving ELLs’ schooling include Castañeda v. Pickard (1981) and Idaho Migrant Council v. Board of Education (1981). Castañeda v. Pickard (1981) established criteria for programs serving ELL students. The Castañeda standard requires that programs for ELL students must be (1) based on sound pedagogical theory, (2) implemented effectively, including the use of adequate resources and personnel, and (3) evaluated and determined to be effective in overcoming language barriers (Crawford, 2004). Castañeda did not mandate bilingual education to meet these measures, but the Court required that “appropriate action to overcome language barriers” be taken via well-implemented instructional programs (Mora, 2012). In Idaho Migrant Council v. Board of Education (1981), the 9th Circuit ruled that state education departments needed to ensure that local school systems provide all learners with equal educational opportunities. The 9th Circuit ruling obligated state education agencies to monitor implementation of instructional programs for ELL students (Mora, 2012). These two court cases further delineated the importance of not simply “having” a program but having an instructional program that produces successful
ELLs. As immigration numbers continue to increase, we know that the young minority ethnolinguistic population will be in our schools and will need to develop the academic language required to be successful students. All of the legislation centered on making education more accessible to ELLs is more critical now with the influx of diverse immigrants into the school systems. Has this accessibility become a fact?

Of the immigrant population, several types of newcomer students have been identified. Newcomer students are typically defined as students who have been in the United States less than two years and whose English proficiency on initial placement assessments results in a pre-primer or beginning proficiency level. Short & Boyson (2012) categorize newcomer students as follows:

1. Literate newcomers: Students with grade-level academic language proficiency in their native language.

2. Newcomers with partial formal education: Students with home language literacy abilities and some curriculum schooling.

3. Newcomers with disrupted formal schooling: Students with interrupted formal education (SIFE); SIFE students have no literacy or below-grade-level literacy in their own first language.

4. Late entrant newcomers: Students who enter the school’s first quarter or semester.

Short (2009) states that students in each category stand to benefit from placement in a newcomer program, a program that allows them to better adapt to the culture of the American school and develop proficiency of its many nuances.

A greater number of foreign-born immigrants, many of which will be classified as newcomers, enter the United States at middle school age rather than at the elementary level. Yet, elementary schools receive more funding resources and professional development and awareness on how to meet the needs of newly-arrived recent immigrants or refu-
An option for accessibility for English language learners: Newcomer programs

gees. This creates for secondary administrators a mismatch between the number and needs of immigrant middle and high school students and the resources targeted for them (Ruiz-de-Velasco, Fix, & Clewell, 2000). Several Texas school districts have tried to compensate for the lack of funding, resources, and training by creating innovative programs such as newcomer programs in order to develop curriculum that addresses the needs of newly-arrived immigrant students.

Newcomer programs study
Using a mixed methods model of research, a research team from Texas A&M University-Corpus Christi visited school districts that had implemented programs for new arrivals in Texas. The research team consisted of three university faculty and one outside consultant. In total, 11 school districts were involved in the 18-month study. Districts represented all areas of Texas, with the majority of the districts from Central and East Texas. Interviews were conducted with 30 administrators and 40 classroom teachers. Data also included 40 classroom observations. Eleven surveys were collected: one from each central office administration and one from each Newcomer Center director. The initial districts in the study were identified from the Center for Applied Linguistics’ current Newcomer Database. Additional districts visited were based on recommendations from the Texas Education Agency (TEA), including TEA’s Project Manager and TEA’s Bilingual/ESL Department. The data collected were analyzed by the research team to identify trends and patterns across programs providing information on the areas identified to be explored and became a part of the research data for the development of a blueprint for establishing newcomer centers in school districts.

Typically, students attend a newcomer program before they are exposed to more traditional interventions, such as English-only mainstream classrooms with services in supplemental ESL or programs emphasizing English language development (Custodio, 2011). Initially, newcomer programs functioned primarily as a place for recently arrived immigrants. While each newcomer program has certain consistent elements, there appear to be areas among newcomer programs that differ. The differences range from the type of newcomer program model that
is adopted and how it is administered to the less drastic and more subtle labeling of a specific strategy, program, or method that differs from another newcomer program. One of the most pervasive characteristic of a newcomer program is the goal of emphasizing a safe and comprehensive welcoming educational milieu, i.e., an environment which is aimed at building bridges between newcomer students’ native lands and their newfound country. Newcomer programs have more than one beneficiary. The comprehensive nature of a newcomer program includes every aspect of students’ lives that may contribute to their assimilation and/or acculturation into American schools and their academic success.

Newcomer programs are typically categorized into three main program models: newcomer program within a school, separate site newcomer program, and newcomer whole school model (Short & Boyson, 2012). A description of each program follows.

Newcomer program within a school
The newcomer program within a school appears to be the most common of the three models at a rate just above 75% of high schools across Texas and the United States. The rationale behind its popularity does not appear to be attributed so much to its heightened or overt effectiveness, but to a rather less academically related factor, money. Of the three programs, the program within a school requires less infrastructure related to building materials and space, as it relies on already established accommodations, thus requiring less monies to be filtered into the program. The newcomers’ home school serves the students, which allows them to interact with the non-newcomer students across subject areas, as well as extra-curricular activities such as band, music, art and physical education. Programs within a school take full advantage of the learning opportunity before them by planning deliberate activities, events, and even instructional settings geared toward intentionally placing the newcomer in the mainstream setting. This practice fosters a greater sense of immersion into the target language and appears to help facilitate the assimilation process at a faster rate than its model counterparts (Short & Boyson, 2004). The program within a school normally requires the newcomer students stay in the program for a maximum of one year.
or less. Of the three models, the program within a school requires the shortest amount of time for students actually be enrolled in the program. Once the newcomer is exited from the program, he or she is placed in regular, mainstream classrooms within the same campus of his or her home school, only the student is no longer in the newcomer building/classrooms. Some students choose to attend another campus once they are exited from the newcomer program.

**Separate site newcomer program**

The separate site newcomer program accounts for less than 25% of the newcomer program models currently existing across the United States (Center for Applied Linguistics, 2009). In Texas, the newcomer program is typically housed in a separate location with all amenities and accommodations devoted solely for the purpose of educating the newcomer student population. How the sites acquired the building space varies from program to program. Some campuses were formed from a former, shut-down campus or from a space the mother district may own but was not utilizing at the time. Separate site campuses typically operate on an all-day schedule, much like that of a regular school campus. However, what goes on within the classroom walls can be quite different. More than 75 languages have been recorded as being used on one campus alone (Short & Boyson, 2004). Some students in a separate site model may spend part of the day at the newcomer school, dividing their time between the newcomer campus and their home school.

**Newcomer whole school model**

The newcomer whole school model is the least common program model of all. The name allows one to infer that it is a financially demanding model, but one that has the ability to devote all its attention and resources to the newcomer student. This particular model is developed primarily for high school-aged students. They are typically four-year programs, providing curricula that lead to graduation. Administrators and teachers face a challenge of students who enter school with little to no proficiency in the English language at this secondary level because graduation is less than three years away. In order to make the successful transition
into the public school system, newcomer students must successfully adapt to the linguistic, academic, and sociocultural environment of not only the public school setting, but also their community. They face the simultaneous challenge of learning language and academic content, at times with teachers who may be under-qualified and lack access to a quality curriculum (Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003). According to Adger & Peyton (1999), feelings of frustration and failure among newcomer students are often reflected in higher-than-average dropout rates for this population of students.

The models for instructional delivery (curriculum development) adopted by the districts emphasized the importance of planning and implementing quality instruction that integrated language and content, appropriate materials, and highly trained teachers. Commonalities observed at the Newcomer Centers included the following: language focus, quality classroom interactions, focus on reading comprehension, sheltered content instruction, and development of academic vocabulary and literacy. As the new arrivals come into the newcomer programs, teachers must believe all students can learn and have high expectations. Before teachers can be considered effective at their craft, they must possess specific characteristics that are linked to improving student achievement (Darling-Hammond, 1996). Teachers should be caring, but structured in their approach to the delivery of the curriculum. Research has found that second language learners’ success is often pre-determined by teacher expectation (August & Hakuta, 1997). Teachers in the newcomer programs represented insisted that newcomer students could be successful given the accessibility to quality instruction and the emotional support to accomplish their goals. The teachers stated that they chose to be in these programs because they wanted these students to be successful. Students also commented in interviews that the teachers cared for them and were always available for both academic and emotional support. According to Bandura (1977, 1986, 1997), the key to student success is based on the teachers’ collective belief that they can impact student achievement on a campus regardless of the circumstances surrounding the students. Goddard (1998) offered his own definition of collective efficacy as the average teachers’ beliefs in the faculty’s ability and the ability it possesses to
positively affect the academic achievement in students. Goddard (1998) posited that teacher perceptions influence the school climate and culture that contributes to the different effect schools have on the academic success of students.

There are many challenges faced by newcomer programs that need the attention of school districts and administrators. Among the challenges noted during interviews were the following:

1. Acceptance of students during the year. Many school districts face challenges in admitting students at different times of the year. The programs expressed concern that program planning is difficult because students come to the district throughout the year. If the district has not appropriated sufficient resources and faculty, some students that may qualify for the program are unable to be admitted. Thus, they do not get much needed instructional support.

2. Funding for the newcomer programs. School districts have difficulty in deciding how to fund the newcomer programs. Some of the programs are using state funds, while others use a combination of state and federal funds. This issue is also related to the acceptance of students during the year and the accessibility of the services provided in the newcomer programs.

3. Low enrollment, especially in the rural areas. While newcomer programs are beneficial to new arrivals, in many of the rural areas the low enrollment numbers do not financially justify a newcomer program at a time when school district budgets are stretched. There is a struggle to meet the enrollment needs of the newcomer programs, especially when students come and go throughout the year.

4. When to transition the students into the regular curriculum. School districts struggle with definite guidelines as to when to transfer students from in the newcomer program to the regular curriculum. In Texas, we have the Texas English Language Profi-
ciency Assessment System to delineate the language proficiency of ELL. However, provisions have to be made for students who have other challenges to overcome before they are transitioned to the all-English mainstream curriculum.

5. Professional development of teachers in newcomer programs. Newcomer program teachers need to continue to participate in professional development to be made aware of the needs of newcomer students. Teachers in the programs should be conscious of the emotional and sociological needs of ELLs coming into American schools in middle and high school because the students will be going through many outside challenges in addition to the academic ones faced in school. Students interviewed during the gathering of the data mentioned regularly that the teacher in the newcomer program was the mediator that contributed to their success and perseverance in their studies. Investment in professional development in research-based models for instructional delivery varies according to resources available within given districts. Districts selected comprehensive models of instruction for preparing teachers to work with ELLs that best aligned with district academic guidelines. Professional development focused on scaffolding teachers’ understanding of how to maintain high academic rigor while promoting ELL language development.

6. Decision to continue or discontinue newcomer programs is also a challenge. Program assessment is a must for the newcomer programs. The decisions about the continuance of a program are dependent on data that shows that the programs can be financially supported and justified according to state or district funding guidelines and that student language growth is being fostered. Collection of data to document effectiveness of the newcomer program is crucial. Newcomer programs need to set up criteria to examine program effectiveness. Short & Bolson (2012) suggest data collection to determine effectiveness and distinguish between the different kinds of students entering the program. It is impor-
tant to establish students’ initial language literacy scores, their number of years in American schools, and their number of years of schooling outside the United States so that adequate comparisons can be made to determine success.

7. Course credit equivalents are a challenge to decipher in many circumstances. The growth in variation of incoming immigrants poses challenges in determining whether students should be given equivalent credit toward state graduation requirements.

8. State and federal accountability measures are difficult to apply to the newcomer programs. Students are so new to the country and they are being evaluated by the same tests as the regular students. School districts need to work with legislators and state education department personnel to resolve issues related to how newcomers are accommodated in the accountability measures.

9. The availability of special education services to newcomer program participants needs to be considered so that students can avail themselves of services if needed. Careful assessments need to be made to determine the skills that are needed for successful completion of educational requirements. If there are other educational issues in addition to the learning of English, school districts need to assess the students’ needs and set up processes and procedures to address them.

10. Connecting students and families with health care services expands the scope of newcomer programs. Because students often need immediate health care needs, this aspect is very important.

11. Postsecondary options also need to be considered when working in newcomer programs. Are students who enter the programs late encouraged to seek out a GED, or continue in high school to earn a diploma? Good counseling and advisement services need to be provided to ensure that the student is provided the best options.
Newcomer programs face new challenges every day and every school year. Administrators, faculty, students, and parents need to work together to solve some of the issues challenging our new arrival students in order that these students have accessibility to the education they need. Newcomer programs are an option and an opportunity for school districts to consider so that secondary students who enter the United States have accessibility to a smooth transition to the American school system. The demographics continue to show that the immigrant populations continue to grow and change. The challenges will not go away without being addressed through careful and thoughtful planning and gathering of data to solve the issues and make informed educational decisions to foster ELLs’ academic literacy.
References


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An option for accessibility for English language learners: Newcomer programs

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Factors influencing the decision of Mexican-American students to pursue college education

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Kamiar Kouzakanani

Abstract
The study examined factors that might influence the desire and likelihood of Mexican-American 11th grade students to pursue college education. The study employed a mixed methods explanatory model. The non-probability sample consisted of 518 11th graders from five high schools in three independent school districts in South Texas. Analysis of the quantitative data showed that the best predictors of the desire to go to college were perceived competence, perceived function of higher education, and peer influence, which together accounted for 22.50% of the variation. Perceived competence, family influence, and peer influence were the best predictors of the likelihood of pursuing higher education and explained 16.70% of the variation. Perceived competence was by far the best predictor of the outcome measures. Analysis of the qualitative data resulted in three themes, namely, goals, motivations, and deterrents. The quantitative and qualitative results were synthesized and discussed.
Factors influencing the decision of Mexican-American students to pursue college education

The growth of Hispanics as an ethnic majority, accompanied by a decrease in higher education enrollment for Hispanic students, poses a foreseeable regional and national problem in relation to ensuring an educated population and workforce. A report released by the United States Census Bureau projected that between 2000 and 2100 the white population in the U. S. would decline from 72% to 40% and would continue to decline after 2100. On the other hand, the Hispanic population would increase from 12% to 32% and continue to rise. If this projection is true, the Hispanic population will exceed the black population as the first minority, and by as early as 2050, there may be no minority race or ethnic group (Kolankiewicz, 2000). Because Hispanics are the fastest growing minority and with the youngest sub-population, the future of the U.S. labor market depends on this group’s education and job skills (Arbona, 1995). Yet, as reported by Purcell (2000), although Hispanic representation increases annually, this group remains the most under-educated population in the United States. Of the total 35.3 million national Hispanic population (Nevarez, 2001), the Mexican-American population (63%) is the largest and fastest growing minority group (Tienda, 2001; U.S. Census, 2010; Fondon, 2005).

Issues and barriers faced by Mexican-American students in pursuing college education stem from realities of socioeconomic disparity, poor high school completion rates and drop-outs, and the accompanying question of adequate academic preparation.

Between 2009 and 2010 (U.S. Census, 2010), the Hispanic poverty rate changed from 25.3 percent to 26.6 percent; up from 2008, or “23.2% (11.0 million) Hispanics in poverty ... higher than the 21.5% (9.9 million) in 2007” (U.S. Census, 2008, p. 15); Mexican-American students who may be excited about going to college may find it difficult to attend their desired college as resources become limited, tuition costs increase, and parents with no college experience are unlikely to offer much assistance ... [they] do not know how to support and facilitate applying and paying for college (Zarate & Pachon, 2006).
According to Fry (2003), the high school dropout rate has been used to measure indicators of education outcomes. Hispanic students dropped out at disproportionately higher rates than their white counterparts. In 2009, 5.8% of Hispanics between ages 15 and 24 dropped out of grades 10–12, compared with 2.4 percent for white students. The dropout rate for low-income students was five times greater than for their high-income counterparts: 7.4% compared with 1.4% (Huff Post, 2012). Fry (2003) further indicated that the high school graduation rate is low for Hispanic students, yet students who do finish high school are still expected to succeed in college as part of becoming productive adults after high school (Fry, 2003). Lofstrom (2007) asserted that “family background, income and parental education are factors frequently found to affect children’s schooling outcomes; other determinants are neighborhood and peer effects, as well as school characteristics” (p. 2).

Mexican-American high school students, as an ethnic group, are prone to struggle and withdraw from high school due to academic challenges impeding their chances to pursue higher education. Hispanics, although with the greatest population increase, appear to be less likely than other minorities to attend or graduate from college (Carter & Wilson, 1993; Casas & Vasquez; 1996; Gil & Cintron, 1999). Further compounding the issue for greater Hispanic college enrollment is a decline in educational completion rates within this population. For example, comparison of high school completion rates between Hispanic and white students shows a particularly concerning outcome; that is, the rate of completion for Hispanic high school students is 44% and for white students, 89% (Hess, 2000). Conversely, while the dropout rate for white students is 8% and 14% for African-Americans, it is 30% for those of Hispanic origin. College enrollment rates are similarly disparate; in 2008, about 70% of white, 62% of Hispanic, and 56% of black (African-American) high school graduates enrolled in college within 12 months of graduation (College Board, 2011). Approximately 47.3% of white high school graduates ages 18 to 24 attend college, vs. 41.1% of black and 35.2% of Hispanic high school graduates (USA Today, 2011).
It is evident that the status of education among Hispanics is low; however, the educational status of Mexican-American students is disturbingly low. Compared to their dominant group peers, they lag far behind in student academic success (Alatorre & Padilla, 1995) and are least likely to have a high school diploma or higher education degree. Hispanic students are the demographic group most likely to drop out of high school and least likely to pursue college education (Marotta & Garcia, 2003). Hispanic students attending public schools are segregated in inner cities and often have fewer resources, fewer support services, and poorer quality of instruction (Serafin, 1998). The difficulty of educating Mexican-American students may be largely attributed to limited resources in school, such as funds for books or hiring the best teachers. Many schools are ill-equipped to understand, much less address, the needs of a population whose culture is heterogeneous (Martinez, DeGarmo & Eddy, 2004). A solid and rigorous foundation of college preparatory courses, notably in English and mathematics, would greatly enhance students’ success in college and help assure that Mexican-American students pursue higher education. The reality is that most of these students are channeled into courses that satisfy graduation requirements, but do not support thinking and the critical analytical skill development required for effective learning (Flores, 1994), thereby limiting the students’ chances of succeeding in four-year colleges or rigorous technical schools.

**Statement of the problem**

The high school graduation rate for Mexican-American students is low, as is the college participation rate when compared with white students. Significantly, the data are under-representative of the demographic realities for Mexican-Americans as a minority group. And, while those Mexican-American students who are motivated to enroll in college and become successful college graduates are likely to go on to complete a college degree, the number of Mexican-American high school students earning a diploma is under-represented, creating a significant demographic gap between expectation and fulfillment. Reasons why
Mexican-American high school students lag and fail to pursue higher education have historically been unclear.

**Purpose**

The primary purpose of the study was to identify the factors that explain Mexican-American 11th grade students’ decisions to attend college. The secondary purpose of the study was to document the perspectives of a sample of such students in pursuing college education.

**Theoretical framework**

The study was guided by Glasser’s Choice Theory (1998), a theoretically based approach to study choice and decision-making. Developed by psychiatrist, William Glasser, Choice Theory posits that the reason an individual makes a decision is because he or she chooses to do so irrespective of any external factors encountered in life. The concept includes the phenomenon of making a choice, or decision, either to do or not to do something. In the study, Choice Theory supported the conscious awareness of both motivational factors and barriers perceived by Mexican-American students in relation to making the decision to enroll in college—the desire to enroll—and to project likely outcomes in terms of the likelihood of success in their pursuit of a college education. In this sense, Choice Theory suggests internal factors, i.e., students’ own perceptions about the benefits of a college education, their preparation to succeed in it, and their own motivation and desire to attain that goal—a college education. In other words, students choose to attend college, and unrelated external factors of family, peers, school support, socioeconomic status, and/or lack of financial resources, have no influence.

Choice Theory posits that everything we do manifests itself in behavior, known as Total Behavior, that almost all behavior is deliberatively chosen, and that we are driven genetically to satisfy five basic needs of survival, namely, love, belonging, power, freedom, and fun. In practice, the most important needs are love and belonging, as closeness and connectedness with the people we care about is a requisite for satisfying all of the other needs (Glasser, 1998). Control over our
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own feelings and physiology, however, is primarily indirect. The only area over which we have direct control is the acting and thinking components of our behavior; in other words, we have control over the ways in which we choose to think and act. In Glasser’s terms, “[w]e almost always have choices, and the better the choice, the more we will be in control of our lives” (Glasser, 1998).

The study focused on identifying factors experienced by 11th grade Mexican-American high school students in terms of their choice whether to enroll in college and then to actively pursue a college education. The study considered the distinction, within the framework of the Choice Theory, between expectation and fulfillment, between desire (as intent) and likelihood of success (as outcome), and the potential limitations in choice resulting from different sets of expectations by 11th grade students as determined by internal factors.

Method

Design
The study employed a correlational design (Meltzoff, 1998) to identify factors that may influence Mexican-American 11th grade students’ decisions to attend college. The study’s predictor variables were (1) influence of family, (2) influence of peers, (3) perceptions of the functions of higher education, (4) perceived opportunities for success in college, (5) perceived competence in college, (6) perceived locus of control, (7) encouragement from secondary school personnel, (8) importance of financial aids, and (9) general preparation for college. There were two outcome measures: (1) the desire to go to college, and (2) the likelihood to go to college. Due to non-probability nature of the sampling, the external validity was limited to study participants. Due to non-experimental nature of the study, no causal inferences were drawn.

Subject selection
The study was conducted at five high schools (three urban, one suburban, one rural) in three independent school districts in South Texas. For the quantitative component of the study, all 11th grade students who
identified themselves as either Mexican-American or of Mexican origin were included in the study (n = 518). For the qualitative component of the study, a non-probability sample of 11th grade students was recruited to participate in the focus group (n = 5).

Instrumentation
For the quantitative component of the study, the Factors Influencing Pursuit of Higher Education (FIPHE) questionnaire (Harris, 1998) was used to measure the nine predictor variables. The instrument was selected because it provided factors influencing the pursuit of higher education among 11th grade high school students in the study, and which might help in the recruitment of high school students to pursue college (Coy-Ogan, 2009). The FIPHE is a 92-item, literature-based instrument; its psychometric properties are documented (Harris, 1998). To measure the dependent variables, respondents were asked to indicate their desire to go to college and the likelihood of going to college on an arbitrary continuum ranging from zero (none) to 100 (a lot). For the qualitative component of the study, a focus group was conducted.

Data Collection
Quantitative and qualitative data were collected. A two-step mixed methods data collection procedure was employed. Specifically, Explanatory Design: Follow-up Explanation Model was followed (Creswell & Clark, 2011). According to the model, the emphasis is on collecting and analyzing quantitative data, followed by the collection and analysis of qualitative data to better understand and explain the quantitative results.

Results
Quantitative
A typical Mexican-American student in the study, either female or male, was a 17-year-old 11th grader on free/reduced lunch. His/her parents had less than 11 years of formal education and were not college
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graduates. The majority of his/her siblings had not attended college.

The desire and likelihood of attending college were the outcome measures. A zero to 100 scale was used for the purpose of measurement. Both measures were high, indicating that the students not only had a high desire to pursue college education upon high school graduation (\( M = 88.71, SD = 19.62 \)), but also felt that they would be able to accomplish it (\( M = 81.75, SD = 22.98 \)). The desire to pursue college education was significantly higher than the likelihood, \( t(490) = 8.46, p < .01 \).

The 92-item FIPHE questionnaire was used to measure the predictor variables. There were 83 attitudinal items, using a four-point Likert-type scaling (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree). There were 17 negatively stated items which had to be reverse-coded. There were nine true/false items which were coded as either true = 1 or false = 0. The sum of the respondents’ responses to the items defining each factor was used to measure the construct in which higher scores suggested higher availability of the factor. As can be seen in Table 1, with the exception of preparation for college, the average

<table>
<thead>
<tr>
<th>Factor</th>
<th># of items</th>
<th>Theoretical range</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Family influence</td>
<td>29</td>
<td>29–116</td>
<td>82.81</td>
<td>16.41</td>
</tr>
<tr>
<td>Peer influence</td>
<td>6</td>
<td>6–24</td>
<td>18.59</td>
<td>3.53</td>
</tr>
<tr>
<td>Higher education function</td>
<td>9</td>
<td>9–36</td>
<td>31.37</td>
<td>5.03</td>
</tr>
<tr>
<td>Opportunities for success</td>
<td>5</td>
<td>5–20</td>
<td>15.39</td>
<td>3.16</td>
</tr>
<tr>
<td>Perceived competence</td>
<td>8</td>
<td>8–32</td>
<td>27.63</td>
<td>4.42</td>
</tr>
<tr>
<td>Locus of control</td>
<td>10</td>
<td>10–40</td>
<td>34.36</td>
<td>5.36</td>
</tr>
<tr>
<td>Encouragement</td>
<td>13</td>
<td>10–43</td>
<td>33.34</td>
<td>6.51</td>
</tr>
<tr>
<td>Financial aid</td>
<td>7</td>
<td>4–19</td>
<td>18.10</td>
<td>3.37</td>
</tr>
<tr>
<td>Preparation for college</td>
<td>6</td>
<td>0–6</td>
<td>1.52</td>
<td>1.62</td>
</tr>
</tbody>
</table>
scores were toward the upper end of the theoretical ranges, which showed that the respondents were in agreement with the influence of the factors in pursuing higher education.

Two hierarchical multiple regression (HMR) analyses were performed to test the unique and overall contributions of the nine predictor variables in explaining the variation in the desire and likelihood to go to college. Bivariate correlations between each of the predictor variables and the outcome measures were computed and ranked from the highest to the lowest. The predictor variables were entered into the regression equations, one at a time, on the basis of the rankings.

The predictors accounted for 23% of the variations in the desire to pursue college education upon high school graduation. The best predictors of the desire to go to college were perceived competence, perceived function of higher education, and peer influence, which together accounted for 22.30% of the variation \( (p < 0.01) \). The other six predictor variables accounted for 0.70% of the variation which was not

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Uniqueness</th>
<th>( p )</th>
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</thead>
<tbody>
<tr>
<td>Perceived competence</td>
<td>18.40%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Perceived function of higher education</td>
<td>2.80%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Locus of control</td>
<td>0.20%</td>
<td>0.28</td>
</tr>
<tr>
<td>Peer influence</td>
<td>1.10%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Encouragement from secondary school personnel</td>
<td>0.40%</td>
<td>0.10</td>
</tr>
<tr>
<td>Family influence</td>
<td>0.00%</td>
<td>0.66</td>
</tr>
<tr>
<td>Opportunity for success</td>
<td>0.00%</td>
<td>0.92</td>
</tr>
<tr>
<td>Financial aid</td>
<td>0.10%</td>
<td>0.37</td>
</tr>
<tr>
<td>General preparation for college</td>
<td>0.00%</td>
<td>0.74</td>
</tr>
</tbody>
</table>
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statistically significant. Results are summarized in Table 2.

The predictors accounted for 18% of the variations in the likelihood of pursuing college education upon high school graduation. Perceived competence, family influence, and peer influence were the best predictors of the likelihood of pursuing higher education and explained 15.90% of the variation \( (p < 0.01) \). The other six predictor variables accounted for 2.1% of the variation which was not statistically significant. Results are summarized in Table 3.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Uniqueness</th>
<th>( p )</th>
</tr>
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<tbody>
<tr>
<td>Perceived competence</td>
<td>12.70%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Locus of control</td>
<td>0.80%</td>
<td>0.03</td>
</tr>
<tr>
<td>Peer influence</td>
<td>1.70%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Perceived function of higher education</td>
<td>0.30%</td>
<td>0.17</td>
</tr>
<tr>
<td>Family influence</td>
<td>1.50%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Encouragement from secondary school personnel</td>
<td>0.20%</td>
<td>0.30</td>
</tr>
<tr>
<td>Opportunity for success</td>
<td>0.30%</td>
<td>0.16</td>
</tr>
<tr>
<td>Financial aid</td>
<td>0.50%</td>
<td>0.08</td>
</tr>
<tr>
<td>General Preparation for college</td>
<td>0.00%</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Qualitative

The five students in the focus group were Mexican-American—three males and two females, 17 years of age. The focus group discussion was audio-taped and transcribed. The coding process involved reading the transcription, identifying text segments, assigning a code word or phrase to describe the meaning of the text segment, making a list and grouping the code words, reviewing the transcription, and reducing the codes to themes to form the major ideas of the transcription, a process
Three themes emerged: goals, motivation, and deterrents. For the first theme, goals, students discussed their career objectives and all were very confident on the college career objective they would pursue. They provided rationale on their chosen careers, how long they thought it would take them to complete their education, and why it was important to have a college degree. For three students, the reason for pursuing a specific major was based on family role models. All three students were enthusiastic about their desire to pursue college, expressing that members of their family were either going to college and/or had graduated from college. One student indicated she wished to go to college because she would be the first in her family to do so: “Nobody in my family ever gone as far as I have school wise,” she said, adding that she wanted to show her younger brother “that he, like, could do it; that if you want to do it, you can do it. It’s better, a better future for yourself.” Another student with two younger brothers and two younger sisters believed that she could “persuade them to, you know, go above the goal they’re setting for themselves” and to “encourage them to do—more [than] what they think they can do.”

All five students were very enthusiastic about their desire and likelihood to enroll in college. However, when asked the length of time it would take them to complete a college education or the resources required, participants were not really sure of the time investment required to successfully complete their college education or the resource requirements necessary. Most indicated it would take them about four years to graduate from college.

The second theme was the students’ motivation to pursue college education. Students articulated the reasons they felt a college education was important to them. They also discussed the reasons why a college education would be beneficial not only to them, but as an example for other family members, particularly younger siblings. Motivating factors were both internally and externally driven, with money/salary and inherent expectation of family, both important aspects to the students: “I hear it [the field of graphic design] pays a lot;” “having better money and having a better future;” “my aunts and uncles ... have gone to
Factors influencing the decision of Mexican-American students to pursue college education

college and they’ve persuaded me to do it to set a good example for my sisters and brothers.” Parents and siblings were strong influential forces for the students in deciding to pursue college education; students who had family in college were very sure and determined about pursuing college.

The third theme was deterrents to pursuing a college education, with students identifying the barriers they anticipated and also ways in which they perceived such barriers could be overcome. Although the students were able to clearly state specific preparation they were undertaking for pursuit of a college education, they also identified several internally driven, intangible deterrents, including a lack of self-confidence, being lazy, not knowing what to expect in college, the fear of not being able to make the grades in college, and poor choices, decisions, and/or individual attitude. A lack of financial resources, notably, an external and tangible deterrent, was mentioned by only one student. The majority of the students indicated an awareness, even if only inherent, that deterrents were internally driven, articulated with particular eloquence by one student who said what might prevent her from going to college: “is where my life is at that point ... like, ‘cause since I have two parents that are really ill, like, depending if I could get away and have enough time to do it, then for sure I’m going to do it right there and then. But, I won’t ever not go to college. It will just be a longer wait for me to continue or to at least enroll.”

Discussion

In reviewing the literature and focusing on the study’s theoretical framework, it was noted that the participants had the intuitive ability to make their own choices. Their desire to attend college was based on internal factors, which Harris (1998) termed attribution theory; that is, how people interpret the causes of their success and failures or the mechanism by which individuals assign causes based on their own success or failure. An objective of the study was to determine whether the decision to pursue college education is related to internal factors (the student’s own choice to pursue a college education) supporting choice theory. However, from the quantitative and qualitative data collected,
the researcher concluded that both internal and external factors influence the decision to pursue higher education for the 11th grade Mexican-American students participating in the study.

According to Willig, Harnisch, Hill, and Maher (1983), Hispanics are more external in their locus of control, but Glasser’s choice theory (1998) posited that an individual makes choices through a conscious choice or decision to do something (e.g., to have a choice to enroll in college). choice theory supports the notion that people have the ability to make conscious decisions and in turn tend to have more “control over our lives than we realize” (p. 4). The study participants’ measure of perceived competence (i.e., perceived ability to pursue higher education) was useful in predicting the desire and likelihood of going to college, which was also supported by the focus group results. The study’s quantitative and qualitative results, as well as the review of the literature, suggest that not only internal factors (e.g., perceptions about the benefits of a college education, preparation to succeed in college, barriers in attaining the goal), but also external factors (e.g., family, peers, school support, socioeconomic status, academic preparation) contribute to a Mexican-American 11th grade student’s decision to pursue college education.

**Implications**

The first implication from the study is that the Mexican-American students’ decisions and motivations to pursue higher education were influenced by internal and external motivating factors. For example, their perceived competence in choosing and completing a college major, as well as their perception of the functions of higher education, are internally motivating factors, while family and peers may act as external motivating factors influencing the decision to go to college. Therefore, high school counselors and college recruiters need to pay attention to external factors that influence a Mexican-American student’s choice toward pursuing and completing college education.

The second implication from the findings is that the role of secondary school personnel was not a statistically significant predictor of either the desire or likelihood of pursuing college in the study.
Nevertheless, the role they play cannot be overlooked. They have to take a strong and active role to influence, encourage, and support high school students’ pursuit of higher education. It would be prudent for high school and college staff to collaboratively plan and develop an in-depth and comprehensive series of college information sessions with 11th grade students on the admissions process, financial aid, time commitment, available resources, and career exploration. The same attention is required in providing parents with relevant information so that they can become better informed about the college culture. The operative words are in-depth and series of sessions. Zarate and Pachon (2006) noted that although most parents would like for their children to pursue higher education, most have limited understanding of the college culture. Although “Latino parents want their children to attend college”…[and] “had high educational expectations” for their children, few knew “how the higher education system works nor the steps needed to prepare their children” nor “how to support, facilitate and thus ensure that their children would be prepared to apply and be admitted to college” (p. 2).

The third implication from the analysis of the data showed that financial resources were not a statistically significant predictor of either the desire or the likelihood for students to pursue enrollment in higher education. Two of the five focus group participants indicated financial problems could adversely influence their decision to pursue college education. Nearly 80% of the Mexican-American students in the study participated in the free/reduced lunch program at their school, suggesting that being able to pay for college tuition might be an important consideration in going to college. The review of the literature suggested that although Mexican-American students, who represent the largest Hispanic ethnic group, are in need of financial assistance, they receive the least amount (USA Funds Report, 2005; Santiago & Cunningham, 2005). Zarate and Pachon (2006) stated that Mexican-American students who may be excited about going to college may also find that they do not know the cost of college education or the type of financial aid available, and may be “prematurely discouraged from attending college or attending the college of their choice” (p. 2).
Financial aid/resources are a critical issue to be addressed by secondary school staff in collaboration with college recruiters. Santiago and Cunningham (2005), in their report, How Latino Students Pay for College, recommended the need for secondary schools to provide in-depth information through intensive hands-on workshops: “An elective course that details the plethora of types and sources of aid, as well as the combinations available to pay for college, could be offered to high school students as it would almost seem that a single workshop would not be sufficient to learn to navigate the aid options and college choices available” (p. 25).

The fourth implication is that traditional college choice models must be approached from the standpoint that greater support is needed for Mexican-American students. The students who participated in the study seemed to have a keen understanding of what they wanted to accomplish in terms of college education and career goals but were uncertain about the resources and efforts needed to reach the goals. Perna (2006) questioned whether these models actually determine how individuals decide to pursue college education. The best predictor variable, perceived competence, may support the notion that a Mexican-American student can clearly determine his/her college major and future professional goal but is uncertain about making both goals realities. Traditional college choice models and how they influence Mexican-American students’ decisions to pursue college education need further exploration. The literature suggests that parents with low socioeconomic status and low formal education are not very knowledgeable about higher education. Because family and peer influences were useful predictors of the outcomes, this suggests the need to educate parents and peers on college life, culture, and environment so that they may serve as knowledgeable resources.

The fifth implication from the synthesis of quantitative and qualitative results showed that the desire to pursue college education was high. The participants were able to identify college major and professional goals, the benefits of college education, their confidence level, and the perceived obstacles that could prevent them from pursuing a college degree. Students were able to articulate that a college
education would help them become proficient in an area of study and would enable them to have a good job and sufficient income. Students were clear on goal setting and stating their motivation, by either being the first in the family to attend college or to pursue higher education because of other family members attending college. Even though the likelihood of attending college was high, and the focus group students were very confident that they would go to college, they were unsure about the tangible realities and commitments necessary to achieve the goals. Thus, high school counselors must discuss such topics as they provide the students with the information needed to make sound decisions.

In summary, the study’s findings support that both internal and external factors are influential in Mexican-American students’ decision to pursue higher education. The study’s subjects were motivated by external factors (money/salary, family and peer support, and encouragement (relatives, role models, attending college), and internal factors (perceived competence and confidence, recognition of self-achievement and individual success). Higher education professionals are encouraged to consider any factor which may encourage and support Mexican-American students’ choices and decisions to pursue college education.
References


Factors influencing the decision of Mexican-American students to pursue college education


Factors influencing the decision of Mexican-American students to pursue college education


Preparation
Making learning real in a reading acquisition and development course for pre-service teachers

Deborah Davis

Abstract
This quasi-experimental study uses a pretest/posttest method to identify areas of change in student vocabulary and procedural knowledge and perception of self as a teacher during the course, Reading Acquisition and Development. Because this course is set up as a blended course using online modules, in-class hands-on experiences, and off-site tutoring, a look into its effectiveness was warranted. The expectation is that organization of the course, theory, and basic information provided through modules, practiced through hands-on experiences in class, and reinforced by real-world use in the field, provides an emotionally-charged environment that allows for changes in the knowledge and perception of the pre-service teacher.
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To learn how to do, we need something real to focus on — not a task assigned by someone else, but something we want to create, something we want to understand. Not an empty exercise but a meaningful, self-chosen undertaking (Pickert, as cited in Goodreads, 2013).

Most teachers, regardless of the level they teach, find themselves face-to-face with the issue of how to make learning real, engaging, and relevant. As I looked, for the first time, at the material to be covered in the Reading Acquisition and Development course, I was overwhelmed by the volume of information and by irrelevant methods available to me to teach the information. That first semester, I struggled with making students read all of the material on the components of reading instruction, memorize the relevant vocabulary, and practice reading assessment and teaching strategies on one another. To say it was an utter failure is an understatement. I finished the semester quite certain that I was going to have to get out of the box, the university classroom, and find a “real” way of teaching this information. Not only did my students need to learn the basic theory and practices of reading instruction, they needed to develop personal theories that would guide them to excellence, and they needed the opportunity to develop pedagogical strategies.

Armed with the desire to create a meaningful learning experience based on the needs of my students, brain-friendly concepts (Jensen, 2008), best practices, and backward design (Wiggins & McTighe, 2005), I proceeded to search out the best learning environment for my students. Knowing “lecture, memorization of notes, and reading of textbooks make up over 75% of the pre-teaching training” (Crowder, 2013, p. 192), I wanted to do something vastly different. As a result of this desire, I created a course that occurred in three distinct yet interconnected approaches: online, hands-on in class, and off-site tutoring sessions.
Literature review

While there are many beacons of excellence, unfortunately some of our existing teacher preparation programs are not up to the job... And too few teacher preparation programs offer the type of rigorous, clinical experience that prepares future teachers for the realities of today's diverse classrooms (Duncan, 2011, para. 3).

The focus on education that has increased over the past decade has certainly included teacher preparation programs (Darling-Hammond, 1997). Several areas have been scrutinized within this focus: teacher knowledge, teacher ability, and teaching experience. In the area of literacy instruction, many teachers have a significant deficit in teaching major concepts in the reading process (Mather, Bos, & Babur, 2001). Because the effect of teacher education on teachers’ instruction, especially when teaching reading and writing, is under constant scrutiny by teacher educators, teacher education researchers, accrediting agencies, policy makers, and others (Clark, Jones, Reutzel, and Andreason, 2013), an effort to ensure a thorough understanding of the reading process is non-negotiable. In order for pre-service teachers to be effective, their instruction must be knowledge-based, strategic, internally motivated, and culturally responsive (Guthrie, Wingfield, & Perencivich, 2004). This type of instruction is gained through the development of personal theories and experience. It is clear that hands-on experience is the key in the learning process for pre-service teachers; therefore, teacher education programs are being recreated to include more opportunities for pre-service teachers to engage in learning within the elementary school context (Darling-Hammond & Rothman, 2011).

Development of the course online

A key point reported by the Education Policy Center at Michigan State University (2011), that “early childhood pre-service teacher candidates report little to moderate emphasis on the essential components of reading during their preparation coursework” (p. 1), left me feeling a bit concerned. After spending a full semester on
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the essential components of reading instruction and knowing that my students left the class with less than a working understanding, I turned to the International Reading Association (IRA) to verify its focus for literacy training. The IRA (2003) reported in its findings on effective teacher preparation programs that teacher educators in effective programs engage their students in developing a comprehensive understanding of phonemic awareness, phonics, fluency, vocabulary and comprehension. I was left with the dilemma of how to provide the necessary information. Knowing that many of the students would come to me with little or no knowledge of the major concepts, I needed to provide a learning opportunity that could be revisited as often as needed. The online portion of the class became the venue in which students would be provided an array of articles, web pages, lectures, and videos on the major concepts: reading acquisition, reading framework, differentiation, student development and learning, phonemic awareness, phonics, fluency, vocabulary development, assessment, and strategies for family literacy development. This provided not only a venue for initial learning of the concepts, but also a repository that could be revisited for clarification.

hands-on experience

One way to deepen student understanding of abstract or difficult concepts is by creating a learning environment in which the learning is reinforced through hands-on experience (Crowder, 2013). Hands-on activities allow personalization of the information; a variety of experiences encourage the use of multiple senses, and they create novel, interesting, and oftentimes emotion-laden experiences (Jensen, 2008; Wolfe, 2001; Willis, 2006). To accomplish this environment of engaged learning, on-site class time was used to discuss strategies and concepts, debate theories and understandings, and create resources that would be used in the tutoring sessions. Students were required to bring notes from their online study to participate in the discussion. Although many were initially frustrated by the requirement to provide the notes to participate in discussion, they developed an appreciation for truly informed discussion. Cooperative learning strategies (Kagan, 1994)
were employed to facilitate the discussion and to deepen participation. The final portion of each class period was used to practice assessment techniques, guided reading or read-aloud techniques, or create folder activities for the tutoring session. The use of the learned information made the difference in the student understanding. During the hands-on portion of the class, the whole brain is actively engaged. “With the active engagement of the brain comes understanding of new concepts, transfer of knowledge from one task to another, the ability to alter the knowledge to fit many scenarios, and the ability to remember” (Crowder, 2013, pp. 192–193).

**Tutoring**

The tutoring session was the most enjoyed and most meaningful portion of the course. It required a collaborative relationship between the university and the elementary school in which a six-week tutoring experience was developed. Each semester, the two 2nd grade teachers and I match our students together. Generally, each college pre-service teacher is matched with one or two elementary students. They are together the entire six weeks. During this time, the college students meet the 90-minute Wednesday class period at the elementary school. During the first meeting, the tutor is to spend time getting to know the student, conduct interest inventories, lead the student in a Language Experience Activity, and conduct one read-aloud. During the second meeting, the tutor conducts several running records on the student’s reading and finishes the Language Experience Activity. If time permits, another read-aloud is conducted. The last four meetings consist of lessons based on the following breakdown: 30 minutes of oral reading and fluency, 30 minutes of word knowledge and comprehension, and thirty minutes of 6+1 writing traits.

The pre-service teachers are responsible for using the inventories and running record as the basis of the rationales for each strategy used. They must also be responsible for submitting a plan for instruction early enough for it to be redone if it is not acceptable. Finally, they provide a recount of what happened during the session and a personal reflection after each meeting. Although the opportunity to practice teaching in
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a learner-centered environment in which the professor and classroom teachers often model, encourage, or correct is valuable, the emotional connections that occur take the learning to a higher level. According to Crowder (2013), “It is the emotional connections that created the ability to quickly activate and transfer information from prior learning to action” (p. 193).

**Research design**

This quasi-experimental study uses a pretest posttest method to determine changes in the knowledge of the pre-service teacher. The specific questions are: Did the pre-service teachers gain significant knowledge in the vocabulary-related literacy instruction? Did the pre-service teachers demonstrate a change in their demonstration of procedures related to teaching? Did the pre-service teachers demonstrate a change in their perceptions regarding themselves as teachers?

**Data collection**

This study employed a pretest and posttest design. The pretest was administered on the first day of class and the posttest was administered as a part of the final exam.

The first section of the test consists of matching 31 literacy terms to their definitions. The second portion of the test consists of four open-ended questions. One of those questions is designed to determine what the student learned about the teaching process: “Tell what you know about the steps to teaching a skill. Begin with how you know what to teach.” Three of the questions were designed to determine how the preserve teacher sees him/herself as a teacher: “Why do you want to be a teacher? What are the things connected to education that you do well? What are the things connected to education that you need to improve on?”

**Participant selection**

Participants were students enrolled in the course Reading Acquisition and Development. These students are seeking certification in either Early Childhood through 6th Grade, All-Level Special Education, or 4th
through 8th Grade Certification. These students must earn a B or better to progress to the next course in the sequence. There is a high level of motivation to be successful in this class. The students were given the opportunity to participate in the study. Because the pretest and posttest were not optional, submitting to the study did not change the workload. The class was divided into two meeting times: this was done to enable students with conflicting schedules the opportunity to attend the class. Eight students attended the evening class; one did not take the pretest, one was unable to finish the class, and one opted out of the study. Fourteen students attended the day class; all participated fully in the study.

**Procedure**

The first of the essay questions, “Tell what you know about the steps to teaching a skill. Begin with how you know what to teach,” embodied the concept of determining student proficiency in knowing procedural steps for instruction. This is a concept that is explicitly taught and reinforced through assignments and the tutoring process. The pretest answers comprised several categories: Teaching Skill, Teacher Preparation, Assessment and Interpersonal Skills. Two of the 19 answers were coded as interpersonal skills: “Be approachable” and “Start with a complement.” Three were coded as teaching skill because they included statements such as: “The teacher must create a good plan,” “Understanding learning styles of the students,” and “Clearly introduce the topic.” Five recorded answers pointed to teacher preparation as the starting place: “Review the material,” “Research the topic,” and “Refer to the Texas Essential Knowledge and Skills (TEKS).” Three of the students stated, “refer to the TEKS.” Assessment, the final category, had eight responses: “Find out what the students know,” “Find out where the students are,” “Determine student level,” and “Assess the student knowledge.” One student answered, “I don’t know.” Of the 19 participants, only six significantly changed their answers from the pretest to the posttest (Table 1). These changes could be a result of the structure of the class. The course emphasized pre-assessment of students to build on knowledge and basis of skill selection on the
TEKS. Regarding the question concerning a change in understanding of teaching procedures, six of the 19 students changed how they thought about the process of teaching. Of the 13 whose answers did not change, seven of the answers fell into the range of how the procedure was taught in class. By the posttest, 14 of the 19 students had answers aligned with the classroom instruction. The concepts of beginning where your students are and basing skill selection on the TEKS were explicitly taught through online modules on assessment and lesson planning, they were discussed in class, the pattern for the tutoring sessions was based on assessment first, and each lesson plan had to reflect the assessment and TEKS rational for the lesson.
Perception

The second of the essay questions asked, ‘Why do you want to be a teacher?’ Eight distinct categories emerged: “Improve Student Learning,” “Be a Role Model,” “Passion for Students,” “Make a Personal Difference in a Child’s Life,” “Teaching is Important,” “Children Fascinate Me,” “I like teaching,” and “I Have Always Wanted to Teach.” Of the nineteen students, three had answers that fell under the category of “Improve Student Learning”: “I want to help students improve their education skills,” “I want to instill knowledge and learning,” and “I want to help children learn.” Four categories had only one answer: “Teaching is Important,” “Children Fascinate Me,” “I like teaching,” and “Passion for Students.” Three students have always wanted to be teachers. Two students answered that they want to be role models. One based his answer on his prior military service experience, and the other, on a desire to “show people how to be happy.” The majority of the answers—seven—were categorized “Make a Difference.” These were categorized based on wanting to make either a personal or emotional difference in the lives of children: “Enhance children’s lives,” “Touch lives,” “Help students live Better,” and “Give a positive experience.” Of the 19 students, 12 significantly altered their responses from the pretest to the posttest (Table 2). In the posttest three new categories emerged: “Change Education,” “It is Who I Am,” and “Change Society.” The categories “Teaching is Important,” “Children Fascinate Me,” “I like teaching,” and “Passion for Students” from the pretest did not appear in the posttest categories.

Although causality cannot be assumed, it important to note that this class is taught by a professor who personally teaches as a means to impact society through individually connecting with and impacting her students. This may account for the change in some of the students.

The last two questions focus on what the students perceive as their strengths and weaknesses. Four categories emerged from the answers to the question, “What are things connected to education that you do well?”: “Interpersonal Skills,” “Personal Learning,” “Organization Skills,” and “Teaching Skills.” The interpersonal skills that students
Table 2
Summary of changes in reasons to teach

<table>
<thead>
<tr>
<th>Student #</th>
<th>Pretest</th>
<th>Quotes from the answers</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2</td>
<td>Role model</td>
<td>“I want to inspire because of personal accomplishment military” “I want to lead them to success”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D3</td>
<td>Passion for kids</td>
<td>“Passion for kids” “I want to advocate for children with special needs”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D4</td>
<td>Make a difference</td>
<td>“I want to enhance children’s lives.” “I want to change the education system”</td>
<td>Change education</td>
</tr>
<tr>
<td>D6</td>
<td>Children fascinate me</td>
<td>“Children fascinate me” “I want to make a difference in the lives of children”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D7</td>
<td>I like it</td>
<td>“I would enjoy it” “I want children to enjoy school”</td>
<td>Student education</td>
</tr>
<tr>
<td>D10</td>
<td>Student education</td>
<td>“Instill knowledge and learning” “I want to make a difference”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D12</td>
<td>Make a difference</td>
<td>“I want to help students” “I want to change society”</td>
<td>Change society</td>
</tr>
<tr>
<td>D14</td>
<td>Always wanted to</td>
<td>“I’ve always wanted to teach” “I want to shape and influence society”</td>
<td>Change society</td>
</tr>
<tr>
<td>D16</td>
<td>Always wanted to</td>
<td>“I’ve always wanted to teach” “I want to show children they have someone who cares”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D17</td>
<td>Always wanted to</td>
<td>“I’ve always wanted to teach art.” “It’s in my blood”</td>
<td>It’s who I am</td>
</tr>
<tr>
<td>D18</td>
<td>Student education</td>
<td>“I want to help children learn” “I want to change children’s lives”</td>
<td>Make a difference</td>
</tr>
<tr>
<td>D19</td>
<td>Make a difference</td>
<td>“I want to share my positive experience. “I’m afraid for America’s future”</td>
<td>Change society</td>
</tr>
</tbody>
</table>

Making learning real in a reading acquisition and development course for pre-service teachers
believed were their education skills included the following statements: “Connect with children,” “Creatively work with children,” Good at being empathetic,” “Keep students calm,” and “Making children feel comfortable.” The three statements in the “Personal Learning” category reflected a feeling of competence in learning: “I’m serious about my education,” “I enjoy learning,” and “I’m great in math.” Of the three student answers in the “Organizational Skill” category, one specifically mentioned setting goals; the other two referred only to the ability to organize. The four statements in the category “Teaching Skills” point to actions seen in teachers: “I read aloud well,” “I can explain lessons well,” and “I can relate lessons creatively to students.” From the pretest to the posttest, nine of the 19 students significantly changed their

<table>
<thead>
<tr>
<th>Student #</th>
<th>Pretest</th>
<th>Quotes from the answers</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2</td>
<td>Organization</td>
<td>“I am organized and can set goals/analyze/reach them” “I can relate to people and feel confident”</td>
<td>Interpersonal</td>
</tr>
<tr>
<td>D3</td>
<td>Organization</td>
<td>“I am disciplined and organized” “I can clearly connect to the learning”</td>
<td>Teaching skill</td>
</tr>
<tr>
<td>D6</td>
<td>Interpersonal skill</td>
<td>“I can keep children calm” “I can create a fun lesson”</td>
<td>Teaching skill</td>
</tr>
<tr>
<td>D9</td>
<td>Teaching skill</td>
<td>“I am good at explaining “ “I have become organized”</td>
<td>Organization</td>
</tr>
<tr>
<td>D12</td>
<td>Interpersonal skill</td>
<td>“I patient” “I have learned to be organized”</td>
<td>Organized</td>
</tr>
<tr>
<td>D13</td>
<td>Personal learning</td>
<td>“I am serious about education” “I know how to listen to a child”</td>
<td>Interpersonal</td>
</tr>
<tr>
<td>D14</td>
<td>Interpersonal</td>
<td>“I can create a bond with kids “I can connect lessons to students”</td>
<td>Teaching skill</td>
</tr>
<tr>
<td>D16</td>
<td>Interpersonal</td>
<td>“I am patient” “I create great lesson plans”</td>
<td>Teaching skill</td>
</tr>
<tr>
<td>D18</td>
<td>Personal learning</td>
<td>“I am great at math” “I am good at explaining things”</td>
<td>Teaching skill</td>
</tr>
</tbody>
</table>
perceptions of what they do well. Eight of the nine students moved from what is considered an intangible skill to a more tangible skill (Table 3).

This change could be the result of practice on those tangible skills with in the classroom and tutoring experiences. Through practice and feedback, students may have developed confidence in those skills they improved on, skills practiced, or success they experienced.

The final question, “What are things connected to education that you need to work on?” resulted in answers that fell into four distinct categories: “Personal Emotions,” “Education Limitations,” “Organization Skills,” and “Teaching Skills.” Four responses fell under the category for “Personal Emotions:” “I can’t cope with the idea of not being able to help all children,” “I am really shy and sometimes I have a bad attitude,” “I have diagnosed myself with Social Anxiety Disorder,” and “I am afraid to speak-up.” Three students detailed their personal education limitations: “I need to better understand the rules and regulations in teaching,” “I don’t read aloud well and I need help with punctuation,” “I am terrible with writing and grammar,” and “My spelling is terrible.”

For the category of “Organization Skills,” both student responses expressed a need for help in time management. The final category, “Teaching Skills,” contained the largest number of responses. Seven of the 19 students believed their teaching skills needed improvement. Common statements reflecting the need were as follows: “I need to work on teaching,” “I need to learn how to use assessment,” “I don’t know enough approaches to teaching,” and “I don’t know how to write a lesson plan.” The answers from the pretest to the posttest reflected a significant change among 11 of the students (Table 4).

Most of the answers from the posttest could be reflecting what the students learned about themselves during the tutoring portion of the class. “I need to be a better lesson planner my lessons lack depth,” “I need to do better creating lesson plans and reading for an audience,” “I am too nervous,” “I need help with coming up with ideas,” “I need to practice on my read alouds,” and “I need to work on explaining concepts clearly” all appear to be insights that could have been gained through working with elementary students.
<table>
<thead>
<tr>
<th>Student #</th>
<th>Pretest</th>
<th>Quotes from the answers</th>
<th>Posttest</th>
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<td>D1</td>
<td>Personal emotions</td>
<td>“I can’t cope with the idea of not being able to help all children”</td>
<td>Teaching skill</td>
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<td></td>
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<td>“I need to be a better lesson planner my lessons lack depth”</td>
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<tr>
<td>D2</td>
<td>Education Limitations</td>
<td>“I need to better understand the rules and regulations in teaching”</td>
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<td>“Educational Technology”</td>
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<td>D3</td>
<td>Education Limitations</td>
<td>“I don’t read aloud well and I need help with punctuation.”</td>
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<td></td>
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<td>“I need to do better creating lesson plans and reading for an audience”</td>
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<td>D5</td>
<td>Teaching skill</td>
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<td>“I need to work on writing lesson plans” “I need help with coming up with ideas”</td>
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<td>D13</td>
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<td>“I am terrible with writing and grammar of educational” “I need help with educational technology”</td>
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<td>D14</td>
<td>Teaching skill</td>
<td>“I need help teaching” “I have trouble justifying rationales for teaching certain skills.”</td>
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<td>D16</td>
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<td>“I need help understanding students better” “I need to practice on my read alouds”</td>
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<td>D17</td>
<td>Education Limitations</td>
<td>“I am not good in spelling” “I need to work on getting past only one answer is correct.”</td>
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<tr>
<td>D19</td>
<td>Education Limitations</td>
<td>“My handwriting is bad” “I need to work on explaining concepts clearly.”</td>
<td>Teaching skill</td>
</tr>
</tbody>
</table>
Data analysis

A paired-samples \( t \)-test was conducted to evaluate whether the experience in the course improved knowledge of the literacy vocabulary words. For the first question of the essay portion of the tests, a chart was created that took each student posttest answer and judged it according to the pretest answer. If the posttest answer demonstrated growth, it was ranked as a two and the growth was documented. If the posttest answer was the same as the pretest answer, it was ranked as a 0. If the posttest answer demonstrated a decrease in understanding, it was ranked as a -2 and the decrease was documented. For the remaining three questions, the answers were categorized to determine if the answer had changed, and if so, whether the type of answer had changed. For example, if the answer on the pretest was related to skills, was the answer on the posttest related to skills, or had it changed to philosophy, or to feelings?

Results discussion

This study seeks to answer several questions about change or growth in students: Did the pre-service teachers gain significant knowledge in the vocabulary-related literacy instruction? Did the pre-service teachers demonstrate a change in their demonstration of procedures related to teaching? Did the pre-service teachers demonstrate a change in their perceptions regarding themselves as teachers? Although the information is being assessed in categories, it was presented through online, hands-on and tutoring experiences that presented and reinforced the concepts. Student growth is represented in knowledge such as vocabulary and procedures and subtle changes in perception.

Vocabulary

The results indicated that the mean for the sum of the posttest (\( M=26.47, \ SD=4.45 \)) was significantly higher than the mean for the pretest (\( M=7.78, \ SD=2.99, \ t(18)=16.78, \ p < .01 \). The standardized effect size index, \( d \), was 4.85, with no overlap in the distributions for the 31-point pretest and posttest as shown in Figure 1. The 95% confidence interval for the mean difference between the two tests was 16.34 to 21.02. Although it is inconceivable that students would spend an entire
semester in a class where set terminology is used in the reading material, experiences, and discussion and not learn those words, it is possible. The data show that change in student knowledge of the vocabulary from the first day of class to the last day of class is significant. It is important to note that the learning of the vocabulary is a pre-set expectation for the students, and they are aware of this on the first day of class. They are encouraged to memorize the terms and are required to use them in discussions, lesson plans, and activity folders.

**Conclusion**

Although this study is not set up to determine causality, it does meaningfully address the three questions. Did the pre-service teachers
gain significant knowledge in the vocabulary related to literacy instruction? Yes they did. Did the pre-service teachers demonstrate a change in their demonstration of procedures related to teaching? Yes, all but four of the students were able to successfully describe the steps to teaching. The students that were already familiar with assessment based or backward design planning already knew the appropriate steps and were not in need of change. Did the pre-service teachers demonstrate a change in their perceptions regarding themselves as teachers? Yes, the majority of the students either changed in their motivations for becoming a teacher or they changed in their perceptions of the areas of expertise of areas needing improvement. It can be said that the pre-service teachers attending the Reading Acquisition and Development course experienced growth and change.
References


Making learning real in a reading acquisition and development course for pre-service teachers


Dialogue journals for mastery in a reading assessment course

Bethanie C. Pletcher

Abstract

This study examines the use of the dialogue journal as a learning tool in a literacy assessment course for pre-service teachers. Coding for patterns and narrative inquiry were used to analyze journal entries written by 64 students and transcripts from four face-to-face interviews. Analysis of the data revealed that pre-service teachers told stories about their own experiences as students and field observations to make connections with course content. They also recorded that they valued the dialogue journal as both a learning and an assessment tool. Implications of this study are that teacher educators should encourage their students to explore their personal stories and those from field experiences so that they can internalize course content. Also, instructors of literacy assessment courses might model aspects of the dialogue journal in order to show their students that these are tools for both assessment and subsequent instruction.
One thing that I absolutely admire about you [the instructor] is that you practice what you preach. Too many professors...emphasize student engagement yet they do absolutely nothing but stand there and lecture all day. I like that you gave us a chance to create and play with activities that you want us to implement for our own students.

In the literacy assessment course, pre-service teachers learn how to assess students’ reading behaviors and use this information to determine strategies and interventions. As their instructor, I began to think about how I would assess my students in such a course. Other instructors used a series of quizzes and tests, but this somehow seemed wrong. Shouldn’t class time be used for demonstrating reading assessments so the college students might have this firsthand experience with authentic assessments and want to use them with their future students? I also wanted them to be engaged in the course topics and not just regurgitate the information on a test.

My quest for an alternative assessment led me to the dialogue journal, a “written conversation in which a student and teacher communicate regularly…over a semester, school year, or course” (Peyton, 1993). I wanted to know how they were processing what they learned during class sessions and be there to teach into any misconceptions and answer their questions. I also wanted to hear their stories, so I decided to ask them not simply to write about what they learned and what they wanted to know, but what connections they had, because class sessions might spark memories of “half-forgotten experiences” (Conle, 1996, p. 301).

The journal, as assigned in this class, was a platform for “writing [oneself] into academic discourse” (Elbaz-Luwisch, 2002, p. 425), a place for students to fuse content with their beliefs and experiences to construct new knowledge. In addition to these reasons for using journals, there is also the advantage that journals become places of permanent data that both students and instructors can return to again and again (Clandinin, Davies, Hogan, & Kennard, 1993). It excited me to think that I could build on their stories, using them as a scaffold for learning course material.
Pre-service teachers appreciate experience with effective reading assessment practices. They want to see strategies in action not only to enhance their understanding of course material, but also to envision their use in their future classrooms. In related studies, pre-service teachers reacted positively to instructor modeling of assessments, noting that this helped them learn how to use them (Allen & Flippo, 2002; Rogers & Riedel, 1999). Other experts in the field of assessment stress the need for instructors in teacher preparation programs to provide students with firsthand experiences (Bachor & Baer, 2003; Brew, Riley, & Walta, 2009; Dunlap, 2006; Graham, 2005; Stiggins, 1995; Stiggins, 1999; Taylor & Nolen, 1996; Volante & Fazio, 2007).

Here is one student’s comment about using a dialogue journal as a learning tool in a teacher education course.

So far this semester, I feel that completing these dialogue diary entries has helped me in my overall understanding of the information and knowledge presented throughout this course and has helped me to reflect on these various skills and concepts. I look forward to completing the remainder of these dialogue diaries.

The theme running through most studies that address the use of dialogue journals with pre-service teachers is how important they are as a venue for reflection and a tool for understanding. However, in many cases, “the traditional class format, which encourages transmission of knowledge rather than transaction is more familiar and comfortable” (Good & Whang, 2002, p. 262) for instructors, so they choose exams over journals. Before teacher educators can invest in this shift in paradigm, they first have to recognize that pre-service teachers have stories to tell.

In Elbaz-Luwisch’s view, teachers are often not afforded opportunities to express themselves (2002). Pre-service teachers have school-related experiences to talk about, whether they are their own or those they observe in classrooms during field experiences. This “personal practical knowledge” can be brought forth to assist them in learning course material (Clandinin, et al. 1993; Clandinin & Connelly, 1994). These same
stories may also help course instructors understand their students better and give them insight as to what and how they need to teach.

**Purpose of study**

This study addresses the following research questions: How do students use stories about their experiences as students to connect to course content in order to understand the material presented about literacy assessment? How do students use stories about their experiences in classrooms during field experiences to connect to course content and understand the material presented about literacy assessment? In what ways do pre-service teachers value the dialogue journal process? This study built on narrative inquiry through writing, demonstrating how something so simple to implement in a teacher education course can have positive effects on both students and instructors alike. It is the hope of the primary researcher of this study that college faculty who teach pre-service teachers will encourage them to tell their stories through writing in order to capture what their students are learning in teacher preparation programs.

**Review of literature**

Through writing, students reflect on their beliefs and prior experiences (Bayat, 2010; Carter, 1988; Graham, 2005; Lee, 2004). This practice allows them to form connections between these beliefs and experiences, course material, and their practices in the field, thus resulting in an “internalization” of new learning (Good & Whang, 2002; Mayor, 2005, p. 173). Bayat calls this “productive reflection” (2010, p. 160), a kind of professional development in which they begin to evaluate their own learning and performance in the classroom (Isikoglu, 2007). After this evaluation occurs, the journaling increases pre-service teachers’ “self awareness and confidence which can [then] be transferred to the school context” (Francis, 1995, p. 241) and becomes a place to reflect on themselves as future teachers (Barkhuizen; Dunlap; Garmon, 2001). Dieker and Monda-Amaya (1995) and Lee (2006) report university students’ statements that, not only had they become more reflective thinkers, but they also planned on continuing this reflective work after the completion of their programs. When students understand this, they will come to
see journaling as something more than a just a course exercise (Dunlap; Fountas & Pinnell, 2001). In another study, teacher candidates identified reflective thinking as the greatest benefit of journal writing (Graham). Kaplan, Rupley, Sparks, and Holcomb (2007) describe positive correlations between journal passages that contained reflective responses and students’ final grades in reading courses.

Pre-service teachers who are involved in some kind of dialogue journaling state that they are more likely to invite their future students to participate in this practice (Carter, 1998; Good & Whang, 2002; Herriott, et al., 2002; Lee, 2004). Adams (1996) notes, “[student teachers] begin to realize that … they may gather information about children that simply cannot be gathered by looking at a set of numerical grades” (p. 83). The firsthand experience of writing entries in a journal prepares them to know what to look for in their own students’ entries.

In several studies (Carter, 1988; Garmon, 2001; Good & Whang, 2002; Siegel & Wissehr, 2011; Watson, 2010), student teachers reported that writing in a dialogue journal helped them learn and remember course content because they were writing about their course readings and in-class activities. Students bring a variety of experiences to the classroom, so a dialogue journal facilitates these connections (Fountas & Pinnell, 2001). Good and Whang found that many students wrote about how journaling helped them construct meaning and understand course material at a deeper level.

Some students indicated that the instructor’s feedback on entries (the activity that distinguishes dialogue journals from traditional journals) made them an effective method of individualizing the learning (Lee, 2004). Ewald found that teacher feedback “kept the lines of communication open” and “let [students] know that their journals were being read and taken seriously” (2006, p. 43). Vygotsky’s (1978) work with the zone of proximal development, in which learning is supported through social interactions and that one can often do more under the guidance of a more experienced individual than on his or her own, offers support for use of the dialogue journal. Students are able to ask questions in their entries, knowing the instructor will provide feedback that will be valuable (Garmon, 2001; Lee, 2006). This written discourse be-
Dialogue journals for mastery in a reading assessment course

tween the professor and the pre-service teachers may lead to the formation of positive relationships (Bayat, 2010; Garmon; Lee, 2004).

Journaling with pre-service teachers also includes notable benefits for professors of teacher education courses because they can use students’ journal responses as a lens into their own teaching practices. Reading journal entries written by their students is an alternative method of assessing their teaching, what is and is not working in class (Lee, 2004; Mansor, et al., 2011). Instructors can use entries as a tool to gauge student learning (Dunlap, 2006; Garmon, 2001, Good & Whang, 2002) and use this information to improve their instruction. Adams (1996) and Gallagher, Vail, and Monda-Amaya (2008) explain how they adjust their teaching and course content, using students’ written entries as guides. Lee (2004) and Mansor, et al. mention the spontaneous teaching that can occur in journal exchanges between the professor and students.

Methodology

Narrative inquiry is the “study of the ways humans experience the world” (Connelly & Clandinin, 1990, p. 2) through stories. Jalongo and Isenberg assert writing narratives about teaching “contributes to the construction of knowledge” (p. 73) and promotes reflection. Schön (1987) refers to reflection-on-action, which is the process of thinking back on our actions. Adding an interactive dimension to the journal creates a low-risk environment, one where the student can learn by doing under the support of an instructor.

Participants

The participants were undergraduate students enrolled in a curriculum and instruction course titled Literacy Assessment for Reading and Writing, taken in partial fulfillment of an initial teacher certification program at a large university located near the center of a sprawling urban city in the southern part of the United States. Students represented diverse backgrounds, were classified as sophomores, juniors, or seniors, and ranged in age from 20 years to 40 years old. A purposeful and convenience sampling method was used to determine which journal entries to analyze, based on these students’ past enrollment in this course during
the fall 2012 semester. Interviewees were chosen based on their availability to participate in interviews on the university’s campus.

Collection of journal entries and interview transcripts

As part of requirements for the literacy assessment course, students wrote and submitted journal entries. The course instructor provided guiding questions for these journal entries in the course syllabus and at the conclusion of each class session. Guiding questions were similar for each class; however, depending on the class session, new questions were added to match the material presented during class (see Appendix A for sample question prompts). Students were asked to reflect on their learning by discussing new knowledge, connections, wonderings, and their attitudes toward using journals as a learning and assessment tool. Entries were submitted online through the course web site. The course instructor responded to entries with comments and questions.

Entries were collected for 64 students enrolled in the course during the fall semester of 2012. Each entry was printed for coding and analysis. The researcher took measures to ensure that all material related to the study was safeguarded, confidential, and anonymous. Four students were contacted for individual face-to-face interviews in June 2013. Interviews were chosen to capture an additional dimension of how students used the dialogue journals, as well as to offer a venue for conversation and sharing (Clandinin and Connelly, 2000). Each interview took approximately 30 minutes and was audio taped. The interviews were semi-structured with guiding questions derived from the analysis of the journal entries and the research questions. (See Appendix B for interview questions). The researcher was particularly mindful of the ways in which questions were worded to ensure clarity. Each participant’s dialogue journal entries from the course were printed for their review prior to and during the interview.

Analysis of journal entries and interview transcripts

Journal entries were analyzed in hardcopy form. Using the three research questions, as well as guiding prompts the students were provided, the researcher coded entries by physically cutting out useful portions of text and placing them into preliminary groups on wall charts. Next,
groups of entries were refined as codes were developed. Categories that matched with high numbers of responses were retained, categories that matched with low numbers of responses were discarded, and several categories were consolidated. The resulting codes were named to reflect their content.

The researcher analyzed hard copies of the interview transcripts in a similar manner, using the existing coding schemes developed while reviewing the journal entries. These examples were marked to delineate them from journal entry examples.

**Trustworthiness**

Multiple methods were used to understand participants’ views. In order to ensure that the researcher has made every effort to “represent [students’] voices and stories in resonant ways,” member checks occurred, where the researcher contacted each interviewee for their input (Clandinin, et al., 2007, p. 30).

Transferability is the goal of this study, that “lessons learned in one setting might be useful to others” (Bloomberg & Volpe, 2008, p. 78). In order for readers to determine how this study might make it possible to use similar strategies in their own settings, thorough and comprehensive descriptions of the collected material are included.

**Limitations of the study**

The sample of undergraduate students chosen for interviews is a convenience sample and based on their enrollment in one course at one university. This specific group may not be completely representative of all students enrolled during the semester included in the study.

There exists the possibility that students wrote about what they thought the course instructor wanted to hear or what she might think of as “correct.” Some students may have also completed the journal entries as summaries of what they learned, rather than using the journal as a tool for reflection and the internalization of course content.

Because the four students involved in the face-to-face interviews used the dialogue journals in the course anywhere from four to nine months prior, the interviewer provided each participant with a copy
of her journal entries. Also, the course instructor, who is the primary investigator, conducted the interviews, which may have influenced the interviewees’ responses. However, the researcher strived to create a comfortable environment during the interviews by using techniques for authentic conversation such as pausing, paraphrasing, and body language.

Findings
First, it is clear that these pre-service teachers told stories about their own experiences as students to make connections with course content in order to understand it. Their stories revolved around standardized testing experiences, the gradual release of responsibility concept, and reading attitudes.

Many students had clear memories of preparing for and taking state mandated standardized reading tests. Regardless of whether their experiences were positive or negative, they became aware of the impact of this kind of assessment and how crucial it is to understand how it would affect their lives as teachers. Their stories helped them look toward the future to decide how they would approach formal testing in their classrooms. They also had recollections of being anxious and stressed during test time, which made them think about how they will attend to their own students who have the same feelings.

I never thought much about how I was tested in reading other than the standardized test we always had to take at the end of the year. I have always been good at reading so reading assessments never really were a big deal because it was easy and I loved it. I now can see how difficult it can be for those students who struggle.

After learning about the concept of gradual release of responsibility in one class session, students wrote about how they had learned to do something with the guidance of an adult. Their tales about these instances signaled that they had grasped the concept and what it means to use the zone of proximal development (Vygotsky, 1978). Reflecting on a time when they learned something quite basic, such as driving, helps
pre-service teachers slow down the learning process and break it into small steps, therefore applying that concept to something new, such as guided reading or word study.

*I teach bass and guitar lessons. So the first things I do when showing my student a new music scale is I play it first. Then I break it down into smaller parts ... I have the student play alongside with me and help them hit the right notes each time. After that I allow the student to practice without me playing alongside them; however I give my feedback throughout the scale. Then at the end of the lesson I have the student perform the scale without any of my help. The same thing goes when it comes to the leveled texts. I will apply this same process into my classroom when I begin teaching.*

While writing about what they learned in class each week, a majority of students shared their attitudes toward reading, either as youngsters, adults, or both. They spoke of instructional routines their teachers had used and how these affected their feelings toward reading. Those who wrote that they had always enjoyed reading indicated that they had never thought about the reading process, the complexities surrounding it, and how to teach children who struggle with decoding, fluency, and comprehension.

*It’s funny—I started reading at age four and in Kindergarten. I don’t know if it’s because reading has always come easy to me that I find it hard to slow down and really break down all there is to know about teaching the mechanics—the HOW—of reading.*

Others, who candidly shared that they did not consider themselves proficient readers and did not like to read, wrote how they would use these feelings to help them be empathetic and compassionate about their future students who might find reading difficult.

*I was not a good reader growing up therefore I personally see the importance that a teacher and their strategies have on their students.*
I hope that by identifying some of [my shortcomings], I will be better prepared to teach others.

Both sets of pre-service teachers said that they would remember what their own teachers did with them and replicate those that were positive and avoid those that were not. These stories were instrumental in helping them work through and write about the kinds of reading teachers they wanted to be.

The second finding is that pre-service teachers also told stories about their observations in the field and connected these to course content in order to understand the material presented in class. These stories centered around standardized testing, working with struggling readers, and taking running records. In addition to listing their own experiences about standardized testing, students wrote about what they noticed during visits to schools. This usually consisted of how much time was invested in preparing for and taking tests. After they wrote about what they witnessed, many students also said that they hope to find other ways to prepare students to take formal tests without sacrificing a large amount of precious instructional time.

Last semester I was at an elementary school observing the fifth grade. For one whole visit we couldn’t even be in the classroom with the students because they were “practice testing.” These kids were testing all day long. We understood that these students had to be tested but we wanted to observe. There is nothing to observe when they are testing.

During most class sessions, discussions included ways to work with struggling readers. Many students indicated that they were not aware of the large numbers of students in schools who have difficulty with reading and that students could have problems in different areas of reading. After observing children in real classrooms, they wrote that they were starting to understand that children might have difficulty with decoding text, comprehension, fluency, vocabulary, or a mix of these.
During my observations at an elementary school this past week, I have been observing many students with reading difficulties. Most students in the classroom that I am placed to observe in actually have a more difficult time with reading rather than with any other subject. I was quite surprised about the quantity of students that have trouble. As I observed, I remembered a couple of things from this specific course that I used to help other students.

Connecting what they were learning in class to their work in classrooms gave them a solid understanding of what it means to work with students who need supplemental reading instruction.

Taking a running record, an analysis of a child’s oral reading of a text, is a skill that is paramount for teachers. When students in the class were first exposed to running records, they wrote about how confused they were and how they struggled to keep up with the coding as they listened to samples of oral reading. However, after practicing the task, they began to feel more comfortable with it. This practice occurred in classrooms where they were able to listen to children read as they watched in-service teachers administer the assessment or administered it themselves.

During my field experience last week, my teacher gave me the opportunity to do a running record on a child. I was very excited and happy that I got the real experience…with a child in a classroom environment.

Their excitement was unmistakable as they wrote about understanding what they had seen teachers doing as they sat next to a child and coded their reading. They were thrilled to learn to do something in one of their teacher certification classes that they knew they would actually use.

The third and last finding is that all but a few students recorded that they valued the dialogue journal as a learning and assessment tool. They used it as a place to reflect on course material and their work with children and to express themselves. Recurring themes regarding their attitudes toward the journals were feedback and individualized learn-
ing, deep understanding of course content, reflection, firsthand experience with assessment, the journal as an assessment tool, and voice and expression.

Students were aware that their instructor was reading their journals and taking them seriously. Because they received specific comments and questions with each entry response in addition to a grade, they felt that their entries mattered. Many students mentioned that this personal feedback helped build rapport and foster a relationship with their instructor and that this would not have been possible with other traditional measures of assessment in teacher education courses. Also noted were statements related to the instructor being able to meet students where they are and help them move forward.

This [the dialogue journal] also gives me the opportunity to have my professor learn about me and how I perceive the concepts she is introducing to me, which I hope is beneficial for the both of us.

As students wrote their entries, they began to see journals as an effective method for reviewing notes taken during class. Their commentaries revealed that this helped reinforce their learning, as they were able to take the time needed to process information and connect it to reading assessment as they observed it in real-life classrooms. For them, this was a more effective way of learning course content than simply memorizing a mass of information for a test and forgetting it later. Interestingly, the instructor never included the word “reflection” in the description of the journal assignment in the syllabus or in class. However, about half of the students used the word when writing about how they used the journals. They said that they not only reviewed their notes, but also used the process of reflection to go deeper into the material and to recall their own stories.

When you connect what you’re learning in class to something that you’ve done before it makes that connection, that knowledge stays in your brain and makes sense. That’s what I’ve noticed throughout the whole [teacher education] program, it’s just kind of connecting the dots.
Dialogue journals for mastery in a reading assessment course

The dialogue journals let us put our own scenarios in there and solidify our understanding in an anecdotal form. I relate things to stories. You don’t learn to become a teacher in a college classroom. You have to have those experiences with the kids and you have to relate them.

Many students regarded the journal as an assessment tool, even before discussing this purpose in class. They communicated that, through instructor modeling, they learned about assessment through participation. Several students said that using journals to learn and be assessed by made sense for a course on literacy assessment and that listening to a lecture and regurgitating information on a test would not have helped prepare them to assess their students.

I feel that this subject and class are very hands-on so a traditional formal assessment would be inappropriate. I like the fact that we were doing something with what we have learned, not just memorizing it for a test and then forgetting it.

Through firsthand experience with this type of informal assessment, it is also evident that students knew their compositions were being taken into consideration for future class sessions.

Including voice and personality in their journal entries seems to have been important to students. They saw the dialogue journal as a platform for expressing what was on their minds and being validated for their knowledge. Several students remarked that they could freely respond to course topics and authentically communicate with their professor. These were opportunities that other forms of assessment just do not offer.

I feel that writing journals is the best way for education majors to learn. We express our experiences and emotions, as well as relive them. It places more importance on what we are reflecting on and how we are growing as pre-service teachers rather than memorizing facts about reading assessment. It also takes a lot of the anxiety away and makes
me feel like I am free to share what I really think or have learned. Helps build that “safe” environment!

**Discussion**

The dialogue journal is designated as such for a reason. It is a place to write, tell stories, and work through ideas, depending on the writer’s purpose. For this occasion, the writers were pre-service teachers writing for an audience, their literacy assessment course instructor.

**Finding 1: Pre-service teachers connect stories about their experiences as students to course content to understand the material presented about literacy assessment.**

Students enter teacher education programs with a wealth of personal classroom experiences; for even though they have not begun student teaching, they have been students themselves for many years and have witnessed effective and inferior teaching. They have a fresh perspective on taking state-mandated exams. According to Bliem and Davinroy (1997), teachers use their beliefs as a “lens through which they view their practices” (p. 3). At the same time, these pre-service teachers should not rely on experiences alone; instead, they need to link them with knowledge taken from their courses in order to form new views about teaching, learning, and assessment. They can do this more effectively through writing than taking quizzes and tests. As noted in Clandinin and Connelly (2000), narrative is a “powerful way for individuals to give accounts of their experience” (p. 102). Indeed, writing regularly in a journal encouraged students in this course to tell their stories.

Teachers often equate assessment with testing (Graham, 2005), as many of these students did when they began the literacy assessment course. Bliem and Davinroy, (1997), Graham, Herrington (2002), and Volante and Fazio (2007) write that new teachers usually use assessment methods that their own teachers used with them. The journals gave them the chance to think about their experiences as test-takers and how their teachers prepared them for and used the results of formal measures.

There were many students who took into consideration their own past and present attitudes toward reading because class discussions
called forth strong memories. Whether they saw themselves as proficient readers or not, they will most likely carry their previous readerly lives with them into their classrooms, where they will recreate what favorite teachers did for them and avoid things that made them dislike reading.

**Finding 2: Pre-service teachers use stories about their field experiences to connect to course content and understand the material presented about literacy assessment.**

Crucial to their comprehension of course material, pre-service teachers wrote about what they had seen during their required classroom visits. Their enthusiasm showed through as they recorded observations of various topics discussed in class. With each story told, it seems as though they realized that what they were learning in class actually happens in classrooms, and what was happening in classrooms was discussed in class. Making links between what real teachers do and what is taught at the university is what will help them learn about assessment, as noted by Boud (2001).

When students wrote about standardized testing, many talked about how they had seen a considerable amount of testing during field experiences, including test preparation and benchmarks. There frustration was evident as they saw the amount of instructional time spent on this, which matches Johnston and Costello’s (2005), Mayor’s (2005), and Stiggins’s (1985) findings that in-service teachers spend a great amount of time on formal assessment each day. On a brighter note, many students were able to watch and sometimes participate in the administration of running records. Although learning how to administer this assessment, which involves listening to a child’s oral reading of a text, was challenging at first, those students who saw it in action in the classroom found it easier to do. This supports other research that says learning how to observe students’ reading behaviors involves a great deal of practice (Clay, 2005a; Frey & Schmitt, 2007; Heritage, 2007; Johnston & Costello, 2005; Stiggins, 2002). They also recognized the difference in the usefulness of data obtained from running records versus the data obtained from standardized tests. Students saw the value of using running records as a
reading assessment and how they could use the information obtained to drive instruction.

**Finding 3: Pre-service teachers value the dialogue journal process in several ways.**

At the end of the semester-long course, the majority of students declared that they found the dialogue journal assignment to be a worthwhile activity. They liked that the journals were a place for their instructor to provide individualized instruction and feedback. This let them know that their entries were read with care; therefore they knew that what they had to say mattered. This written discourse led to the development of positive relationships, which is supported by Bayat (2010), Garmon (2001), and Lee (2004).

Almost all students reported that their dialogue journals were a learning tool, one that they used to delve deeper into course content. Seemingly, they relished in the act of penning their stories as a way to fuse what they already knew to what they were learning. “Reflection” appeared in students’ entries over and over again as they discussed how taking the time to really think about course topics made them palpable. Several researchers consider the place of reflection in journals. Jalongo and Isenberg (1995) say that when teachers write narratives about teaching, it promotes reflection. Zulich, et al. (1992) state that dialogue journals are a practical way for students to reflect on teacher education courses. After perusing these students’ journals, one can indeed see the quantity and quality of the manifestation of the literacy assessment course content.

Their instructor’s demonstration of how to use journals as an assessment tool gave students firsthand experience with assessment, a practice that Herrington, et al. (2002) and Rogers and Riedel (1999) hold in high regard. While journals are a good place to “broaden” their knowledge of themselves as learners (Connelly & Clandinin, 1990), they are also a better way for instructors to gauge learning than administering formal assessments (Dunlap, 2006; Garmon, 2001; Good & Whang, 2002) and use this information to refine instruction.
A surprising, yet delightful, theme found in students’ journal entries was that they said they liked having the opportunity to express themselves in ways they could not have otherwise. They reveled in the chance to add voice to their writing and simply wanted to be heard. Both Bliem and Davinroy (1997) and Stevens and Cooper (2009) found that course instructors must listen to students’ voices and take their thoughts into account when planning subsequent class sessions.

Implications for practice

Teacher educators can examine the outcomes of this study to implement new practices or revise existing ones. First, instructors may want to encourage their students to explore their personal stories, as well as those from field experiences, so that they can couple these with course content. By doing this, they send the message to students that their life experiences are important to their future careers as teachers. Teacher candidates need time, a platform, and the help of their instructors to uncover knowledge that they may not know is there. Also, as students in the literacy assessment course consider their attitudes toward reading, they begin to connect these to strategies discussed in class and think about how they would use them with their own students.

Second, teacher educators can use dialogue journals to get to know their students personally, as they offer a kind of communion between themselves and the writer. It can be difficult to develop relationships with students during a three-hour per week course with 30 or more students. Students might be more apt to share in a written journal than in front of a whole class. Another benefit of one-to-one writing is the individualized learning that can occur as the instructor provides specific feedback along with guiding questions. The dialogue journal becomes a tool for both parties involved; one for the student to reflect on class sessions and connect new learning with past experiences and one for the instructor to use these responses to assess understanding, provide immediate feedback, and plan subsequent instruction.

A third recommendation is that teacher education course instructors model all aspects of the dialogue journal. This includes providing prompt feedback, comments, and questions, and helping them under-
stand how making solid connections helps students learn. As stated in Lenski, et al., teachers’ assessment practices “influence student learning” (1998, p. 218). It is up to instructors to help shape future teachers by allowing them to experience reading assessment firsthand, rather than solely delivering course material through lecture. The best outcome of this practice would be that teacher candidates continue to write in journals themselves and use them in their own classrooms as learning and assessment tools.

Conclusion

Several questions surfaced during the analysis of journal and interview transcripts. In what ways would students’ learning be enhanced had they been afforded the opportunity to share pieces of their entries with peers during class sessions? How would their writing be different if this assignment were not graded? Would they have taken as much time and written so much if they knew their entries would be read but not assigned a point value?

Next steps might be to expand the idea of voice in their journal entries, since this aspect of the journals was important to students. In what ways do students add their own voice to their journal entries, are they aware they are doing so, and how might this be transferred to the teaching their future students? Also, it would be interesting to conduct a longitudinal study with these same pre-service teachers and follow them into their classrooms when they begin teaching. The goal would be to find out if they continued to write in some kind of professional or personal journal in order to have a place to hold their thoughts and tell their stories.

Students left this course with the understanding that, just as they want to express themselves and be heard, their future students will want these things as well. Just as receiving individualized feedback from their instructor is important to them, the same is true for those whom they will teach. They understand, at this point, that assessment is not identical to “testing,” that there are many ways to assess students’ learning, and journals are one of those.
The act of writing with my students has helped me understand that learners have to make solid connections between course content and both prior and concurrent experiences in classrooms. They considered their own experiences as students and their observations in classrooms in order to determine what kind of teachers they will be. They relived their stories on paper so that they can revisit and relive them and carry these experiences into their future classrooms. Imagine the “bedside manners” (Conle, 1996, p. 321) of teachers we could help to develop by engaging in real conversation and storytelling.
References


Preparing the future: An examination of teacher quality in today’s teacher preparation programs

Jalene P. Potter
Tori Hollas
Jaime Coyne

Abstract
Because a majority of teachers come from public universities, universities play an important role in examining and strengthening teacher preparation programs to ensure they are graduating quality teachers (Darling-Hammond, 1990). Student teaching is typically the culminating experience of the teacher preparation program and is considered to be the most crucial and beneficial learning experience (Conway, 2002; Johnson & Napper-Owen, 2011). This article presents shared data from student teachers’ performance on the TExES Pedagogy and Professional Responsibilities EC–12 (PPR) assessment, a test teacher education candidates must pass in order to receive certification, as well as data from the Educator Prep Program Candidate Exit Survey, a survey created by the Texas Education Agency (TEA) to assess teacher education candidates on how well they feel prepared as future teachers. The data were collected from student teachers enrolled at a public university in south Texas. The teacher education program includes 32 initial professional education programs that lead to a baccalaureate degree and/or initial certification. The researchers anticipate that findings will foster discussions to strengthen university teacher preparation programs.
Preparing the future: An examination of teacher quality in today’s teacher preparation programs

The last decade has seen increased efforts to change public education, both in the public schools and in the preparation of teachers due to the mandates in the federal 2001 No Child Left Behind Act (NCLB) (U.S. Department of Education, 2011a). Maleyko and Gawlik (2011) state that the “reform aims to hold educational agencies and states accountable for improving the quality of education for all students” (p. 600). No Child Left Behind seeks to identify and transform low-performing schools by mandating that only qualified teachers teach in public school classrooms and by using state assessments to ensure that students are meeting academic standards.

Another reform, the U.S. Department of Education’s (2011b) Race to the Top Fund, described by Secretary of Education Arne Duncan as a “once in a lifetime chance to change our schools” is receiving much attention in our public schools (National Council on Teacher Quality, 2011a, p. 1). In general, the Race to the Top Fund presents states with a unique opportunity to accelerate their efforts to graduate all high school students prepared for college, careers, and life by adopting the Common Core State Standards (CCSS) (Barnes, 2011). Barnes (2011) states that the federal government could plan on making the receipt of Title I funding (U.S. Department of Education, 2011c) contingent upon the adoption of these common standards in an attempt to standardize education. Title I, Part A (Title I) of the Elementary and Secondary Education Act, established in 1965, provides financial assistance to local educational agencies and schools with high percentages of children from low-income families to help ensure that all children meet challenging state academic standards. In the school year 2009–2010, more than 21 million students were provided academic support and learning opportunities through the use of Title I funds.

With all that is transpiring in educational reform, it is important for educators to consider ways to strengthen our educational system both in the teacher preparation programs and in the public schools. Because a majority of teachers come from public universities, universities play an important role in examining and strengthening teacher preparation.
programs to ensure they are graduating quality teachers (Darling-Hammond, 1990). Darling-Hammond (1994) state that simultaneous restructuring of public schools and schools of education will require professional collaboration and collegiality, and in the process, redefining teaching and learning for all members of each school community. Teacher preparation programs in the United States are vast and varied in both function and structure. The purpose of this paper is to understand teacher quality by examining existing teacher preparation programs and current assessment results coupled with perceived teacher practice in Texas. The researchers anticipate that findings will foster discussions of university teacher preparation programs in Texas.

**Teacher preparation programs**

During the 19th century, education reformers sought to establish a common school where all students were educated without regard to social class and religion. Horace Mann, an American lawyer, hoped that by bringing all children of all classes together, they could have a common learning experience (Mann, 1891). Mann became a recognized public figure when he was elected to the Massachusetts State legislature. In 1837, the Massachusetts School Board was formed and Mann was appointed by the governor as a board member and then quickly became the first secretary of the board to direct educational reform. For 12 years, Mann served as secretary, helping to set the pattern for the developing common school. According to Borrowman (1965), Mann has been credited by education historians as the father of the common school. By 1850, there were close to 81,000 public common schools in the United States (Lucas, 1997).

As soon as common schools were established, education reformers set out to create a program to train teachers who would work in these schools. The idea of teacher preparation in schools, called normal schools, is generally credited to Horace Mann. Mann (1845) stated “in order to bring up our schools to the point of excellence demanded by the nature of our institutions, must there not be a special course of study and training to qualify teachers for their office?” (p. 65). Noted educator John Dewey (1915) stated that “the normal school arose because of the
necessity for training teachers, with the idea of partly professional drill and partly that of culture” (p. 63). Normal schools claimed to produce teachers prepared for the practical matters of the common school classroom (Fraser, 2007).

Formal teacher education in America began in the first public normal school in Lexington, Massachusetts in 1839 (Coble, Edelfelt, & Kettlewell, 2004). According to Coble et al. (2004), the normal school was a place where prospective elementary school teachers studied the subjects they would teach (such as the Bible and orthography), learned teaching methodology, and practiced teaching in model schools for up to one year prior to accepting responsibility for a class of students.

The second state normal school in the United States was established in 1839 in Barre, Massachusetts and provided its students with the same practice teaching experience. By 1885, normal schools existed in states from Maine to California. By the end of the nineteenth century, there were 167 public normal schools and several private schools graduating more than 11,000 potential teachers (Johnson, 1968).

The development of teacher preparation in colleges and universities followed the normal school movement with the establishment of laboratory schools. Laboratory schools provided prospective teachers with a setting for learning, using model classrooms as a place to practice new skills (Coble et al., 2004). In contrast to the popular use of laboratory schools as clinical practice facilities, education reformer Dewey (1915) asserted that research should be the primary mission of laboratory schools. The university or college is “a place of research, where investigation is going on: a place of libraries and museums, where the best resources are gathered, maintained, and organized” (p. 71). Dewey (1904) proposed that project designers build on traditions of research-based methods and a laboratory view of the practical work in teacher education that emphasized the intellectual strategies of teachers. Fostered by Dewey’s belief, modern American laboratory schools were conceived and became centers for teacher training, research, and experimentation. “Founded primarily as a facility for training teachers, laboratory schools expanded beyond early, narrow functions of observation, participation and modeling to broader concepts including observation and demonstra-
tion, research and experimentation, student teaching and dissemination of instructional and teaching procedures” (Goudie, 1988, p. 9).

During the 1930s, 1940s, and 1950s, the number of laboratory schools gradually declined as teacher education programs increasingly used local public schools as clinical teaching sites. At the dawn of the 21st century, it was estimated that fewer than 100 laboratory schools remained in operation on university campuses nationwide (McConahah, 1999). Structured field experiences in public schools began to play an important role in teacher education preparation.

**Teacher quality**

Teacher quality research plays an important role in educational reform efforts. According to Heck (2007), researchers have defined teacher quality to include teachers’ knowledge, preservice learning, instructional content, and delivery. In 1981, the United States Secretary of Education created the National Commission on Excellence in Education (Gardner, 1983). The Commission was tasked with presenting a report on the quality of education in America to the American people. The object of the report was to help define the problems afflicting American education and to provide solutions. The seminal report, *A Nation at Risk* (NCEE, 1983), reported that declines in educational performance reflected four important aspects in the educational process: content, expectations, time, and teaching. The content or curriculum of high schools was examined and the commission determined that the content had been diluted to the point where there was no central purpose. In addition, expectations in terms of the level of knowledge, abilities, and skills schools should promote were defined, and time, hard work, behavior, self-discipline, and motivation were deemed essential for high student achievement. As noted by Gardner (1983), evidence demonstrated three disturbing facts about the use that American schools and students make of time: (1) compared to other nations, American students spend much less time on school work; (2) time spent in the classroom and on homework is often used ineffectively; and (3) schools are not doing enough to help students develop either the
study skills required to use time well or the willingness to spend more time on school work. (p. 21)

In addition, the report raised the public’s awareness that “all children in America’s classrooms deserve nothing less than a well-prepared and caring professional who has the knowledge base and power to ensure that they reach their full potential” (Moss et al., 2005, p. xv).

In the 21st century, the discussion of teacher education has increasingly focused on the essence of teacher quality; yet there is disagreement as to what teacher quality means and how such quality relates to desirable outcomes (Cochran-Smith & Fries, 2005). Ingvarson and Rowe (2008) suggested that the measurement of teacher quality needs to focus upon what teachers know and should be able to do. They distinguished between successful teaching, teaching which results in high-performance outcomes by students, and good teaching, which provides learners with all the opportunities possible to enhance their competence in a particular curriculum area. Wescombe-Down (2009) maintained that the mark of a quality teacher is centered on pedagogical fitness. A pedagogically fit teacher “establishes and maintains a positive, inclusive and safe learning environment” (Wescombe-Down, 2009, p. 20) where student confidence, skills, beliefs, and values can be fostered and developed. Darling-Hammond contended that, “one of the most damaging myths prevailing in American education is the notion that good teachers are born, not made” (2006, p. ix). Darling-Hammond also maintained that good teachers were best formed in traditional teacher preparation programs offered through institutions of higher education.

Darling-Hammond, Bransford, LePage, Hammerness, and Duffy (2005) strongly believed that university-based teacher preparation programs were critical to developing teachers who were likely to be more effective in enhancing the learning and performance of the students they taught than were teachers who received little or no pedagogical training. But Darling-Hammond (2006) agreed that not all teacher preparation programs were created equal. Some, she contended, are “powerful” and produced highly qualified and highly competent teachers (p. 5). Others deserved much of the criticism that had been aimed at them. Calls for the reform of teacher education often targeted the closing of the gap
between university teacher preparation programs and K–12 schools (Holmes Group, 1986).

Studies have established that students from the same school, beginning from the same level of achievement, can produce vast differences in achievement in a single academic year based solely on the teacher assigned (Boyd, Grossman, Lankford, Loeb, & Wycoff, 2006; Hanushek & Rivkin, 2004). Multiple years with “bad” teachers can result in poor growth from which students are unable to recover. In addition, multiple studies have established that no other attribute within schools comes close to the influence on student achievement as teacher quality (Ehrenberg, Brewer, Gamoran, & Willms, 2001; Hanushek & Rivkin, 2006; Kane, Rockoff, & Staiger, 2008; Staiger & Rockoff, 2010). Understanding teacher quality by examining our existing teacher preparation programs and current assessment results, coupled with perceived teacher practice, is the focus of this study.

**Student teaching**

During the 1950s, the term “practice teaching” was replaced with “student teaching,” and research about student teaching became more popular. Since the 1950s, student teaching has remained mostly unchanged and still closely resembles the apprenticeship model (Johnson, 1968). The apprenticeship concept dates back to the Middle Ages when “it was common to learn a trade by serving a lengthy apprenticeship under a ‘master’ already engaged in that line of work” (Johnson, 1968, p. 1). Student teaching is typically the culminating experience of the teacher preparation program and is considered to be the most crucial and beneficial learning experience (Conway, 2002; Johnson & Napper-Owen, 2011). Guyton and McIntyre (1990) maintained a majority of teachers claimed that the most important elements in their education were the school experiences found in student teaching.

Although there are many components to teacher preparation programs, the actual student teaching experience is often seen as the “bridge between preparation for teaching and the beginning of a teaching career” (Weaver & Stanulis, 1996, p. 27). According to Johnson and Napper-Owen (2011), it is during the student teaching experience when
student teachers refine the critical teaching skills they will need as practicing teachers, while being supervised and mentored by a cooperating teacher and university supervisor.

Public universities play an important role in examining and strengthening teacher preparation programs (Darling-Hammond, 1990). It is imperative that teachers are prepared, competent, and confident when they exit university education prep programs. In this article, we examined student teachers’ performance on the TExES Pedagogy and Professional Responsibilities EC–12 assessment. Student teachers must pass this assessment to receive initial certification. In addition, we felt it was equally important to examine student teachers’ own beliefs about how well prepared they felt as teachers upon exiting the teacher education program at the university. We divided the data into four domains that comprise the PPR EC–12, as established by the Texas Education Agency (TEA): (a) Designing Instruction and Assessment to Promote Student Learning; (b) Creating a Positive, Productive Classroom; (c) Implementing Effective, Responsive Instruction and Assessment; and (d) Fulfilling Professional Roles and Responsibilities.

**Research methodology**

Data was used from a yearly Education Prep Program Initial Candidate Exit Survey and the TExES Pedagogy and Professional Responsibilities (PPR) EC–12 test to seek information regarding the connection between university preparation programs, teacher quality, and teacher perceptions about the preparedness within their programs. Using a mixed methods approach, researchers sought to link results from initial teacher candidates within the four domains established by the TEA to the teachers’ own beliefs about how well prepared they felt by their university preparation program. All candidates were examined from the 2012–2013 school year from a public university in south Texas. The total sample consisted of 238 students, a 48% response rate.

Two instruments were used in this study. The first was the TExES Pedagogy and Professional Responsibilities (PPR) EC–12 test, which is a paper-based or computer-administered test taken within an allotted five-hour time limit. There are 100 multiple choice questions covering
four domains: Designing Instruction and Assessment to Promote Student Learning (approximately 34% of test); Creating a Positive, Productive Classroom Environment (approximately 13% of test); Implementing Effective, Responsive Instruction and Assessment (approximately 33% of test); and Fulfilling Professional Roles and Responsibilities (approximately 20% of test). Candidates are required to take the PPR test as part of the initial certification process. The second instrument used was the Educator Prep Program Exit Survey, which is an optional survey given to students upon applying for their initial certificate through the TEA. This 15-minute survey contains 53 questions in a Likert scale format. Researchers aligned the EPP Exit Survey data with the four domains from the PPR exam for comparison purposes. A descriptive analysis was used to examine variables across the four domains.

**Results**

**Domain I: Designing instruction and assessment to promote student learning**

According to the TExES Pedagogy and Professional Responsibilities (PPR) assessment data, the mean for the student teachers’ performance was 277 out of 300, or 92%. The students also completed a survey created and published by the Texas Education Agency, Educator Prep Program Candidate Exit Survey, on how prepared they felt in areas pertaining to designing instruction and assessment to promote student learning (See Table 1). In two of the five questions, all student teacher candidates felt well prepared or sufficiently prepared. In the question asking student teachers how prepared they felt in differentiating instruction for students with disabilities, 67% felt well prepared, 31% felt sufficiently prepared, while 2% felt they were not sufficiently prepared. Similar results were discovered when students were asked how prepared they felt in providing appropriate ways for Limited English Proficiency or English Language Learners (LEP-ELL) students to demonstrate their learning; 73% felt well prepared, 26% felt sufficiently prepared, and 2% felt not sufficiently prepared. Finally, in asking student teachers how they felt prepared in modeling and teaching the forms and functions of academic
English in content areas, 80% felt well prepared, 18% felt sufficiently prepared, and 2% felt not sufficiently prepared.

**Domain II: Creating a positive, productive classroom environment**

According to the TExES Pedagogy and Professional Responsibilities assessment data, the mean for the student teachers’ performance was 284 out of 300, or 95%. The student teachers’ Educator Prep Program Candidate Exit Survey data in Table 2 shows how prepared they felt in areas pertaining to creating a positive, productive classroom environment. In
three of the five questions, all student teachers felt well prepared or sufficiently prepared. In the question asking student teachers how prepared they felt in differentiating instruction to meet the needs of students with disabilities, only 63% felt well prepared, 35% felt sufficiently prepared and 2% felt they were not sufficiently prepared. Similar results were found when students were asked how prepared they were in using available technology to collect, manage, and analyze data using software programs: 67% felt well prepared, 29% felt sufficiently prepared, and 5% felt not sufficiently prepared.

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Well Prepared</th>
<th>Sufficiently Prepared</th>
<th>Not Sufficiently Prepared</th>
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</thead>
<tbody>
<tr>
<td>To what extent were you prepared to communicate clear expectations for achievement and behavior that promote and encourage self-discipline and self-directed learning?</td>
<td>86%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to provide support to achieve a positive, equitable, and engaging learning environment?</td>
<td>92%</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to build and maintain positive rapport with students?</td>
<td>94%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to differentiate instruction to meet the behavioral needs of students with disabilities?</td>
<td>63%</td>
<td>35%</td>
<td>2%</td>
</tr>
<tr>
<td>To what extent were you prepared to use available technology to collect, manage, and analyze data using software programs (such as Excel or an electronic gradebook)?</td>
<td>67%</td>
<td>29%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Domain III: Implementing effective, responsive instruction and assessment

According to the TExES PPR EC-12, the mean for student teachers’ performance was 277 out of 300, or 92%. The student teachers’ survey data is shown below (See Table 3). In five of the 16 questions, all student teachers felt well prepared or sufficiently prepared. When student teachers were asked how prepared they felt in providing appropriate ways for students with disabilities to demonstrate their learning, 65% felt well prepared, 32% felt sufficiently prepared, and 3% felt not sufficiently prepared. In making appropriate decisions regarding students who have individualized education plans (IEPs), 72% felt well prepared, 25% felt sufficiently prepared, and 3% were not sufficiently prepared. In developing and implementing formal and informal assessments, only 66% felt well prepared, 30% sufficiently prepared and 4% were not sufficiently prepared. In the area of working with ELL-LEP students in mastering the Texas Essential Knowledge and Skills and the English Language Proficiency Standards, only 71% felt well prepared, 27% felt sufficiently prepared, and 2% felt not sufficiently prepared. In the areas of technology for purposes of collecting, managing, and analyzing data to interpret learning results for students, only 66% felt well prepared, 31% felt sufficiently prepared, and 3% felt they were not sufficiently prepared. Similar results were found in using technology to collect and manage formative assessment data to guide instruction, in which 66% felt well prepared, 31% felt sufficiently prepared, and 3% felt not sufficiently prepared. Finally, in using technology to document student learning to determine when an intervention is appropriate, only 62% felt well prepared, 32% felt sufficiently prepared, and 6% felt they were not sufficiently prepared.

Domain IV: Fulfilling professional roles and responsibilities

According to the TPPR EC-12 assessment data, the mean for the student teachers’ performance was 278 out of 300, or 93%. The students also completed a survey created and published by the Texas Education Agency, Educator Prep Program Candidate Exit Survey, on how prepared they felt in areas pertaining to fulfilling professional roles and responsi-
Table 3
Educator prep program candidate exit survey data for student teachers

<table>
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<tr>
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<th>Not Sufficiently Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent were you prepared to implement varied instruction that integrates critical thinking, inquiry and problem solving?</td>
<td>82%</td>
<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to use the results of formative assessment data to guide instruction?</td>
<td>80%</td>
<td>19%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to engage and motivate students through learner-centered instruction?</td>
<td>85%</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to integrate effective modeling, questioning, and self-reflection (self-assessment) strategies into instruction?</td>
<td>89%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to provide quality and timely feedback to students?</td>
<td>88%</td>
<td>11%</td>
<td>1%</td>
</tr>
<tr>
<td>To what extent were you prepared to provide appropriate ways for students with disabilities to demonstrate their learning?</td>
<td>65%</td>
<td>32%</td>
<td>3%</td>
</tr>
<tr>
<td>To what extent were you prepared to make appropriate decisions (e.g. when and how to make accommodations and/or modifications to instruction, assessment, materials, delivery, and classroom procedures) to meet the learning needs to students who have an individualized Education Program (IEP)?</td>
<td>72%</td>
<td>25%</td>
<td>3%</td>
</tr>
</tbody>
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(continued)
Preparation of the future: An examination of teacher quality in today’s teacher preparation programs

Table 3, continued

<table>
<thead>
<tr>
<th>Survey Question</th>
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<th>Sufficiently Prepared</th>
<th>Not Sufficiently Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent were you prepared to develop and/or implement formal assessments and informal assessments that track students’ progress toward IEP goals and objectives?</td>
<td>66%</td>
<td>30%</td>
<td>4%</td>
</tr>
<tr>
<td>To what extent were you prepared to support LEP-ELL students in mastering the Texas Essential Knowledge and Skills (TEKS), including the English Language Proficiency Standards (ELPS)</td>
<td>71%</td>
<td>27%</td>
<td>2%</td>
</tr>
<tr>
<td>To what extent were you prepared to use technology available on the campus to integrate curriculum TEKS and Technology Applications TEKS to support student learning?</td>
<td>83%</td>
<td>16%</td>
<td>1%</td>
</tr>
<tr>
<td>To what extent were you prepared to provide technology based classroom learning opportunities that allow students to interact with real-time and/or online conven?</td>
<td>76%</td>
<td>22%</td>
<td>2%</td>
</tr>
<tr>
<td>To what extent were you prepared to teach students developmentally appropriate technology skills?</td>
<td>74%</td>
<td>25%</td>
<td>1%</td>
</tr>
<tr>
<td>To what extent were you prepared to use technology to make learning more active and engaging for students?</td>
<td>88%</td>
<td>11%</td>
<td>1%</td>
</tr>
<tr>
<td>To what extent were you prepared to use available technology to collect, manage, and analyze data from multiple sources in order to interpret learning results for students?</td>
<td>66%</td>
<td>31%</td>
<td>3%</td>
</tr>
</tbody>
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(continued)
Table 3, continued

<table>
<thead>
<tr>
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<th>Sufficiently Prepared</th>
<th>Not Sufficiently Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent were you prepared to use available technology to document student learning to determine when an intervention is necessary and appropriate?</td>
<td>62%</td>
<td>32%</td>
<td>6%</td>
</tr>
<tr>
<td>To what extent were you prepared to use available technology to collect and manage formative assessment data to guide instruction?</td>
<td>66%</td>
<td>32%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 3, continued

bilities (See Table 4). The student teachers’ Educator Prep Program Candidate Exit Survey data indicated how prepared students said they felt in areas pertaining to fulfilling professional roles and responsibilities (See Table 4). In two of the seven questions, all student teachers felt well prepared or sufficiently prepared. When asked how prepared they were to understand and adhere to the federal and state laws that govern special education services, only 69% felt well prepared, 28% felt sufficiently prepared and 3% felt they were not sufficiently prepared. With the same question related to LEP-ELL students, only 73% felt well prepared, 24% felt sufficiently prepared, and 3% felt they were not sufficiently prepared. Finally, when asked how prepared they were in complying with district and campus policies and procedures regarding LEP-ELL students, 73% felt well prepared, 25% felt sufficiently prepared, and 2% felt they were not sufficiently prepared.

**Domain IV: Fulfilling professional roles and responsibilities**

According to the TPPR EC-12 assessment data, the mean for the student teachers’ performance was 278 out of 300, or 93%. The students also completed a survey created and published by the Texas Education Agency, Educator Prep Program Candidate Exit Survey, on how prepared they felt in areas pertaining to fulfilling professional roles and responsi-
Preferably (See Table 4). The student teachers’ Educator Prep Program Candidate Exit Survey data indicated how prepared students said they felt in areas pertaining to fulfilling professional roles and responsibilities (See Table 4). In two of the seven questions, all student teachers felt well-prepared or sufficiently prepared. When asked how prepared they were to understand and adhere to the federal and state laws that govern special education services, only 69% felt well prepared, 28% felt sufficiently prepared and 3% felt they were not sufficiently prepared. With the same question related to LEP-ELL students, only 73% felt well prepared, 24% felt sufficiently prepared, and 3% felt they were not sufficiently prepared. Finally, when asked how prepared they were in complying with district and campus policies and procedures regarding LEP-ELL students, 73% felt well prepared, 25% felt sufficiently prepared, and 2% felt they were not sufficiently prepared.

Discussion

After analyzing the data, we discovered that although the student teachers’ performance was relatively high on all four domains on the PPR, they did not feel prepared in several subtopics within the domain, including (a) working with diverse learners and (b) technology.

Teaching diverse learners

When asked how prepared they felt in differentiating instruction to meet the academic needs of students with disabilities, only 67% felt well prepared. In working with students with disabilities, only 63% percent felt well prepared in meeting the behavioral needs of this special population. In the realm of assessment and learning, only 72% felt well prepared in providing appropriate ways for students to demonstrate their learning, while the same percentage felt well prepared in making appropriate decisions, including developing modifications and accommodations for students who have IEPs. Along the same lines, a lower percentage of 66% felt well prepared in developing and implementing formal and informal assessments to track students’ progress toward IEPs in regard to goals and objectives. Furthermore, in understanding and adhering to federal state laws that govern special education services, only 69% felt
Table 4  
Educator prep program candidate exit survey data for student teachers

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Well Prepared</th>
<th>Sufficiently Prepared</th>
<th>Not Sufficiently Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent were you prepared to effectively implement the discipline-management procedures approved by the campus?</td>
<td>80%</td>
<td>19%</td>
<td>1%</td>
</tr>
<tr>
<td>To what extent were you prepared to build and maintain positive rapport and two-way communication with students’ families?</td>
<td>76%</td>
<td>24%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to assume various roles in the instructional process (e.g. instructor, facilitator, audience)?</td>
<td>79%</td>
<td>21%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you prepared to understand and adhere to the federal and state laws that govern special education services?</td>
<td>69%</td>
<td>28%</td>
<td>3%</td>
</tr>
<tr>
<td>To what extent were you prepared to collaborate with others, such as para-educators and other teachers, in meeting the academic, developmental, and behavioral needs of students with disabilities?</td>
<td>74%</td>
<td>24%</td>
<td>2%</td>
</tr>
<tr>
<td>To what extent were you prepared to understand and adhere to federal and state laws that govern education services for LEP-ELL students?</td>
<td>73%</td>
<td>24%</td>
<td>3%</td>
</tr>
<tr>
<td>To what extent were you prepared to comply with district and campus policies and procedures regarding LEP-ELL students?</td>
<td>73%</td>
<td>25%</td>
<td>2%</td>
</tr>
</tbody>
</table>
well prepared.

We found similar results with survey questions regarding working with English Language Learners (ELLs) or Limited English Proficiency Learners (LEP). When asked how prepared they were in providing appropriate ways for LEP-ELL students to demonstrate their learning, only 73% of student teachers felt well prepared. In supporting LEP-ELL students in mastering the Texas Essential Knowledge and Skills (TEKS) including the English Language Proficiency Standards (ELPS), only 71% of student teachers felt well prepared. In the realm of federal, state and campus level policy, only 73% felt well prepared in both understanding and adhering to federal and state laws that govern services for LEP-ELL students as well as complying with district and campus procedures regarding this population.

**Technology**

Children in schools today are referred to as “digital natives,” growing up in a world of technology. We live in a society that depends on technology to complete many daily tasks. Yet interestingly enough, it appears that our students do not feel adequately prepared in certain aspects of technology in their roles as teachers. When asked to what extent they felt prepared to use available technology to collect, manage, and analyze data using software programs, only 67% felt well prepared. With regard to teaching students technology skills, only 74% felt well prepared, which is cause for alarm because their role is to prepare 21st century learners for their futures with advanced technology. When asked to what extent were they prepared using technology to collect, manage, and analyze data from multiple sources in order to interpret learning results for students, a 62% felt well prepared while only 66% felt well-prepared to collect and manage formative assessment data to guide instruction. Along the same lines of data, only 62% felt well prepared in using technology to document student learning to determine when an intervention is necessary and appropriate.

The performance of the student teachers on the PPR was quite high on all four domains. Interestingly, the student teachers felt they were not well prepared in certain aspects in both working with diverse learners
and technology. In educator preparation programs, students are mandated to take basic level courses including ESL and Bilingual courses, in which education students learn the fundamentals on how to work with ELL students. In addition, students are also mandated to take courses on disabilities that will provide basic information on working with students with disabilities. Though after analyzing the Educator Prep Program Candidate Exit Survey, one wonders if we are adequately preparing our students to work with diverse learners. It is a similar case with the area of technology. Currently, our students do not take a specific course on technology, rather, it is understood that all educator professors embed technology in their instruction. As one could imagine, there is a large discrepancy in the amount of technology incorporated in particular courses pointing to the possibility that students are being short changed in learning technology skills. In the following section, we will discuss possible recommendations that could increase student teachers’ preparedness in both working with special populations and technology.

It is important to note that in all areas where the domain measured deficient, a proportionate number of responders skipped those questions. On average, approximately 50 respondents skipped the same questions where the program measured deficiencies. This raises another set of possible questions. Do responders skip these questions because they do not understand the questions? Or, do they skip those questions because they do not want to mark their program down in a specific area? Clearly, more research is needed, but careful evaluation of these questions is necessary for a more accurate evaluation.

**Recommendations**

Results of the study suggest several recommendations that could help increase student teachers’ preparedness in working with special populations and technology, including (a) vertical alignment, (b) seminars, (c) book clubs, and (d) incorporating diverse populations and technology in lesson plans.

Currently, we are working on vertical alignment to determine what information is being covered in each course. Vertical alignment is a powerful and effective tool in ensuring our students experience a
smooth and successful transition throughout their program. Not only will vertical alignment eliminate unnecessary time on topics previously learned or duplicate information, most importantly, it will minimize gaps in students learning to ensure all topics are covered. Planning for vertical alignment can start with a critical meeting with professors of the courses. In these meetings, professors should identify the standards and objectives for the course how these are objectives taught and assessed. Any duplication or gaps should be identified. Each objective should be taught in several courses.

Vertical alignment of technology standards might address the following questions: (a) what types of technology are being incorporated in the learning, (b) what opportunities are students given to use the technology, and (c) how are technology skills being taught? The National Educational Technology Standards and Performance Indicators for Teachers from the International Society for Technology in Education (ISTE) could be used to assign standards to certain courses.

**Seminars**
As a college, we also found that we have a multitude of information to cover in all courses, and that there may be areas such as working with diverse populations and technology that could be reinforced or enhanced in seminars. A seminar could be led by an outside speaker who is an expert in the field. Many region educational centers or local school districts have specialists that would fulfill this role. The seminar could be conducted in person or through a webinar. More and more universities and even local schools are creating and utilizing webinars. An advantage of webinars is that students can access the content at any time as well as revisit it more than once. It is also recommended to incorporate questions at the end to ensure student understanding. In addition, webinars are inexpensive and usually can be created with help of the IT department at the university.

**Book clubs**
In an effort to increase our education candidates’ preparedness in working with diverse populations, we have incorporated book clubs covering
a variety of topics including ESL/ELL, gifted and talented, learning disabilities and dyslexia. A unique feature of a book club is that it can be held online and students can participate in their meetings using synchronous or asynchronous discussion rooms. At the conclusion of the book club, the students create and hold a staff development for their peers to increase knowledge on working with special populations. In fact, when we incorporated this virtual book club in our classes, local schools have asked if our students would do their staff development at their school for their teachers. At the end of the book club, we surveyed the students on their participation of the book club. Unanimously, the students felt a book club was a wonderful learning experience and felt more confident in their ability in working with diverse learners.

**Incorporating diverse populations and technology lesson plans**

If we truly want to increase our students’ preparedness, it is vital that they be given ample opportunities to increase their experience, specifically in working with diverse populations and utilizing technology. One simple way to make this a reality is to have students include standards for both technology and for diverse populations (eg. ELPs, ISTE) in their lesson plans as well as accommodations/modifications for ELL students and students with learning disabilities. By having students incorporate this information in their lesson plans, it provides them additional practice with working with diverse populations as well as using technology in the classroom, thus increasing their preparedness in both areas.
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ACA ethics competition: A discussion of confidentiality and dual relationships

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Kelsey Hollis
Kristin Wilcox
Leslie Gay Bertolino

Abstract
This paper examines ethical dilemmas to consider in a counseling relationship. The client indicates potential homicidal intent, suicidal intent, and the transmission of a contagious life-threatening disease. There is also the consideration of an incidental dual relationship based on social media interaction. Corey, Corey, and Callanan’s (1998) decision-making model will be utilized to process and address all potential ethical and legal dilemmas, as well as to determine the course of action to be taken in treating the client. This will include reviewing relevant ethical guidelines and pertinent laws, seeking applicable consultation, and concluding the best course of action. In this case, the counselor will maintain the confidentiality and privacy of the client. The counselor and client will explore the implications of the dual relationship.
ACA ethics competition: A discussion of confidentiality and dual relationships

Scenario
Dominique is a 28-year-old male and the star player of a professional football team. He was recently arrested on drunken driving charges, and his team is requiring that he complete mandatory counseling in order to be eligible to continue playing in the season. As part of the referral, it is noted that several teammates have observed that Dominique no longer cares for his physical appearance as he once did and that he is often “moody." In his third counseling session, Dominique reveals he was diagnosed with AIDS three years ago and feels that his life is harder to deal with because of the disease. He reports that he frequently takes medication “holidays” because the side effects impact his performance on the field. Thus far, through a series of payments to the team doctor, Dominique has been able to hide his diagnosis from both the team and the public. During a session, Dominique discloses that he has been in a relationship for two weeks. He has not informed his girlfriend, Michelle, of his diagnosis because he believes she will reject him. He states that if she rejects him he will kill her. Michelle and Dominique have come close to being intimate a number of times, and Dominique is considering moving forward in the relationship without telling her. Dominique reports he has had many previous sexual encounters with other partners without informing them of his diagnosis. The day after the third session, the counselor logs into his/her Instagram account and views the “Popular” page. Two of Dominique’s pictures have made the “Popular” feed, and the pictures, along with his notes, display him showing off guns and knives and comparing himself to Shakespeare’s Othello.

Model for ethical decision
As a counselor, many ethical dilemmas may arise when developing a therapeutic alliance with a client. To address these concerns, professional organizations, such as the American Counseling Association (ACA), the National Board for Certified Counselors (NBCC), and various state-level associations, have resolved to set ethical standards for practice
through their ethical codes. However, differing ethical and legal require-
ments create additional confusion when addressing complex ethical
dilemmas. To aid the application of professional standards, counseling
professionals have published multiple ethical decision making models,
denoting suggested steps for issue resolution.

Specifically, Corey, Corey, and Callanan (1998) created a series of
eight steps to consider when approaching ethical issues. In this model,
the counselor begins by identifying the nature of the dilemma and any
pertinent information that may provide additional perspectives. During
this process, client collaboration is imperative in strengthening the thera-
peutic relationship. Once information is collected, the counselor must
identify potential issues, particularly those related to conflicting expecta-
tions and moral principles. Next, the counselor should obtain informa-
tion from ethical codes, review relevant laws and regulations, and seek
professional consultation.

With this knowledge in mind, possible courses of action can be
detailed and discussed with the client. In addition, the implications of
possible solutions should be evaluated according to the client’s values.
After each of these steps is considered, the counselor can implement an
educated decision and evaluate its outcome.

As the foundation of ethical decision-making, Kitchener (1984)
proposed five moral principles for all counselors to consider: autonomy,
nonmaleficence, beneficence, fidelity, and justice. These concepts are
recognized among counselors as non-negotiable aspects of the counsel-
ing relationship, yet their differing responsibilities to the client often
create conflict in ethical dilemmas. It is important to consider the extent
to which each moral principle affects the conceptualization and resolu-
tion of issues in counseling.

**Identification of the problem**

In this particular scenario, we have identified the two pertinent dilemmas
as confidentiality and dual relationships. Within the scope of confiden-
tiality falls the counselor’s duty to warn, as evidenced by Dominique’s
threats to Michelle and references to Shakespeare’s Othello. The duty
to warn in this scenario is tripartite: duty to warn of homicidal intent,
duty to warn of suicidal intent, and duty to warn regarding the possible transmission of a contagious life-threatening disease. Additionally, a dual relationship occurs through the counselor’s view of an Instagram post and Dominique’s star status.

In the counseling relationship it is imperative for the counselor to communicate and maintain the client’s right to confidentiality and privacy. As with Kitchener’s (1984) moral principles, confidentiality in counseling promotes autonomous decision making, protects the client’s well-being from undue harm, and promotes honesty and fairness. Confidentiality safeguards the client’s shared information, while encouraging trust and full disclosure (Corey et al., 1984). According to the ACA Code of Ethics (2005), trust is a “cornerstone of the counseling relationship” (p. 7), thus granting it vast importance when navigating ethical dilemmas.

A dual relationship exists whenever there are connections outside of the counselor-client relationship (Moleski & Kiselica, 2005). By definition, the counselor’s access to personal life information via social media can create an additional connection—a dual relationship that must be addressed. The Internet and applications such as Instagram have created deep ethical dilemmas regarding their use, and the possible occurrences of dual relationships. When the counselor has information about the client that was not shared in session, this creates an unfair advantage to the counselor. The ethical impact of a dual relationship is contingent upon many factors, with autonomy recognized as playing a major influential role (Moleski & Kiselica, 2005).

Consideration of issues, ethics, and laws

**Duty to warn**

The precedent regarding a professional counselor’s duty to warn a foreseeable victim of a dangerous client was created by the landmark case Tarasoff v. Regents of the University of California (Remley & Herlihy, 2001). However, the state of Texas does not follow this precedent. Babbee, Combs, Ekleberry and Villalobos (2007) explain that the opinion in Thapar v. Zezulka, rendered by the Texas Supreme Court in 1999,
restricted mental health providers from the duty to warn and protect. Specifically, Justice Craig T. Enoch stated, “...we refrain from imposing on mental health professionals a duty to warn third parties of a patient’s threats” (Barbee et al., 2007, p. 19). Justice Enoch further explained that the state of Texas declined to adopt a duty to warn in favor of protecting more restrictive standards regarding the client’s right to confidentiality (Barbee et al., 2007).

Further complicating our dilemma regarding disclosing Dominique’s potential homicidal and/or suicidal intent is the permissive language used in the Texas Health and Safety Code Chapter 611.004, which governs disclosure laws for mental health professionals. The code states:

A mental health professional may disclose information only to medical or law enforcement personnel if the professional determines that there is a probability of imminent physical injury by the patient to the patient or others or there is a probability of immediate mental or emotional injury to the patient” (Texas Health and Safety Code 611.004(a)(2)).

The specific wording suggests that the counselor should use his or her best judgment as to whether or not to disclose to law enforcement personnel, as opposed to delineating what the counselor must do; thus this language is permissive and not mandatory. Further consideration is that disclosure can only be made to law enforcement personnel. Additionally, there is no liability protection for counselors who make disclosures in good faith.

The Texas state codes regarding disclosure are in direct conflict with the ACA Code of Ethics (2005), Section B.2.a., which states that:

The general requirement that counselors keep information confidential does not apply when disclosure is required to protect clients or identified others from serious and foreseeable harm or when legal requirements demand that confidential information must be revealed.

Under the ACA code, should the disclosure requirements be met, the counselor is ethically obligated to disclose to applicable third parties. Since the counselor and Dominique reside in the state of Texas, state
Another instance in this scenario when Texas law contradicts ACA Guidelines pertains to Dominique’s disclosed AIDS diagnosis and the possibility of transmission to third parties. The related Texas statute states, “Test results may be released to the Health Department, the CDC, the physician or health care provider who ordered the test, the person tested, or the spouse of the person tested” (Barbee et al., 2007, p. 22). Under the Texas statute, Dominique’s girlfriend Michelle does not meet the current standard of disclosure because she is not his spouse at this time. In contrast, ACA (2005) indicates that the counselor, “…may be justified in disclosing of information to identifiable third parties, if they are known to be at demonstrable and high risk of contracting the disease” (B.2.b.).

Compliance with the ACA ethical standards and with Texas state statutes is ideal. Were the counselor to decide that disclosure to a third party is ethically sound, it is not legally supported in Texas. Thus, compliance with both entities is not possible. Regarding most breaches of confidentiality, counselors practicing in Texas may be risking their state licenses, their professional reputations, and may be found liable for civil damages (Barbee et al., 2007).

**Social media and spotlight**

The potential destructiveness in a dual relationship depends upon the degree to which the client loses autonomy. A detrimental dual relationship results in a client’s loss of power to choose his or her own direction; however, Dominique can fully control his posts on Instagram. In fact, social media has become a foundation for the promotion of sports groups and individual athletes, and is often viewed as such. Many teams and individual athletes commonly engage in the use of social media to promote their image, brand, and overall marketability (Hambrick, 2012). Dominique is recognized as a star player, indicating he receives far more media coverage than the average counseling client. The National Football League (NFL) is the only professional football league within the United States. NFL officials have recognized the importance of educat-
ing its rookie players before allowing them to enter the league through implementing annual rookie symposiums and educational seminars (Withers, 2013). Dominique certainly would have received education regarding his off-the-field behavior and use of social media prior to entering the NFL. Dominique must know that all his posts become global knowledge upon submitting them.

Information shared through Internet access is considered widely available; therefore, it would not be uncommon for a counselor to have stumbled upon Dominique’s Instagram pictures. Smith and Smith (2012) discussed social-identity in relation to a rapidly evolving world of social media. They argued that conversations athletes previously had with fans, verbal or written, have now evolved into the use of a new medium. That is, posts on Facebook, Twitter, or Instagram should be viewed as no less concrete than old forms of communication. By posting a photograph and caption on Instagram, Dominique essentially made a written or verbal statement for anyone interested and able to access such content. ESPN network stations have even contributed to the wide use of social media sharing by directly quoting players from their social media accounts, and subsequently creating news stories based solely on social media posts (Ourand, 2011).

Moleski and Kiselica (2005) identified that dual relationships originate from one of two ways: by choice or by chance. In this incident, the counselor-client and additional superstar-media consumer dual relationship would be extremely difficult to avoid. In 2011, an NFL star running back, Rashard Mendenhall, made headline news because of a controversial social media post. Ourland (2011) recapitulated the highly publicized news story and stated that the news, solely derived from social media content, was of ESPN’s top 15 news stories from that year.

There is no doubt that a high-profile player such as Dominique would have received much news coverage for his post; therefore, the resulting dual relationship likely would have been unavoidable to the average counselor.
Significant distracters

Within Dominique’s scenario, we recognized several potential issues that, although significant, were deemed irrelevant for our decision-making purposes. Dominique shared that he is bribing his doctor to keep his illness a secret and frequently taking breaks from his medication. These issues present questions of confidentiality, while challenging the counselor’s personal values and professional competence. Bribery, specifically, is a moral issue that may conflict with the counselor’s personal beliefs. For the counselor working with Dominique, learning that he chooses to engage in a morally questionable behavior may present an internal conflict. However, the counselor must respect the autonomy and diversity of the client, regardless of personal values (ACA, 2005, A.1.a., A.4.b.). Although this issue may be cause for a conversation with Dominique at a later time, ultimately he is autonomous in making his own decisions without a breach in confidentiality on the counselor’s behalf.

Additionally, Dominique’s medication holidays reveal a gap in the counselor’s professional competence and present concern for Dominique’s well-being. While the literature suggests that medication adherence is a strong predictor of the progression of AIDS to death, the counselor does not have the professional competence to address a medical issue (ACA, 2005, A.1.a, C.2.a.; Hernández Arroyo, 2013; Srikanth, Reddy, Reddy, Hari, & Abhijeet, 2012). The counselor should recommend a conversation with the prescribing physician, and compliance to the physician’s orders. Ultimately, these issues are significant distracters that do not interfere with the course of action at hand. Since bribery and medication holidays do not reveal imminent danger, breaking confidentiality to reveal either truth would be unethical (ACA, 2005, B.2.a.). However, conversations and suggestions regarding potential issues are appropriate and require proper documentation in the client’s records, in the case of future issues (ACA, 2005, A.1.b.).

Consultation

Upon reviewing the pertinent ethical guidelines and legal statutes, the counselor would seek consultation with various colleagues (peers and supervisors), with legal counsel, and may call his or her liability insurer.
In situations where professional competence is in question, the counselor may need to acquire additional training or access scholarly resources. This step is essential in making the best possible professional decision and also provides appropriate documentation to support the counselor’s decision.

Course of action

In this scenario, the counselor will maintain Dominique’s confidentiality and privacy regarding the duty to warn considerations. While the ethical codes suggest that action may be taken, Texas state law clearly prohibits the counselor from disclosing any confidential information. Regarding Dominique’s statement that he will kill Michelle if she rejects him, the counselor will assess if there is probable, imminent danger to Michelle. In the Instagram post where Dominique compares himself to Shakespeare’s Othello, the counselor recognizes that this could be interpreted as additional evidence of homicidal intent, as well as suicidal intent. Thus, the counselor will assess Michelle’s safety and conduct a lethality assessment for Dominique’s possible suicidal ideation. As stated previously, Dominique’s AIDS diagnosis posits a potential duty to warn consideration. Again, because Dominique does not have a legal spouse, there is no third party who may be notified in the state of Texas. Currently, any action taken by the counselor will be in session with Dominique, in the form of assessment and collaborative discussion. In the event the assessment results indicate any foreseeable harm, the counselor will consult with a supervisor and disclose to law enforcement personnel, per legal statutes.

While it is Dominique’s responsibility to monitor his social media output, the counselor must also make it known that information associated with his counseling concerns has been accessed via Instagram. It is possible that Dominique may have posted the picture, and while widely famous, never expected his counselor to have access to the photograph and related notes. For this reason, the ethical response for the counselor is to simply address the posting in the next counseling session. If Dominique is willing, the post can be used as the basis of a discussion in counseling. Otherwise, the counselor can help Dominique explore his
digital footprint and privacy when engaging in such sources of social media. Instagram users have the option to make their posts private; evidently, Dominique did not choose this option. This global access further solidifies the occurrence as chance, rather than the counselor’s choice, to engage in such a relationship. Regardless, the counselor must address the access of information with Dominique, while discussing the implications of his posted comments. It is essential that, during the course of counseling, the counselor document all ethical and legal considerations, assessment, consultation and actions taken. Proper documentation will allow the counselor to uphold Dominique’s well-being, resolve future issues, and evaluate the chosen plan of action.
References


Programs in K–12 schools
Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement

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Cynthia Martinez-Garcia

Abstract
In this investigation, we analyzed the extent to which discipline consequences assigned to Grade 7 Hispanic and white students were related to their performance on state-mandated reading and math assessments. Archival data from the Texas Education Agency Public Education Information Management System were obtained for Grade 7 Texas Hispanic and white middle school students for the 2008-2009 and 2010-2011 school years. Data from the 2008-2009 and 2010-2011 school years were analyzed independently and then compared to determine the extent to which a trend might be present in the results. Hispanic and white Texas grade 7 students who received in-school suspension (ISS), out-of-school suspension (OSS), or a discipline alternative education program (DAEP) placement had statistically significantly lower TAKS reading and math scale and raw scores than their grade 7 peers who did not receive discipline consequences during the 2008-2009 school year and in the 2010-2011 school year. Implications of our findings are discussed.
Diversity in the United States education system has led to disciplinary turmoil, inequitable disciplinary practices, disagreement over social justice in education, and concern about student achievement (Lunenburg, 2012). Recently, several researchers (e.g., Hilberth & Slate 2012; Jones, Slate & Hilberth, 2012) have established that disciplinary consequences have been assigned in an inequitable manner to ethnic groups. Black and Hispanic students have been assigned statistically significantly more instances of in-school suspension, out-of-school suspension, disciplinary alternative education program placement, and expulsions than their white counterparts (e.g., Foney & Cunningham, 2002; Nichols, 2004; Skiba, Peterson, & Williams, 1997). These disciplinary consequences, all of which involve excluding the student from his/her regular classroom setting, have a negative influence on student academic performance (Skiba, 2000). Because underrepresented students receive many more instances of such exclusionary consequences, the impact on their academic performance is far greater than for their white peers (Pokorski, 2010; Skiba, 2000). Even though students may receive instruction while in these disciplinary consequences, these educational equivalents are not equal to in-class instruction (Pokorski, 2010; Skiba, 2000).

Several researchers (e.g., Jones, Slate, & Hilberth, 2012; Kralevich, Slate, Tejeda-Delgado, & Kelsey, 2010) examined the effects of inequitable exclusionary disciplinary practices on middle school students in Texas. Jones et al. (2012), using statewide data, determined that Hispanic middle school students were assigned to in-school suspension, out-of-school suspension, and discipline alternative education program placements at statistically significantly higher rates than their white peers. Kralevich, Slate, Tejeda-Delgado, and Kelsey (2010), also in a statewide investigation, documented that 7th and 8th grade students who were assigned to in-school suspension earned lower Texas Assessment of Knowledge and Skills (TAKS) reading and math scores than their classmates who did not receive an in-school suspension placement. In these two studies, Hispanic students were assigned disciplinary consequences in an inequitable manner. This inequitable assignment to
disciplinary consequences that removed these students from the regular classroom setting was related to lower student academic performance.

National interest is present in the assignment of disciplinary consequences to school age children. This concern is aptly noted by Secretary of Education Arne Duncan’s statement, “Education is the civil rights of our generation” (Levin, 2012, para. 5). Along with this quote, Duncan provided strong empirical data regarding the effects of zero tolerance policies: black and Hispanic students represented 45% of student enrollment, however, black and Hispanic students had an expulsion rate of 56% (Levin, 2012). Of the students who were referred to police or involved in school-related arrests, “over 70 percent of the students were Hispanic or black” (Levin, 2012, para. 7).

Purpose of the study
The purpose of this study was to determine the extent to which discipline consequences assigned to Grade 7 Hispanic and white students were related to student performance on the state-mandated reading and math assessments. We analyzed data for two different school years to ascertain whether a trend might be present in discipline consequence type and the impact of such consequences on student reading and math achievement. In recent literature, researchers (Fenning & Rose, 2007; Gordon, Piana, & Keleher, 2000; Hilberth, 2010; Hilberth & Slate, 2012; Lunenburg, 2012; Skiba, Michael, Nardo, & Peterson, 2002; Skiba & Peterson, 2000) have addressed inequities in discipline consequence assignments between black and white students. With the Hispanic population in the United States increasing from 35.3 million in 2000 to 50.5 million in 2010, we believe it is important to conduct empirical research on disciplinary consequences and their relationship to student achievement for Hispanic and white students.

Research questions
The following research questions were addressed in this study: (a) What is the difference in TAKS reading and math scores for Grade 7 Hispanic students and for Grade 7 white students as a function of in-school suspension?, (b) What is the difference in TAKS reading and
math scores for Grade 7 Hispanic students and for Grade 7 white students as a function of out-of-school suspension?, and (c) What is the difference in TAKS reading and math scores for Grade 7 Hispanic students and for Grade 7 white students as a function of discipline alternative education program placement?

Method
Archival data from the Texas Education Agency Public Education Information Management System were obtained for Grade 7 Texas middle school students for the 2008–2009 and 2010–2011 school years for this investigation. In 2008–2009, the number of Texas middle school students was 809,765; the number of middle school students increased in 2009–2010 to 827,055 (Texas Education Agency Division of Performance Reporting, 2009; Texas Education Agency Division of Performance Reporting, 2010). Middle school student enrollment for the 2010–2011 school year was 1,073,250 students (Texas Education Agency Division of Research and Analysis, 2011). For the purposes of this study, students’ ethnic membership and discipline consequence assignment were reviewed in conjunction with TAKS reading and TAKS math test scores to determine the extent to which discipline consequences types were related to grade 7 Hispanic and white student academic performance. Data from the 2008–2009 and 2010–2011 TAKS reading and math assessments were used in this investigation. Scaled scores and raw scores in reading and mathematics were acquired for Texas Grade 7 students whose test score data were analyzed in this study.

Definition of terms
In-school suspension (ISS) is the lowest level exclusionary consequence available to students (Texas Education Agency, 2010b). To facilitate continued instruction, ISS allows for the removal of a student from the classroom, not the school grounds (Costenbader & Markson, 1998). Costenbader and Markson (1998) compared the assignment of an in-school suspension to assigning a child a time-out. In contrast to a traditional time-out, ISS programs serve many students simultaneously, rather than individually, and keep students up to date on classroom
instruction and coursework. Out-of-school suspension (OSS) is the next level of disciplinary action after ISS (Texas Education Agency, 2010b). “Suspension refers to out-of-school suspension, during which a student is excluded from school for disciplinary reasons for [one] school day or longer” (Planty et al., 2009, p. 71). According to the Texas Education Agency, an OSS assignment may not exceed three school days (Texas Education Agency, 2010b). A DAEP placement is the third level of discipline a student can receive for misbehavior (Texas Education Agency, 2010a). A DAEP may be located on the school property or at a separate, contained location away from the traditional school environment. Depending upon the school district or campus policy, a DAEP placement may be mandatory or discretionary (Texas Education Agency, 2010a).

Results

Data analysis for the 2008–2009 school year

When the statistical procedures (i.e., multivariate analysis of variance [MANOVA]) were conducted, with regard to ISS, OSS, and DAEP for Hispanic students and for white students, the assumption for the Box’s Test of Equality of Covariance was violated. Levene’s Test of Equality of Error Variances revealed that the assumptions were violated for both TAKS reading and math scale scores. Although the assumptions were not met for the data analyzed herein, the robustness of a MANOVA procedure made it appropriate to use on the data in this study (Field, 2009).

For the 2008–2009 school year, the MANOVA revealed a statistically significant difference, Wilks’ $\Lambda = .95, p < .001, \eta^2 = .05$, in Hispanic student performance as a function of in-school suspension. According to Cohen’s (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, $F(1, 158366) = 3980.53, p < .001, \eta^2 = .02$, and in TAKS math scores, $F(1, 161899) = 7680.74, p < .001, \eta^2 = .05$. Using Cohen’s (1988) criteria, both effect sizes were small. Hispanic students assigned to ISS earned statistically significantly lower TAKS reading and math scores than Hispanic students not assigned to ISS. On the TAKS reading test, Hispanic students not assigned to ISS
Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement

earned a scale score 76.18 points higher than Hispanic students assigned an ISS placement. On the TAKS math test, Hispanic students not assigned to ISS earned a scale score 85.58 points higher than Hispanic students assigned to ISS.

For white students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .94, \( p < .001 \), \( \eta^2 = .06 \), as a function of in-school suspension. According to Cohen’s (1988) criteria, the effect size was moderate. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \( F(1, 119692) = 5599.97, p < .001, \eta^2 = .04 \), and in TAKS math scores, \( F(1, 119692) = 6718.11, p < .001, \eta^2 = .05 \). Using Cohen’s (1988) criteria, both effect sizes were small. On the TAKS reading test, white

Table 1
Descriptive statistics for Grade 7 TAKS reading scores categorized by ethnic membership and ISS assignments during the 2008–2009 school year

<table>
<thead>
<tr>
<th>Ethnic membership/ISS receipt</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received ISS</td>
<td>19,450</td>
<td>2219.40</td>
<td>187.32</td>
</tr>
<tr>
<td>White Students/Did Not Receive ISS</td>
<td>100,244</td>
<td>2324.47</td>
<td>177.59</td>
</tr>
<tr>
<td>Hispanic Students/Received ISS</td>
<td>39,810</td>
<td>2144.86</td>
<td>199.30</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive ISS</td>
<td>118,558</td>
<td>2221.04</td>
<td>211.46</td>
</tr>
</tbody>
</table>

Table 2
Descriptive statistics for Grade 7 TAKS reading scores categorized by ethnic membership and OSS assignments during the 2008–2009 school year

<table>
<thead>
<tr>
<th>Ethnic membership/OSS receipt</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received OSS</td>
<td>19,450</td>
<td>2219.40</td>
<td>187.32</td>
</tr>
<tr>
<td>White Students/Did Not Receive OSS</td>
<td>100,244</td>
<td>2324.47</td>
<td>177.59</td>
</tr>
<tr>
<td>Hispanic Students/Received OSS</td>
<td>39,810</td>
<td>2144.86</td>
<td>199.30</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive OSS</td>
<td>118,558</td>
<td>2221.04</td>
<td>211.46</td>
</tr>
</tbody>
</table>
students assigned to ISS earned a scale score 105.07 points lower than white students not assigned to ISS. Furthermore, on the TAKS math test, white students assigned to ISS earned a scale score 114.65 points lower than white students not assigned to ISS.

Concerning out-of-school suspension for Hispanic students, the MANOVA revealed a statistically significant difference, Wilks’ $\Lambda = .96$, $p < .001$, $\eta^2 = .04$, small effect size (Cohen, 1988). Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, $F(1, 158366) = 3579.47$, $p < .001$, $\eta^2 = .02$, and in TAKS math scores, $F(1, 158366) = 6562.68$, $p < .001$, $\eta^2 = .04$. Using Cohen’s (1988) criteria, both effect sizes were small. Hispanic students assigned to OSS earned statistically significantly

<table>
<thead>
<tr>
<th>Ethnic membership/DAEP receipt</th>
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<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received DAEP</td>
<td>2,012</td>
<td>2148.66</td>
<td>231.51</td>
</tr>
<tr>
<td>White Students/Did Not Receive DAEP</td>
<td>117,682</td>
<td>2310.11</td>
<td>181.21</td>
</tr>
<tr>
<td>Hispanic Students/Received DAEP</td>
<td>5,912</td>
<td>2077.16</td>
<td>230.45</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive DAEP</td>
<td>152,456</td>
<td>2206.73</td>
<td>208.79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnic membership/ISS receipt</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received ISS</td>
<td>19,450</td>
<td>2180.62</td>
<td>170.53</td>
</tr>
<tr>
<td>White Students/Did Not Receive ISS</td>
<td>100,244</td>
<td>2295.27</td>
<td>180.05</td>
</tr>
<tr>
<td>Hispanic Students/Received ISS</td>
<td>39,810</td>
<td>2123.02</td>
<td>162.40</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive ISS</td>
<td>118,558</td>
<td>2208.60</td>
<td>170.60</td>
</tr>
</tbody>
</table>
lower TAKS reading and math scores than did Hispanic students who were not assigned to OSS. On the TAKS reading test, Hispanic students assigned to OSS earned a scale score 96.09 points lower than Hispanic students not assigned to OSS. On the TAKS math test, Hispanic students assigned to OSS earned a scale score 105.44 points lower than Hispanic students not assigned to OSS.

Regarding out-of-school suspension for white students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .97, $p < .001$, $η² = .03$, small effect size (Cohen, 1988). Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, $F(1, 119692) = 2534.30$, $p < .001$, $η² = .02$, and in TAKS math scores, $F(1, 119692) = 3032.81$, $p < .001$.

### Table 5
Descriptive statistics for Grade 7 TAKS math scores categorized by ethnic membership and OSS assignments during the 2008–2009 school year

<table>
<thead>
<tr>
<th>Ethnic membership/OSS receipt</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received OSS</td>
<td>5,579</td>
<td>2146.20</td>
<td>188.07</td>
</tr>
<tr>
<td>White Students/Did Not Receive OSS</td>
<td>114,115</td>
<td>2283.02</td>
<td>180.85</td>
</tr>
<tr>
<td>Hispanic Students/Received OSS</td>
<td>19,221</td>
<td>2094.44</td>
<td>169.08</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive OSS</td>
<td>139,147</td>
<td>2199.88</td>
<td>169.16</td>
</tr>
</tbody>
</table>

### Table 6
Descriptive statistics for Grade 7 TAKS math scores categorized by ethnic membership and DAEP assignments during the 2008–2009 school year

<table>
<thead>
<tr>
<th>Ethnic membership/OSS receipt</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
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</thead>
<tbody>
<tr>
<td>White Students/Received DAEP</td>
<td>2,012</td>
<td>2106.13</td>
<td>199.20</td>
</tr>
<tr>
<td>White Students/Did Not Receive DAEP</td>
<td>117,682</td>
<td>2279.56</td>
<td>181.81</td>
</tr>
<tr>
<td>Hispanic Students/Received DAEP</td>
<td>5,912</td>
<td>2048.47</td>
<td>182.77</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive DAEP</td>
<td>152,456</td>
<td>2192.46</td>
<td>169.95</td>
</tr>
</tbody>
</table>
\(\eta^2 = .02\). Both effect sizes were small (Cohen, 1988). White students assigned to OSS earned statistically significantly lower TAKS reading and math scores than did white students who were not assigned to OSS. With regard to the TAKS reading test, white students assigned to OSS earned a scale score 125.24 points lower than white students not assigned to OSS. On the TAKS math test, white students assigned to OSS earned a scale score 136.82 points lower than white students not assigned to OSS.

With respect to DAEP for Hispanic students, the MANOVA revealed a statistically significant difference, Wilks’ \(\Lambda = .97\), \(p < .001\), \(\eta^2 = .03\), small effect size (Cohen, 1988). Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \(F(1, 158366) = 2174.09\), \(p < .001\), \(\eta^2 = .01\), and in TAKS math scores, \(F(1, 158366) = 4061.49\), \(p < .001\), \(\eta^2 = .02\). Both effect sizes were small (Cohen, 1988). Hispanic students assigned to a DAEP placement earned statistically significantly lower TAKS reading and math scores than did Hispanic students who were not assigned to a DAEP placement. On the TAKS reading test, Hispanic students not assigned to a DAEP placement earned a scale score 129.57 points higher than Hispanic students assigned to a DAEP placement. With regard to the TAKS math test, Hispanic students not assigned to a DAEP placement earned a scale score 143.99 points higher than Hispanic students assigned to a DAEP placement.

Concerning DAEP for white students, the MANOVA revealed a statistically significant difference, Wilks’ \(\Lambda = .98\), \(p < .001\), \(\eta^2 = .02\), small effect size. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \(F(1, 119692) = 1553.77\), \(p < .001\), \(\eta^2 = .01\), and in TAKS math scores, \(F(1, 119692) = 1793.77\), \(p < .001\), \(\eta^2 = .02\). Both effect sizes were small (Cohen, 1988). White students assigned to a DAEP placement earned statistically significantly lower TAKS reading and math scores than did white students who were not assigned to a DAEP placement. On the TAKS reading test, white students assigned to a DAEP placement earned a scale score 161.45 points lower than white students not assigned to a DAEP placement. With respect to the TAKS math test, white students
assigned to a DAEP placement earned a scale score 173.43 points lower than white students not assigned to a DAEP placement.

2010–2011 Data Analysis
Data analysis for the 2010–2011 school year was conducted using the same statistical procedures as were conducted for the 2008–2009 school year. One difference between the 2008–2009 TAKS reading and math data and the 2010–2011 TAKS reading and math data was that in 2009 the TEA changed score reporting from scale scores to vertical scale scores. Vertical scale scores were deemed a better measurement tool in comparing students’ scores from one grade to the next and developed in accordance with mandated legislative requirements (Texas Education Agency, 2011b). Thus, the scale scores for the 2010–2011 data were different due to the vertical scale in place.

Furthermore, the effect of ISS, OSS, and DAEP placements on academic achievement was limited with the use of the vertical scale score. In essence, the vertical scale scores prevented a true analysis of the impact of disciplinary consequences on TAKS reading and math scores. To overcome this deficit, the 2010–2011 data were analyzed using TAKS reading and math raw scores, rather than the vertical scale scores that were available. Presented in Tables 7 through 12 are the descriptive statistics for the TAKS reading and math scores for all discipline consequence types.

With respect to in-school suspension for Hispanic students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .95, p < .001, η² = .05, small effect size. Univariate follow-up analysis of variance procedures revealed differences in TAKS reading scores, F(1, 174915) = 5690.04, p < .001, η² = .03, and in TAKS math scores, F(1, 174915) = 9129.79, p < .001, η² = .05. Both effect sizes were small (Cohen, 1988). Hispanic students assigned to ISS earned statistically significantly lower TAKS reading and math scores than Hispanic students not assigned to ISS. On the TAKS reading test, Hispanic students not assigned to ISS earned an average raw score 4.06 points lower than Hispanic students assigned an ISS placement. On the TAKS math test, Hispanic students not assigned to ISS earned an average raw score 5.22
Regarding in-school suspension for white students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .94, \( p < .001 \), \( \eta^2 = .06 \), moderate effect size. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \( F(1, 113338) = 5327.37, p < .001, \eta^2 = .05 \), and in TAKS math scores, \( F(1, 119692) = 6640.14, p < .001, \eta^2 = .06 \). The effect size for TAKS reading was small and the effect size for TAKS math was moderate (Cohen, 1988). On the TAKS reading test, white students assigned to ISS earned an average raw score 4.77 points lower than white students not assigned to ISS. Furthermore, on the TAKS math test, white students assigned to ISS earned an average raw score 6.06 points lower than

Table 7
Descriptive statistics for Grade 7 TAKS reading scores categorized by ethnic membership and ISS assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/ISS receipt</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received ISS</td>
<td>16,485</td>
<td>36.05</td>
<td>9.63</td>
</tr>
<tr>
<td>White Students/Did Not Receive ISS</td>
<td>96,856</td>
<td>40.82</td>
<td>7.45</td>
</tr>
<tr>
<td>Hispanic Students/Received ISS</td>
<td>39,923</td>
<td>32.41</td>
<td>9.92</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive ISS</td>
<td>134,995</td>
<td>36.47</td>
<td>9.35</td>
</tr>
</tbody>
</table>

Table 8
Descriptive statistics for Grade 7 TAKS reading scores categorized by ethnic membership and OSS assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/OSS receipt</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received OSS</td>
<td>4,484</td>
<td>33.82</td>
<td>11.35</td>
</tr>
<tr>
<td>White Students/Did Not Receive OSS</td>
<td>108,857</td>
<td>40.39</td>
<td>7.71</td>
</tr>
<tr>
<td>Hispanic Students/Received OSS</td>
<td>18,272</td>
<td>30.73</td>
<td>10.62</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive OSS</td>
<td>156,646</td>
<td>36.11</td>
<td>9.35</td>
</tr>
</tbody>
</table>
Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement

white students not assigned ISS.

With respect to out-of-school suspension for Hispanic students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .96, p < .001, η² = .04, small effect size. Univariate follow-up analysis of variance procedures revealed a statistically significant difference in TAKS reading scores, \( F(1, 174915) = 5360.77, p < .001, \eta^2 = .03, \) and in TAKS math scores, \( F(1, 158366) = 7560.73, p < .001, \eta^2 = .04. \) Both effect sizes were small (Cohen, 1988). Hispanic students assigned to OSS earned statistically significantly lower TAKS reading and math scores than did Hispanic students who were not assigned to OSS. On the TAKS reading test, Hispanic students assigned to OSS earned an average raw score 5.38 points higher than Hispanic students not assigned to OSS. On the TAKS math test, Hispanic students assigned to OSS earned an average raw score 6.58 points higher than Hispanic students not assigned to OSS.

Concerning out-of-school suspension for white students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .97, p < .001, η² = .03, small effect size. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \( F(1, 113338) = 3073.80, p < .001, \eta^2 = .03, \) and in TAKS math scores, \( F(1, 113338) = 3547.26, p < .001, \eta^2 = .03. \) Both effect sizes were small (Cohen, 1988). White students assigned to OSS earned statistically significantly lower TAKS reading and math scores than did white students who were not assigned to OSS. With regard to the TAKS reading test, white students assigned to OSS earned an average raw score 6.57 points higher than white students not assigned to OSS. On the TAKS math test, white students assigned to OSS earned an average raw score 8.06 points higher than white students not assigned to OSS.

With respect for DAEP for Hispanic students, The MANOVA revealed a statistically significant difference, Wilks’ Λ = .97, p < .001, η² = .03, small effect size. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores, \( F(1, 174915) = 3598.79, p < .001, \eta^2 = .02, \) and in TAKS math scores, \( F(1, 174915) = 5042.69, p < .001, \eta^2 = .03. \) Both effect sizes
Table 9  
Descriptive statistics for Grade 7 TAKS reading scores categorized by ethnic membership and DAEP assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/DAEP receipt</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received DAEP</td>
<td>1,737</td>
<td>32.30</td>
<td>12.15</td>
</tr>
<tr>
<td>White Students/Did Not Receive DAEP</td>
<td>111,604</td>
<td>40.25</td>
<td>7.84</td>
</tr>
<tr>
<td>Hispanic Students/Received DAEP</td>
<td>5,771</td>
<td>28.29</td>
<td>11.72</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive DAEP</td>
<td>169,147</td>
<td>35.79</td>
<td>9.45</td>
</tr>
</tbody>
</table>

Table 10  
Descriptive statistics for Grade 7 TAKS math scores categorized by ethnic membership and ISS assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/ISS receipt</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received ISS</td>
<td>16,485</td>
<td>31.31</td>
<td>9.93</td>
</tr>
<tr>
<td>White Students/Did Not Receive ISS</td>
<td>96,856</td>
<td>37.37</td>
<td>8.69</td>
</tr>
<tr>
<td>Hispanic Students/Received ISS</td>
<td>39,923</td>
<td>28.29</td>
<td>9.88</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive ISS</td>
<td>134,995</td>
<td>33.51</td>
<td>9.59</td>
</tr>
</tbody>
</table>

were small (Cohen, 1988). Hispanic students assigned to a DAEP placement earned statistically significantly lower TAKS reading and math scores than did Hispanic students who were not assigned to a DAEP placement. On the TAKS reading test, Hispanic students not assigned to a DAEP placement earned an average raw score 7.50 points higher than Hispanic students assigned to a DAEP placement. With regard to the TAKS math test, Hispanic students not assigned to a DAEP placement earned an average raw score 9.10 points higher than Hispanic students assigned to a DAEP placement.

Regarding DAEP for white students, the MANOVA revealed a statistically significant difference, Wilks’ Λ = .98, $p < .001$, $\eta^2 = .02$, small effect size. Univariate follow-up analysis of variance procedures revealed statistically significant differences in TAKS reading scores,
Table 11
Descriptive statistics for Grade 7 TAKS math scores categorized by ethnic membership and OSS assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/OSS receipt</th>
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<th>M</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>White Students/Received OSS</td>
<td>4,484</td>
<td>28.75</td>
<td>11.02</td>
</tr>
<tr>
<td>White Students/Did Not Receive OSS</td>
<td>108,857</td>
<td>36.81</td>
<td>8.91</td>
</tr>
<tr>
<td>Hispanic Students/Received OSS</td>
<td>18,272</td>
<td>26.48</td>
<td>10.34</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive OSS</td>
<td>156,646</td>
<td>33.01</td>
<td>9.62</td>
</tr>
</tbody>
</table>

Table 12
Descriptive statistics for Grade 7 TAKS math scores categorized by ethnic membership and DAEP assignments during the 2010–2011 school year

<table>
<thead>
<tr>
<th>Ethnic membership/DAEP receipt</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Students/Received DAEP</td>
<td>1,737</td>
<td>27.25</td>
<td>11.21</td>
</tr>
<tr>
<td>White Students/Did Not Receive DAEP</td>
<td>111,604</td>
<td>36.63</td>
<td>9.03</td>
</tr>
<tr>
<td>Hispanic Students/Received DAEP</td>
<td>5,771</td>
<td>23.53</td>
<td>10.74</td>
</tr>
<tr>
<td>Hispanic Students/Did Not Receive DAEP</td>
<td>169,147</td>
<td>32.63</td>
<td>9.73</td>
</tr>
</tbody>
</table>

\[ F(1, 113338) = 1793.00, p < .001, \eta^2 = .02, \text{ and in TAKS math scores,} \]
\[ F(1, 113338) = 1912.33, p < .001, \eta^2 = .02. \] Both effect sizes were small (Cohen, 1988). White students assigned to a DAEP placement earned statistically significantly lower TAKS reading and math scores than did white students who were not assigned to a DAEP placement. On the TAKS reading test, white students assigned to a DAEP placement earned an average raw score 7.95 points lower than white students not assigned to a DAEP placement. With respect to the TAKS math test, white students assigned to a DAEP placement earned an average raw score 9.38 points lower than white students not assigned to a DAEP placement.
Discussion

In a previous investigation (Hilbert, 2010), black and white students’ disciplinary assignments were examined using the same statistical procedures used in this investigation to compare the disciplinary assignments of Hispanic and white students. Hilbert (2010) analyzed the discipline assignments and academic achievement of black and white students in grade 7 during the 2008–2009 school year. Her investigation was also conducted using data from Texas middle schools, and academic achievement was measured by student performance on the TAKS reading and math examinations.

With regard to comparisons between grade 7 black students and white students, students who were assigned to ISS, to OSS, or to a DAEP placement earned statistically significantly lower TAKS reading and math scores than their peers who did not receive such discipline placements (Hilberth, 2010). Similar to the disproportionate percentage of grade 7 Hispanic students who received exclusionary consequences when compared to white students in this investigation, grade 7 black students received a greater percentage of ISS, OSS, and DAEP assignments. Grade 7 black students were 2.2 times more likely to receive an ISS consequence, 4.7 times more likely to receive an OSS consequence, and 3.7 times more likely to receive a DAEP placement than were grade 7 white students (Hilberth, 2010).

Similar to the determinations of numerous researchers (Anfinson et al., 2010; Christle Nelson, & Jolivette, 2004; Fenning & Rose, 2007; Hilberth, 2010; Hilberth & Slate, 2012; Jones, Slate, & Hilberth, 2012; Levin, 2012; Mendez & Knoff, 2003; Muskal, 2012; Nicholson-Crotty, Birchmeier, & Valentine, 2009; Peguero & Shekarkhar, 2011; Skiba et al., 2002; Skiba & Peterson, 1999; Skiba et al., 2011; Stetson & Collins, 2010), ISS, OSS, and DAEP placements were issued to minority students at a substantially greater rate than they were issued to white students. This practice has a negative impact on minority students’ academic achievement. Loss of instructional time for any student negatively impacts that student’s ability to perform at his/her full potential on assignments or assessments (Losen & Skiba, 2010; Schmidt, Cogan, & McKnight, 2011; Talbert-Johnson, 2004; Theriot & Dupper, 2010).
Furthermore, supported through this investigation was the research of Rausch and Skiba (2004) who asserted that students who are present and engaged in a positive learning environment experience greater instances of academic success. Thus, it is vital to understand why Hispanic students receive a disproportionately higher percentage of ISS, OSS, and DAEP placements, as this practice solidifies the achievement gap between majority and minority students.

Implications of this investigation
Consistent with current literature, the results of this investigation support previous assertions that exclusionary discipline assignments negatively impact students’ academic achievement. However, researchers have yet to determine if exclusionary disciplinary assignments result in lower academic achievement, or if students with lower academic achievement misbehave more often and are assigned exclusionary discipline consequences as a result of their misbehavior. Once a determination is made regarding the nature of the original problem, then policy can be implemented to reflect a viable solution. Furthermore, under the mandates of the No Child Left Behind Act (Public Law 107-110, 2001), all states were required to have 100% of their students performing at a level of proficiency by the 2013–2014 academic year, on state standardized assessments (No Child Left Behind, 2004). Based on the findings of this investigation, all students were not performing at a level of proficiency on state-issued standardized assessments, due, in part, to the disproportionately greater issuance of exclusionary discipline consequences to minority students. To serve the academic and developmental interests of all students, discipline alternatives to removal from the instructional environment should be investigated. As all students are not performing at a level of proficiency on state-issued standardized exams, educators would benefit from training in behavior management, cultural differences, and alternative discipline practices to keep students in the instructional environment.

Despite extensive reforms in many United States schools, the achievement gap between minority and majority students remains solid, and United States schools are actually moving further away from
achieving the goals set forth in the No Child Left Behind Act (2004; Public Law 107-110, 2001). Secretary of Education Arne Duncan explained that equitable education was a civil right; yet, as evidenced by the results of this investigation, a disproportionate number of Hispanic students were still assigned to ISS, to OSS, and to DAEP placements (Levin, 2012).

Based on the findings of this investigation and the conclusions of current literature, the achievement gap between minority students (e.g., black and Hispanic students) and white students exists and is due in part to the disproportionate number of minority students assigned to ISS, OSS, or a DAEP placement, which perpetuates a loss of instructional time and results in lower TAKS reading and math scores. As the focus of this investigation was on Hispanic and white student discipline and achievement, a recommendation for future research is to review discipline consequences by gender in Hispanic students and white students to determine whether, similar to black students, Hispanic boys are affected to a greater extent than Hispanic girls or white boys are affected to a greater extent than white girls.

Conclusion

The purpose of this study was to determine the extent to which discipline referrals assigned to Grade 7 Hispanic and white students were related to student performance on the TAKS reading and math tests. Furthermore, a comparison of a previous year’s data to current data allowed the identification of trends in discipline consequence type by ethnic membership and the impact of such consequences on TAKS reading and math achievement. Based on the results of this study, trends are present with respect to students receiving exclusionary disciplinary consequences and lower academic achievement. Due to the discipline gap between Hispanic and white students, and the achievement gap between Hispanic and white students, the impact of exclusionary discipline consequences on Hispanic students’ academic achievement was of particular interest to this researcher. In this investigation, Hispanic students and white students who were assigned to ISS, to OSS, or to a DAEP placement had lower academic achievement on the TAKS reading and math assess-
ments than their peers who were not assigned a discipline consequence. This trend was evident in 2008–2009 and to students assigned to a discipline consequence during the 2010–2011 school year. Furthermore, previous researchers who reported that minority students were overrepresented in the proportion of students receiving ISS, OSS, or a DAEP placement were supported by the findings of this investigation. Due to the detrimental effects of such practices, educators should be cognizant of what consequences are used and carefully monitor the effects of those consequences on students’ well-being. In contrast to the use of suspensions or removal from the instructional environment, educators’ ability to teach students how to behave and how to respond to behaviors out of their control would serve them much more positively in the future and might also serve to improve the overall climate, culture, and rates of achievement in United States schools.
References


Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement


Oppenheimer, J., & Ziegler, S. (1988). *Suspension, alternatives to suspension and other approaches to discipline. #189*. Toronto, Canada: Toronto Board of Education.


Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement


Grade 7 white and Hispanic Texas students: Disciplinary consequences and academic achievement


The impact of the Optional Flexible Year Program on academic achievement of 5th-grade students

Pamela Longbotham
Kamiar Kouzekanani

Abstract
The study examined the impact of participation in an optional flexible year program (OFYP) on academic achievement. The ex post facto study employed an explanatory sequential mixed methods design. The non-probability sample of 5th graders consisted of 163 in an OFYP district and 137 in a 180-day instructional year school district. The multivariate analysis of the data showed that the 5th graders in the OFYP outperformed the comparison group on the basis of the mathematics, reading, and science academic achievement test scores; all differences were statistically significant. Analysis of the qualitative data resulted in three themes, namely, (1) academic achievement, (2) focused instruction, and (3) negative aspects. The educators felt that the OFYP was instrumental in increasing efforts and motivation.
The impact of the Optional Flexible Year Program on academic achievement of fifth grade students

Introduction

Public Law 107-110, the No Child Left Behind Act of 2001 (NCLB), mandates that achievement and accountability be used to evaluate school districts and students in public schools. The accountability climate in public education, the result of the NCLB legislation, emphasizes high-stakes testing and results (U.S. Department of Education, 2001). Sloane and Kelly (2003) stated that learning through standards and accountability utilizes test results to determine school district, campus, and student success. The NCLB mandates place an increased level of accountability on schools, and especially on the students who take the state tests and whose test results factor into both campus and district accountability ratings (Harris, Irons, & Crawford, 2006).

With the increasing emphasis of student achievement on state assessments and the results affecting district accountability ratings, student grade promotion, and graduation, educators have sought to identify ways to improve student performance on the mandated assessments. Educators seek and implement strategies to help students meet the testing requirements. Supon (2008) states that some of these strategies include organizing tutorials for students, sharing test taking tips and strategies with parents and guardians, mentoring, double periods of reading and mathematics, and utilizing literacy and mathematics coaches. Incentives and rewards such as praise, commendations at school assemblies, and gift certificates have been used with students who have passed the state-mandated tests. In recent years, numerous Texas school districts have sought and received approval from the Texas Education Agency (TEA) to implement an optional flexible school calendar for an optional flexible school year program as a means of offering fewer instruction days to students who meet or exceed the state assessment test passing standards.

The optional flexible year program (OFYP), authorized in 2010 by Senate Bill 346, 78th Texas Legislature, Texas Education Code, Section 29.0821, provided school districts with flexibility in designing the district’s instructional program to meet the educational needs of its students.
and to provide intensive instructional services. In order to access OFYP scheduling options, school districts submit a waiver application, and, if approved by the commissioner of education, the district could reduce the number of instructional days for certain students (Texas Education Agency, 2010a). The modified calendar allowed students who passed the Texas Assessment of Knowledge and Skills (TAKS) tests to attend up to 10 fewer school days during the school year. Districts used the optional flexible year program as an incentive for students to pass the state testing.

**Purpose**
The primary purpose of the study was to examine the impact of an optional flexible year program on academic achievement, as measured by mathematics, reading, and science among 5th graders. The secondary purpose of the study was to document, compare, and contrast the perspectives of 5th grade teachers and campus administrators regarding the effectiveness of the optional flexible year program. The fifth grade level was chosen because in Texas, where the study took place, it is a Student Success Initiative (SSI) grade level, the first grade level in which students must pass mathematics and reading tests in order to be promoted to the next grade level (Texas Education Agency, 2010b). The fifth grade is also the first grade level at which the science test is administered.

**Theoretical framework**
The study was grounded by Victor Vroom’s Expectancy Motivation Theory (Vroom, 1964), which posits that the tendency to act in a specific way depends on an expectation that the act will be followed by a given outcome. Geiger and Cooper (1995) stated that expectancy motivation is driven by a conscious choice and the attractiveness of the outcome to the individual. The Expectancy Motivation Theory focuses on three factors: efforts and performance, performance and rewards, and rewards and personal goal. According to Vroom, motivation leads to action, which leads to results that reap some form of reward. This study hypothesized that expectancy motivation might lead to an increase in passing scores with the incentive or reward of students attending fewer school days.
Helland and Winston (2005) stated that the Expectancy Motivation Theory is comprised of both cognition and emotion and assumes that individuals expend energy to pursue goals based on their conscious choice to satisfy an important need or desire. Additionally, the authors theorized that individuals are motivated if they believe and hope that their efforts will produce positive results. Helland and Winston related hope to Vroom’s Expectancy Motivation Theory through the focus on goal attainment.

Newsome (1990) stated that the Expectancy Motivation Theory can offset factors likely to reduce student motivation to perform well. Some of the factors were reported to be boredom, dislike of school, and being behind in grade level. Newsome outlined a simplified model of Vroom’s Expectancy Motivation Theory and showed the possibility of determining the extent to which a student is motivated to perform by asking three questions: (1) To what extent does the individual expect that effort will lead to performance? (2) To what extent does the individual expect that the outcomes associated with good performance are different from those outcomes associated with poor performance? (3) To what extent does the individual prefer the outcomes associated with good performance? The author posited that if an answer to any of the three questions is negative, a student will be less motivated. To increase students’ performance, it is essential to identify what motivates them.

First applied to organizations to explain job motivation (Porter & Lawler, 1968; Vroom, 1964), studies have subsequently applied expectancy theory to academic environments. An application example of Expectancy Motivation Theory to academic environments is Chen and Hoshower’s study (2003), which assessed factors that motivated students to participate in a peer evaluation process. Outcomes that appealed to students were determining peers’ grades and improving peers’ performance. Oliver (1995) stated that from the standpoint of education, Expectancy Motivation Theory’s importance is that the effectiveness of any educational practice is directly related to its capacity for increasing student involvement. The greater the student’s effort, the greater performance and student satisfaction.
According to Ames (1992), Expectancy Motivation Theory suggests that students will be motivated to accomplish a goal if they value it and believe that the goal is attainable. Students will tend to expend more effort, which will result in positive outcomes. If students value and want to attend fewer school days by passing the state mandated tests, they may likely expend the effort to meet that goal. This study focused on the optional flexible year program with its modified school calendar and how it impacted students’ achievement in mathematics, reading, and science.

**Delimitations, limitations, and assumptions**

The study was delimited to two rural South Texas school districts, with one of the districts utilizing the OFYP and the other district utilizing a traditional 180-day instructional program. Due to the non-probability nature of sampling, external validity was limited to study participants. The study was delimited to the outcome measures of mathematics, reading, and science. It was assumed that the test scores and other quantitative data obtained from the participating school districts and TEA were accurate. Due to the non-experimental nature of the study, no causal inferences were drawn. It was assumed that the qualitative data obtained from the focus group represented honest opinions of the participants.

**Method**

**Research design**

The study employed an ex post facto, causal-comparative design, utilizing an explanatory sequential mixed methods model. The explanatory sequential mixed methods model, according to Creswell and Plano Clark (2011), occurs in two distinct phases. In accordance with the model, in the first phase, the researchers collected and analyzed the quantitative data, followed by the second phase of the investigation which included the collection and analysis of the qualitative data. The second phase was utilized to explain the initial quantitative results in greater depth. Both quantitative and qualitative results were synthesized to answer the research questions, draw conclusions, and discuss the findings.
A causal-comparative research design (Gall, Gall, & Borg, 2007) was used for the quantitative portion of the study. For the purpose of the study, the characteristic-present group consisted of 5th graders who had attended an optional flexible year program. There was no participation in an optional flexible year program in the comparison group. For the qualitative component of the study, a focus group was conducted. According to Marshall and Rossman (2011), focus groups provide a low-cost and quick method to gain information through interviewing several people at one point in time. The qualitative component of the study was conducted under the theoretical lens of interpretivism (Crotty, 1998), which is an attempt to understand social realities and is concerned with the meanings and experiences of individuals. Using the lens of interpretivism, the researchers attempted to understand and explain the teachers’ and administrator’s perspectives of their students’ participation in an OFYP. Focus group transcripts were coded and analyzed, utilizing the tenets of interpretivism. Utilizing the focus group provided a conceptual understanding from the participants’ perspectives.

Subject selection
The study took place in two rural South Texas school districts. For the quantitative component of the study, the characteristic-present group consisted of a non-probability sample of 163 5th grade students in a district that had utilized an OFYP. The district served approximately 2,608 students with an ethnic composition of 8.8% African American, 62.30% Hispanic, 27.70% White, 0.10% American Indian, 0.30% Asian, and 0.70% two or more races. The comparison group consisted of 137 5th graders in a district which followed a 180-day instructional year calendar. The district served approximately 1,906 students with an ethnic composition of 12.50% African American, 42.50% Hispanic, 41.40% White, 0.40% American Indian, 0.50% Asian, 0.10% Pacific Islander, and 2.50% two or more races.

A non-probability sample of 11 5th grade teachers and a campus administrator from the rural South Texas OFYP school district was recruited to participate in the focus group. Initially, the researchers contacted the superintendent of the district and received the permission...
to conduct the focus group. The researchers then contacted the campus administrator and teachers, explained the study, and asked for their participation in the focus group.

Permission to conduct the study was obtained from the Institutional Review Board at the researchers’ university. Permission to use the quantitative data and conduct the qualitative component of the study was obtained from the school districts in which the study took place. For the qualitative component of the study, participants were required to sign a consent form.

Instrumentation

The Texas Assessment of Knowledge and Skills (TAKS) was used to measure achievement in mathematics, reading, and science. The psychometric properties of TAKS are published by the state (Texas Education Agency, 2010c; Texas Education Agency, 2010d). The 5th grade TAKS mathematics test had six objectives with a total of 44 items. Objective 1 tested numbers, operations, and quantitative reasoning. Objective 2 measured students’ knowledge of patterns, relationships, and algebraic reasoning. Items in Objective 3 tested geometry and spatial reasoning. Objective 4 addressed measurement. Objective 5 assessed probability and statistics, and Objective 6 tested mathematical processes and tools.

The 5th grade TAKS reading test had four objectives with a total of 42 test items. Objective 1 assessed basic understanding with 13 test items. Objective 2 tested knowledge of literary elements, using eight test items. Objective 3 addressed analysis using reading strategies with eight test items. Objective 4 had 13 test items and targeted analysis using critical thinking skills.

The 5th grade TAKS science test had four objectives that assessed students’ knowledge of the science. The first objective included 13 items on the nature of science. Objective 2 consisted of 9 items in life science. Physical science was assessed in Objective 3 with 9 test items. Objective 4 had 9 items and assessed knowledge in earth science. There was a total of 40 test items in the fifth grade TAKS science test.
The perspectives of the 5th grade teachers and campus administrators were documented by the data obtained from the focus group. In accordance with the explanatory sequential mixed methods research model, the quantitative data were analyzed first, and the results were used to generate questions to lead the focus group. Questions addressed the advantages and disadvantages of utilizing an OFYP and its relationship to student achievement in mathematics, reading, and science. The lead questions were: (1) In what ways did your 5th grade students’ participation in the OFYP, having the opportunity to get out of school 10 days early, impact their mathematics, reading, and science achievement last school year? (2) Were there any objective results in mathematics, reading, and/or science that you did not expect? (3) In your opinion, what are the positive aspects of your 5th grade students’ participation in the OFYP? (4) In your opinion, what are the negative aspects of your 5th grade students’ participation in the OFYP?

Data collection
Quantitative data were obtained from the two participating South Texas school districts and the TEA. The researchers were provided with an electronic copy of the mathematics, reading, and science raw data, as well as demographic data on gender, ethnicity, and socioeconomic status. Qualitative data were collected from the focus group made up of 5th grade teachers and a campus administrator from the OFYP district. The session was audiotaped and transcribed.

Data analysis
Quantitative data were coded and analyzed, utilizing the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to organize and summarize the study variables. The Chi-Square Test of Independence was used to compare the characteristic-present and comparison groups on the basis of categorical variables of gender, ethnicity, and socioeconomic status. The t-test for Independent Samples was used to compare the two groups on the basis of the continuous variable of age. Pearson’s Product-Moment Correlation Coefficient was used to examine the magnitude and direction of the bivariate associations among
objective scores. A series of multivariate analyses of variance (MANOVA) was performed to assess differences between the characteristic-present and comparison groups on the basis of the outcome measures. There is a mathematical expression called a vector, which represents each subject’s score on more than one continuous outcome measure. The mean of the vectors is called a centroid. The MANOVA is used to differentiate among groups on the basis of centroids (Stevens, 2009). The mean difference effect size was computed to examine the practical significance of the findings. Specifically, Cohen’s $d$ was computed and characterized as $d = .20$ = small, $d = .50$ = medium, and $d = .80$ = large (Cohen, 1988).

The focus group audio-tapes were transcribed and coded by the researchers to create categories and identify themes. Creswell and Plano Clark (2011) described qualitative data analysis as coding the data; dividing the text into small units of phrases, sentences, or paragraphs; assigning a label to each unit; and grouping the codes into themes. In accordance with the sequential explanatory mixed methods model, the quantitative and qualitative results were analyzed and synthesized to discuss the impact of an optional flexible year program on student achievement and offer theoretical and practical implications.

**Results**

**Quantitative**
The students in both groups ranged in age from nine to 12 years, with the OFYP group ($M = 11.00$, $SD = .33$) and the non-OFYP group ($M = 10.95$, $SD = .51$); the group differences were not statistically significant, $t(298) = 1.05$, $p = .30$. The majority of the OFYP students were female (54.00%), while male students were the majority in the non-OFYP group (51.80%); the group differences were not statistically significant, $\chi^2(1, N = 300) = 1.00$, $p = .32$. The majority of the OFYP students were Hispanic (60.10%), followed by white (30.10%), and African-American (9.8%). The non-OFYP students were Hispanic (45.30%), followed by white (38%), African-American (16.10%), and Asian Pacific (.07%). For the purpose of group comparison, because
there were cells with expected frequency less than five, ethnicity was recoded into Hispanic or non-Hispanic and the differences were statistically significant, $\chi^2(1, N = 300) = 6.03, p < .05$. The majority of students in both groups were economically disadvantaged; the group differences were statistically significant, $\chi^2(1, N = 300) = 8.32, p < .01$. Neither ethnicity nor socio-economic status was statistically associated with any of the outcome measures; thus, they were not considered confounding variables and covariate analysis was deemed unnecessary.

**Outcome measures**

There were three sets of outcome measures, namely, mathematics (6 objectives), reading (4 objectives) and science (4 objectives). For all, the proportion of correct answers to total questions in each objective operationalized the variables of interest. All outcome measures were treated as ratio data. The means and standard deviations are summarized in Table 1.

A MANOVA showed that group differences with respect to mathematics objective scores were statistically significant, $F(6, 293) = 13.22, p < .01$. Post hoc analyses showed that with the exception of Objective 5: Probability and Statistics, all pairwise comparisons were statistically significant, favoring the OFYP group. Group differences on the basis of reading objective scores were statistically significant, $F(4, 295) = 5.91, p < .01$ and post hoc analyses showed that all pairwise comparisons were statistically significant, favoring the OFYP group. The OFYP group also outperformed the comparison group on the basis of science objective scores, $F(4, 287) = 3.12, p < .05$ and post hoc analyses showed that with the exception of Objective 2: Life Science, all pairwise comparisons were statistically significant. Mean difference effect sizes were computed to examine the practical significance of the findings. Results are summarized in Table 2.

**Qualitative**

There were one administrator and ten teachers who voluntarily participated in the focus group. One participant was a white male. There were 10 female participants: nine white, and one African American. The
Table 1
Means and standard deviations for outcome measures

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Characteristic Present Group (n = 137)</th>
<th></th>
<th>Comparison Group (n = 163)</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>M*</td>
<td>SD</td>
<td>M*</td>
<td>SD</td>
</tr>
<tr>
<td>Mathematics 1</td>
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<tr>
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<td>Science 4</td>
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<td>.14</td>
<td>.84</td>
<td>.18</td>
</tr>
</tbody>
</table>

*Proportion of correct answers

Note:

Reading Objectives: 1) Basic Understanding; 2) Applying Knowledge of Literary Elements; 3) Using Strategies to Analyze; 4) Applying Critical Thinking Skills

Science Objectives: 1) Nature of Science; 2) Life Science; 3) Physical Science, 4) Earth Science
Table 2
Mean difference effect sizes

<table>
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<tr>
<th>Objectives</th>
<th>Mean difference</th>
<th>p</th>
<th>Effect size*</th>
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<tr>
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<td>.39</td>
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<tr>
<td>Science 4</td>
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<td>&lt;.05</td>
<td>.30</td>
</tr>
</tbody>
</table>

*Effect Size .2 = small, .5 = medium, .8 = large

Note:


Reading Objectives: 1) Basic Understanding; 2) Applying Knowledge of Literary Elements; 3) Using Strategies to Analyze; 4) Applying Critical Thinking Skills

Science Objectives: 1) Nature of Science; 2) Life Science; 3) Physical Science, 4) Earth Science
researcher analyzed the qualitative data, utilizing the coding process. The coding process consisted of several stages. The first step required transcription of the focus group. The next step involved reading the transcribed text, analyzing the text, and assigning codes to the texts. Saldana (2009) stated that a code is a word or short phrase that assigns a summative attribute to that portion of the language based data. The researchers then looked for codes similar in meaning and grouped them into broader categories to identify themes. According to Creswell (2007), themes are clusters of meaning that form the central ideas from the focus group.

The focus group participants were asked to respond to questions aimed at exploring their perspectives regarding the OFYP and its impact on student achievement. Three themes emerged from analyzing the qualitative data codes, namely, Academic Achievement, Focused Instruction, and Negative Aspects.

The first theme, Academic Achievement, emerged as the educators discussed their students’ experience with the OFYP. The educators shared that their students took more time to concentrate on completing various achievement tests. They also felt that the students worked and tried harder. The OFYP was perceived as a motivator for the students to perform, “I feel like it did motivate some of the kids who would have just blown it off because it was just another test.” As the Academic Achievement theme emerged, educators shared that the OFYP serves as an incentive for the students, “I think it did help to give an incentive to those that were capable of passing that usually you know we have kids that don’t really care what they do or anything. They’re just there because they have to be, so I feel like it did give an incentive for some of them to pass.”

As the educators discussed experiences with the OFYP, the second theme, Focused Instruction, began to emerge. Teacher collaboration and working with a partner teacher helped the teachers analyze student data and design instruction to meet students’ needs. “We knew we were weak in math and reading and also in the science area, so we analyzed their test data and if it was math only that they needed, we created that subgroup. We went predominately off math and reading scores first and then if it was math and reading, then we would share those kids.” Work-
The impact of the Optional Flexible Year Program on academic achievement of fifth grade students

...ing with students the last 10 days provided for more individual attention. This was supported by comments such as, “the kids that need help have a smaller group and more individual attention from the teacher to help them on the exact things that they need help on.”

For the third theme, Negative Aspects, the educators felt that students who did not earn the 10 days early release from school experienced low self-esteem and felt like they were targeted. “Okay, why are you here? Did you not pass reading? Did you not pass math? They know they failed something.” The teachers cited the effect on the students’ self-esteem because it was viewed as a punishment. “Their self-esteem, everything is affected. Their self-esteem, their confidence, you spend probably a good week trying to build them back up.” Additionally, the teachers felt that the students viewed staying the last 10 days as punishment, “because that’s how they view it, they view it as punishment because everyone else that gets out those 10 days is ecstatic.”

Teacher and student burnout was cited as a negative aspect of the OFYP, when the students did not earn the 10 days early release from school. “The only negative thought I have on the optional flexible year program is that the students are pretty tired by that time of the year and are already thinking about summertime and what the other kids are already doing and feel they are left out of that;” and “It’s kind of hard to motivate them sometimes because they see their siblings or their friends and some of them shut down.” For the teachers, “they get burned out pretty quickly on it because they’re in school for a long time, and it extends their year as well.” Another educator commented, “I also think that leaving it to the last of the year, the fact that we don’t get the state results back earlier make it where we feel like, well I do anyways, feel like it’s eating away my summer. I don’t like that.”

Discussion

President Barack Obama, in *A Blueprint for Reform*, called for a world-class education for every child in America. *A Blueprint for Reform* is the Obama administration’s plan for reauthorization of the Elementary and Secondary Education Act/NCLB. Obama stated that “... instead of investing in the status quo, we must reform our schools to accelerate stu-
dent achievement, close achievement gaps, inspire our children to excel, and turn around those schools that for too many young Americans aren’t providing them with the education they need to succeed in college and a career” (U.S. Department of Education, 2010). This blueprint, like the previously reauthorized NCLB of 2007, continues to require raised standards for all students and the use of rigorous assessments. In this study, the effectiveness of a program to increase student achievement on mathematics, reading, and science state assessments was explored.

To determine effectiveness, schools must evaluate their participation in programs. The study’s South Texas school district had been involved in the OFYP for four years with no formal evaluation of its effectiveness. Additionally, there was no documented research to determine whether participation in an OFYP is beneficial for academic achievement. The goal of the study was to provide evidence that participation in an OFYP impacts student achievement on state assessments in mathematics, reading, and science.

Oliver (1995) stated that the effectiveness of an educational practice is related to its capacity for increasing student involvement, that the greater the student’s effort, the greater the student performance. The study’s quantitative results demonstrated that the OFYP students outperformed the non-OFYP in all four reading objectives. Reading effect sizes ranged from .32 to .54. The largest effect size of .54 was in Objective 3 (using strategies to analyze), with the next largest effect size of .45 in Objective 4 (applying critical thinking skills). The effect sizes also demonstrate that the OFYP students achieved in the more difficult and complex reading objectives of inferential comprehension. Reading comprehension and literacy achievement for students are critical as they impact other content areas and are essential for success in school and throughout life. Snow (2002) stated that the United States economy demands a higher level of literacy achievement, and the demand for a literate populace would only increase in the future. Literacy achievement for all students is a necessity.

There is some evidence that motivation to perform in one area may generalize to other areas. Gottfried (1990) found that motivation in reading predicts motivation in other areas, like science and social studies. In
this study, students in the OFYP outperformed the non-OFYP students in mathematics and science, though not in all of the objective areas.

In mathematics, the OFYP group outperformed the non-OFYP group. Effect sizes ranged from .17 (small) to .91 (large). The largest effect sizes were in Objective 1 (numbers, operations, and quantitative reasoning), followed by .68 in Objective 3 (geometry and spatial reasoning). It was not surprising that the largest effect sizes were in these two objectives. From early elementary on, students receive instruction to build in-depth factual mathematics knowledge, an understanding of facts and ideas within a conceptual framework, and skills in organizing knowledge in ways that help with knowledge retrieval and application. Early exposure to common shapes benefits students’ basic geometric knowledge and skills. Students begin with at the concrete level, using manipulative-type items like pattern blocks and tangrams, and advance to visual representation. Concepts gain meaning through multiple representations, and this helps students apply concepts to new situations.

Grouws and Cebulla (2000) stressed research evidence that indicates using small groups has positive effects on student learning in mathematics. That is, using small groups of students to work on activities, problems, and assignments can increase student mathematics achievement. The focus group participants emphasized that the OFYP students that needed help worked in smaller groups and also received more individual attention from the teacher than did the non-OFYP students.

Quantitative results demonstrated small effect sizes for science, ranging from .13 to .18. Though the effect sizes were small, the only objective that was not statistically significant was Objective 2 (Life Science). In the focus group, the OFYP educators were surprised by this finding and stated it might reflect the additional time and effort their students focused on the earth and physical science objectives. The 5th grade science assessment is the first state science assessment that elementary students take. Additionally, the science assessment is cumulative and covers and assesses science content from grade 2 to grade 5. This might have influenced the smaller effect size results.

According to Gredler (1997), motivation is the attribute that causes individuals to do or not to do something. The opportunity to have 10
fewer days of school by earning passing scores on the state assessments in mathematics, reading, and science seemed to impact the OFYP students. The OFYP educators stated that the 5th grade students took more time to concentrate on their responses on the state assessments. One teacher remarked, “I feel like it did motivate some of the kids who would have just blown it off because it was just another test.”

Gottfried (1990) stated that the impact of motivation on students’ achievement is critical as education professionals are concerned about test scores. The OFYP educators agreed that their students took more time to concentrate on their responses on TAKS tests. They also stated that they felt the students worked and tried harder. One educator stated that she felt the OFYP served as an incentive for the students, “I think it did help to give an incentive to those that were capable of passing that usually you know we have kids that don’t really care what they do or anything. They’re just there because they have to be, so I feel like it did give an incentive for some of them to pass.”

The study was conducted because there was a need to evaluate the effectiveness of the OFYP on student achievement on the basis of state assessments. There were no research studies to validate the OFYP and its effectiveness. The study did demonstrate that student participation in OFYP impacts achievement in 5th grade mathematics, reading, and science. The OFYP may also serve as a motivator for students to work harder in order to earn a 10-day early release from school. This extra effort helps increase achievement. Although no causal inferences may be drawn due to non-experimental nature of the study, it is noteworthy that students who had participated in the OFYP outperformed the comparison group on academic achievement.
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The impact of the Optional Flexible Year Program on academic achievement of fifth grade students


The impact of the Optional Flexible Year Program on academic achievement of fifth grade students


Creating a supportive environment where principals, teachers and students can learn

Susan Szabo

Abstract
With the overemphasis on testing to rank children, rate schools and determine merit pay, the researcher was interested in finding out how teachers were feeling. It was found that for the most part, teachers still enjoy teaching, and they feel appreciated by the majority of their students and somewhat by their colleagues and their building principals. However, they would like to have more administrative support, better professional development opportunities, more leadership opportunities, and fewer mandated requirements that take their time from teaching. In addition, the study also showed that principals are in need of professional development too.
Creating a supportive environment where principals, teachers and students can learn

Currently, the No Child Left Behind Act (2002) is filtering current education solutions through a single outcome based on standardized testing of both teachers and students. With the overemphasis on testing as a single measure of effective teaching and student success, many school campuses have singularly focused on preparing students for testing by closely regulating the what, who, and how of teaching.

The what of teaching has become regulated by the development of various standards, and benchmark tests, which have mandated a narrow, specific curriculum (David, 2011). Unfortunately, the who of teaching also has become narrowly defined as an individual who holds an educational college degree and has passed a battery of teacher certification tests that assess content and pedagogical knowledge (Darling-Hammond & Berry, 2006).

Improving student achievement, however, depends on creating and supporting quality teachers who develop all aspects of their professional lives. The science of teaching is important, and we have identified teachers that have the basic knowledge of the science of teaching through a series of certification test. However, we cannot leave out the development of the whole teacher, as “the way to truly increase teachers’ capacities and skills is to engage their souls” (Intrator & Kunzman, 2006, p. 39).

Purpose of study

With the passage of the No Child Left Behind Act (2002), much emphasis has been put on meeting the academic intelligences or cognitive demands of students and getting every child on grade level and every teacher highly qualified. However, with this emphasis, the emotional intelligences and the affective domains of both our students and our teachers are being ignored.

Effective teachers look at both the cognitive demands of the district and state as well as the affective demands of the students. However, this cannot be accomplished if the teacher does not have effective support.
and is required to read a scripted curriculum, as the art of teaching is
time-consuming and, at times, emotionally draining. Thus, if we want
our teachers to be effective and highly qualified, they need to have
their emotional needs met by working in a supportive school-level and
district-level environment (Thapa, 2013). Therefore, the purpose of the
study was to answer the following research questions:

1. Do teachers still enjoy teaching? Why?

2. Do teachers feel appreciated, and if so by whom?

**Theoretical framework**

This study is posited in the affective domain (Krathwohl, Bloom, Masia,
1973), with components of emotional intelligence theory (Williams,
2003) and the theory of caring (Nodding, 2005). All of these theories
deal with one’s emotions; therefore, their definitions are related and
interwoven and are important in helping to create a safe and caring
learning/teaching environment.

The affective domain includes such factors as feelings, values, ap-
preciation, enthusiasm, motivation, and attitudes. However, it must be
noted that the affective domain cannot be separated from the cognitive
domain. Our brains’ complex networking assures that there is no cogni-
tive learning that is unaccompanied by some aspect of the affective, or
emotional, domain (Williams, 2003). Therefore, the affective domain
can enhance, reduce, or stop the teaching/learning process. Noddings
(2005) argues that teaching and learning should be organized around
themes of caring. She believes that today’s schools have put too much
emphasis on achievement, and not enough on caring.

**Creating a positive school environment**

According to Lehr (2004), “a positive school climate is an integral
component of an effective school” (p. 76). Thus, “educators need to
constantly work toward improving their school climate, culture, and
conditions so that student learning is improved” (Noonan, 2004 p. 64).
A positive climate makes a school a place where both staff and students
Creating a supportive environment where principals, teachers and students can learn

want to spend time and results in a safer, more supportive learning environment (Thapa, 2013.)

Student learning and teacher retention can be linked to the positive school environments (Darling-Hammond & Rothman, 2011; Thapa, 2013). Everyone (i.e. teachers, staff, administrators, parents, and students) plays a part in creating a positive school environment where all can feel safe and are treated with respect (Ajzen, 1988; Henderson, & Henderson, 1996; Kelehear, 2004; Muijs, Harris, Chapman & Stoll, 2004; Thody, Gray, Bowden, & Welch, 2000).

Teachers need to have positive working relationship with their colleagues, as teachers’ perceptions influence their ability to implement mandated reforms and student interventions (Guo, 2012). Working in groups to plan lessons and talk about problems is an effective method of problem solving and decision-making (Thody, Gray, Bowden, & Welch, 2000). The principal’s ability to create a positive school culture is important to a healthy school environment (Kelehear, 2004). Principals and teachers need to have open communication and form professional learning communities (PLC) where purposeful communication takes place (Bucholz & Sheffler, 2009; Hord, 1997). In addition, research has shown that principals who share the decision-making increase teacher morale (Hirsch, Emerick, Church, & Fuller, 2006; Kelehear, 2004; Maehr, Midgley, & Urdan, 1992).

Parents are another important group in the educational process. It has been found that schools that have high success rates are usually schools with high levels of community (Cunningham & Allington, 2006). In addition, the National Center for Education Statistics (1997) found that teachers were more satisfied when they received parental support. Schools where parents are encouraged to help and support educational activities have a positive impact on student success (Epstein, 2001).

The final group of people who contribute to a positive school climate are the students. A study done by Stenlund (1995), found that teachers identified students as the most important reason why they experience enthusiasm or discouragement.
Methods
This study was designed to find out if classroom teachers feel appreciated and still enjoy teaching. To explore these feelings, an open-ended questionnaire was administered to the participants (See Appendix A).

Participants and setting
The participants for this study were classroom teachers attending various graduate level courses at a four-year university in northeast Texas. These classroom teachers were working on their master’s degrees in reading or in elementary education. The questionnaire was given to them during summer school courses. Participation in the study was optional; all participants volunteered to help with the study.

The ethnic breakdown of the graduate students that participated in the study varied. Of 51 participants, 15 were African-American, 33 were Anglo-American, and three were Hispanic.

Forty-eight participants were female and three participants were male. Each of the study participants were K–8 classroom teachers with varying degrees of experience: 18 participants had been classroom teachers for 1–6 years, 24 had been classroom teachers for 5–15 years, and nine had been in classroom teachers for 16 or more years. In addition, participants represented various types of public school districts. Eighteen taught in an urban school district, 30 taught in suburban districts, and three taught in a rural school district.

Data analysis
Teachers’ responses on the open-ended survey were analyzed. First, a content analysis of written explanations was conducted; the researcher grouped ideas and developing themes (Glaser and Strauss, 1996). An external researcher then verified the coding results. Second, a simple tally was used to determine frequency of either positive or negative responses. An external researcher verified that the responses were tallied correctly.

Procedure
The volunteer participants completed the questionnaire on their own
time. Participants were asked to complete the survey and return it within seven days. Students could complete the questionnaire by hand or via a Word document. Each participant had the option to be interviewed for clarification and/or obtaining additional data.

Findings

Research question 1: Do teachers still enjoy teaching?
To answer research question #1, the teachers’ responses were tallied. This examination revealed that 42 (82%) of the 51 classroom teachers said that yes, they still very much enjoyed teaching, while the rest said they enjoyed teaching most of the time. Examples of responses included:

- “I only know the accountability age, as I am a new teacher, but I still love teaching.”
- “Yes, because in the end I know that teaching is truly about the kids.”
- “Yes, I love my profession.”
- “It’s hard work and it involves many hours but I love working with the children.”
- “Yes, I love getting up and going to work every day, as every day is a new day and the children are the best – they are both rambunctious and creative.”
- “I DO still enjoy teaching very much. Every day is not a great or happy day, and I definitely feel the pressures that come from the influence of the political world of education, but working with children is a work of heart for me.”
- “Yes, I just close the door and do what I know is right for the children.”

Further examination showed that the teachers who had taught for one to five years all enjoyed their jobs and knew no other way of teaching. The teachers who had taught for more than 16 years also reported experiencing enjoyment at watching their students bloom. However, the teachers who had been teaching in the classroom for six to 15 years expressed the most concern over several issues: the stress of the high-stakes tests,
the mandated scripted curriculum, and the lack of administrative support and effective professional development. No differences were detected when looking at the results due to placement (rural, suburban or urban).

**Research question 2: Do teachers feel appreciated?**

To answer research question 2, the teachers’ responses to questions two through five were tallied. In addition, the results by years of teaching experience and teaching placement (rural, suburban, urban) were examined, but it was found that these factors did not make a difference. Responses addressed appreciation by students, parents, and administrators.

**The students.** This was the only factor to which the teachers did not have a no response. Twenty-seven teachers said that yes, they felt very much appreciated by their students, while 24 said that they felt appreciated most of the time.

**The parents.** Thirty-eight (75%) of the teachers reported that they felt appreciated most of the time; six felt appreciated some of the time. In addition, these teachers reported that they had parent volunteers who helped on daily, weekly, or monthly basis. However, seven teachers reported they had received no help or positive feedback from the majority of their students’ parents. In addition, several went as far to say, “Parents seem to be interested in putting their child’s total educational, emotional, and social development in the teacher’s hands. Typically, they seem to think that their job of ‘raising’ their child is over at school age.”

**The colleagues.** For the most part, teachers felt appreciated by their colleagues or at least by the ones with whom they work closely: 39 (76%) teachers reported a very good or good relationship. However, the remaining 12 teachers had more of a negative response and felt their colleagues were not appreciative or supportive, as seen in several comments:

- I was assigned a mentor, but she is too busy to really help.
- My team can help me with behavior issues, but I am the only math person on the team so I cannot get help when I have a math problem unless I find another math teacher on another team.
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- I don’t feel like I fit in, as I want to do more hands-on and my team does lots of worksheets.
- I don’t “gel” as they think I am “an overachiever,” because I am at school early and I do not procrastinate with my work.

**The Administration.** In answering this question, the teachers stressed they were talking about their building principal, as they had never seen the superintendent or school board members visit their schools or their classrooms. Twenty-seven (53%) teachers reported they felt supported and appreciated by their building principal, as seen in several of their statements:

- My principal is great. She lets me try any new intervention to see if we can get positive results.
- My principal does pretty well at planning our mandated professional sessions. There is a least choice in the session we attend.
- My principal always tries to give me positive feedback on her walk-throughs.
- Our principal is very open and she greets both teachers and students every morning.

However, four reported they felt somewhat appreciated and supported while the other 20 teachers had more of a negative response as seen by their comments below.

- He stresses that we have to read the script, even when the program says it should not be read as a script.”
- We don’t have enough planning time, as I use my free time to grade papers or try and contact parents.
- I have to attend yearly professional development sessions that are not helpful to me. Even if they are mandated, I wish we had choice.
- I wish our professional development provided me with more ideas to use in the classroom.
- My principal and I don’t gel. He thinks my classroom is too noisy.
- If I have a behavior problem, I am told to deal with it, but not told how.
- I never feel like I know what is expected, as the rules and goals seem to be a moving target.
Discussion and implications

There were several limitations of the study. First, this was a very small study, as only 51 graduate students who are currently classroom teachers volunteered to participate. Second, the volunteers represent only a small area, as all of them teach in the northeastern area of Texas. Third, these questions were open-ended and asked the teachers to reflect on their self-perceptions of their feelings. Whether these perceptions are true or false, they guide one’s emotional responses to teaching and to how interaction with those around us go.

These 51 teachers felt appreciated by their students. This is not surprising, as research has shown that students and their positive responses to learning are the most important factors of teachers’ satisfaction with their jobs (Shunn, 1998; Stenlund, 1995). Some of these teachers are very fortunate and feel appreciated by two to four groups of people – their students’ parents, their colleagues, and/or their administration. This appreciation is the reason these teachers still enjoy getting up every morning and going to work. They feel they are making a positive difference, which is why they went into teaching in the first place (Mahoney, 2002; Scherer, 2008).

However, even though all of these teachers feel appreciated by their students, this is not enough. Teaching and learning is more than a science or cognitive endeavor. If we are to address students’ needs, we must also address the school climate, as the teachers’ working conditions are the students’ learning conditions (Hirch, 2005).

Research has shown that factors such as school leadership and professional learning communities impact student achievement and teacher retention positively (Center for Teaching Quality, 2006). Therefore, principals need to put more thought into creating a warm school environment for all teachers where they are not only respected for their knowledge about curriculum but provided choice in professional development sessions and are in active professional learning communities to improve their teaching skills. A positive environment can help teachers better understand the art of teaching, as the art of teaching will better allow them to teach with their “soul” (Intrator & Kunzman, 2006). Research has also shown that helping principals become more effective leaders is one
way to improve job satisfaction among teachers (LaPointe, Meyerson, & Darling-Hammond, 2005; Moller & Pankake, 2006). Knowledgeable, caring leadership can create a collaborative climate where teachers feel valued and students are academically successfully, thus solving both teacher drop-out and student drop-out (Daresh, 2001; LaPointe, Meyerson, & Darling-Hammond, 2005; Leithwood, Seashore-Louis, Anderson & Wahlstrom, 2004; Woods & Weasmer, 2004). Thus, principals’ professional development is just as important as teachers’ professional development, as principals create the working environment of the teachers and the learning environment of the students.
References


Creating a supportive environment where principals, teachers and students can learn


Creating a supportive environment where principals, teachers and students can learn

Appendix

Survey

With the accountability and other things that districts and legislation mandate, do you still enjoy teaching?
Yes, very much | Yes, most of the time | Yes/No, some of the time | No, most of the time
*Explain.*

Do you feel you are appreciated by students?
Very much | Most of the time | Somewhat | No
*Explain.*

Do you feel you are appreciated by parents?
Very Much | Most of the time | Somewhat | No
*Explain.*

Do you feel you are appreciated by colleagues?
Very Much | Most of the time | Somewhat | No
*Explain.*

Do you feel you are appreciated by administrators?
Very Much | Most of the time | Somewhat | No
*Explain.*

May we contact you for additional information? ____ Yes ____ No
Contact email or phone number: ____________________________
Ethnicity: _____________________ Gender: ____________________
# of years teaching ____________
What grade level have you taught in the past? _________________
What grade level are you teaching now? _______________________

Are you a _____ urban teacher, ______ rural teacher, _____ suburban teacher?
Intervention
Supports and criticisms of response to intervention: Educators’ perceptions

Laura Isbell

Abstract
As teachers continually provide support and services for students in both the general and special education classrooms, teachers’ perceptions of Response to Intervention (RTI) differ. As RTI is implemented in our schools, the responsibilities for general and special education teachers increase in our classrooms. As RTI is increasingly applied in our schools, research attention has turned to the impact that this process may have upon those at the front lines of its implementation, thus putting more focus on teachers and on support personnel in schools (Nunn, Jantz, & Butikofer, 2009). This study builds upon theories, research, and studies by addressing how teachers’ perceptions of RTI relate to how research depicts RTI’s supports and criticisms. Two theories of learning serve as a foundation of intervention for districts that have elected to utilize RTI as a problem-solving model. Gagne’s conditions of learning theory ascribes the notion that different instruction is required for different learning outcomes (Kearsley, 2010). Bandura’s (1977) social cognitive theory outlines sources of self-efficacy—individuals’ beliefs about how they can perform a certain task. Along with two theories, this paper outlines the supports and criticisms of RTI perceived by teachers. Supports for the RTI model include the model for problem-solving,
Supports and criticisms of response to intervention: Educators’ perceptions

the method for progress monitoring, and the need for early identifying; criticisms for the RTI model includes student placements and teachers’ trainings. Research studies from Myers, Simonsen and Sugai (2007), Stuart, Rinaldi, Higgins-Averill (2011), and Wiener and Soodak (2008) offer supporting studies for teachers’ perceptions using RTI; research studies from Gottlieb, Alter and Wishner (1994), Goodman and Webb (2006), and four RTI surveys taken from the Council of Education (CEC) identify criticisms from educators using RTI. The criticisms mentioned in this paper should by no means be regarded as critical flaws; rather, they should reflect RTI as a new model, one that researchers, educators, and practitioners must grow and change with as they meet the needs of struggling students in schools. While many articles have addressed the positive potential of effective RTI implementation, there are many issues that have not been studied extensively, although that is likely due to RTI still being a relatively new process. Research suggests supports and criticisms for the RTI model; however, despite criticisms in the RTI model, educators need to ensure students receive the necessary services educators need to demonstrate higher levels of efficacy in RTI implementation to reduce inappropriate student placements and increase proficiency through professional development and training.

Supports and criticisms of response to intervention: Educators’ perceptions

Response to Intervention (RTI) can provide informed teachers with a consistent, straightforward framework for assessing students and for making data-based instructional decisions. In spite of this, teachers still express lingering concerns with the framework (Gertsten & Dimino, 2006). Realistically, teachers vary in their degrees of aptitude and interest in implementing RTI methodology (Gersten, Baker, Haager, & Graves, 2005) and adjusting instruction based on progress monitoring (Gersten & Dimino, 2006). In addition, consistent and continual support is necessary at district and local levels.
Purpose
This paper addresses the support and criticism of RTI perceived by teachers based on the review of previous literature, studies, and different learning theories. Also considered are the support of RTI regarding problem-solving model, progress monitoring, and early intervention in relation to teachers’ perceptions. Consideration of the criticism of RTI perceived by teachers will also be addressed. Existing research provides past and current criticism of RTI, including student placement and teacher training. Examination of previous research studies will provide evidence for both support and criticism of the RTI process and teachers’ perceptions.

Theoretical models
Two theories of learning serve as a foundation of intervention for districts that have elected to utilize RTI as problem solving model. Gagne’s Conditions of Learning theory ascribes the notion that different instruction is required for different learning outcomes (Kearsley, 2010). Bandura’s (1977) social cognitive theory outlines sources of self-efficacy—individuals’ beliefs about how they can perform a certain task.

Conditions of learning theory
As students rise through the multi-tier dimensions of RTI, Gagne’s (1985) instructional learning theory presents valuable support for teachers implementing RTI in their classrooms. Gagne’s (1985) theory on conditions of learning emphasizes designing instruction specifically to the learner’s needs. Instructional methods and strategies should include a variety of instructional methods to meet the needs of different learners. Applying Gagne’s theory of instruction to RTI, Batche et al. (2006), provide a definition of RTI as the practice of providing high-quality instruction and interventions matched to student need, monitoring progress frequently to make decisions about changes in instruction or goals, and applying child response data to important educational decisions. RTI requires components to be in place at the universal (Tier 1), secondary (Tier 2), and tertiary (Tier 3) levels to ensure differentiated instruction occurs at each level of intervention. While supporting Gagne’s theory of
instruction in using various instructional methods to meet the needs of different learners, the RTI model provides a comprehensive and integrated approach to academic and behavioral support for students. According to Guthrie, “The most effective instructional practices of the teacher are, therefore, influenced by the theoretical framework,” and she believes that theory drives practice and that “the effectiveness of the teaching style is verified in the student outcome—improved student achievement” (2008, p. 29). Guthrie (2008) further discussed the importance of the pedagogy employed in the classroom, the subject content, and the methods used for assessing student achievement that are unique to the theory of learning espoused by each individual educator. Because this study revolves around the educators’ perceptions of RTI, understanding the educators’ understanding of Gagne’s theoretical framework will provide insight into teaching practices and instructional supports for students requiring additional services.

**Social cognitive theory**

Bandura’s (1977) social cognitive theory also offers valuable support for teachers implementing RTI. His social learning theory is a deviation from the behaviorist conditioning theories inasmuch as the social learning theory accounts for environmental influences on behavior (Schunk, 2008). Social cognitive theory takes social learning theory one step further by seeking to explain how learners’ behaviors are influenced by their observations. Bandura’s (1977) theory of social cognitive learning included his work with social modeling, human agency, and self-efficacy. Using social cognitive theory as a framework, teachers can work to improve their emotional states and to correct their faulty self-beliefs and habits of thinking (personal factors), improve their academic skills and self-regulatory practices (behavior), and alter the school and classroom structures that may work to undermine student success (environmental factors) (Pajares, 2002). Similar to the term “self-efficacy,” teacher efficacy is defined as teachers’ confidence in their ability to promote students’ learning. Teachers with high self-efficacy are more likely to set ambitious goals, approach difficult tasks with confidence, persevere in the face of difficulty, and quickly recover from setbacks (Bandura, 1994;
Differing perspectives

RTI support

Problem-solving model. One support for RTI is the problem-solving model, which is a systematic approach reviewing students’ strengths and weaknesses, identifying evidence-based instructional interventions, collecting data to monitor students’ progress, and evaluating the effectiveness of interventions (Canter, 2004). RTI enhances the power of diverse membership by following a structured problem-solving model that includes identifying and analyzing the nature of the student’s presenting problem(s), selecting intervention ideas matched to the student’s profile of need, and collecting ongoing progress-monitoring data on the student to judge whether the intervention plan is effective (Kovaleski, 2003). In two studies, Myers, Simonsen & Sugai (2009) and Grimes and Kurns (2003) indicate supporting research for RTI as a problem-solving model.

Myers et al. (2009) conducted their study using RTI as a problem-solving model in an urban school with four teacher participants. The participants were selected through self-nomination, and each participant reported having high rates of behavior problems in the classroom. Examination of the study focused on the participation of four teachers using both qualitative and quantitative measures. Researchers observed and documented teachers’ praise statements and feedback through qualitative measures; additionally, researchers analyzed the data, feedback, and surveys to report quantitative measures. One teacher met the predetermined criteria (i.e., six specific praise statements and a ratio of 4:1 positive to negative interactions per observation session for three consecutive observation sessions) during the universal level of intervention (Tier 1); performance feedback was faded during her maintenance phase (Myers, et al., 2011). Another teacher met the ratio of 4:1 positive to negative interactions, but she did not meet the six specific praise statements. The other two teachers in the study did not meet either...
criteria and required a much more intensive level of intervention (Tier 3) to achieve both criteria. After observing, collecting, and analyzing data, the authors in the study reported findings from teachers’ responses to a RTI questionnaire. The RTI Approach to Increasing Desired Teacher Behavior Acceptability Questionnaire reported the intervention to be socially valid. According to Myers et al. (2009), on a scale of 1–6, with 1 corresponding to “strongly disagree” and 6 corresponding to “strongly agree,” all the teachers in the study agreed with the following statements: (a) “Problem behaviors have decreased since the intervention” (M=5), (b) “Appropriate classroom behaviors have increased since the intervention” (M=5.25), (c) “It was relatively easy to implement the strategies from the intervention” (M=5.25), and (d) “I would recommend that other schools use this intervention process to train teachers” (M=1). Teachers disagreed with the last statement because they believed the intervention required more effort than it was worth; however, the overall results from Myers’ (2011) study demonstrated how performance feedback given by teachers improved their behaviors and efficacy in relation to RTI. The data showed a downward trend in student problem behavior (i.e., off-task and disruptive behavior) in each teacher’s classroom during the course of the intervention, supporting RTI as a problem-solving model (Myers, et al., 2009).

In another study, Grimes and Kurns (2003) involved a systems approach to problem solving in an Area Education Agency (AEA) to implement RTI. In 2003, surveys were completed by 416 general teachers across all grade levels. The teachers were asked to respond to the following two statements: Question 1: The problem-solving process supports teachers in improving the performance of students whose academic skills and behaviors are of concern; Question 2: Problem solving process leading to educational interventions is equally applicable for helping students in general education. The problem-solving process provided data about teachers’ perspectives about RTI that informs educational decisions. For the first question, 90.3% agreed; for the second question, 86.8% agreed. The concept of intervention-based services, as proposed by the reauthorization of Individuals with Disabilities Education Act (IDEA), is a responsible practice that is receiving support by
consumers in the area studied. (Grimes & Kurns, 2003). These data reflect a high degree of acceptance in using the RTI model as a problem-solving process from the teachers in the AEA.

**Progress monitoring.** A second support of the RTI model utilizes progress monitoring assessments to determine academic growth, which provides a strong research basis for RTI’s implementation. Studies by Fuchs and Fuchs (in press), Fuchs, Deno, and Mirkin (1984), and Stuart, Rinaldi, and Higgins-Averill (2011) indicate that the use of frequent, brief progress monitoring assessments provides reliable data on how students are progressing related to improved results. Typically, the classroom teacher who referred the child can provide valuable information about the child’s work habits, academic skills, and classroom behaviors. Schools maintain rich records on students, storing data on attendance, disciplinary office referrals, grades, and performance on group achievement tests, which provide insight into factors helping or hindering students’ success in school. In controlled comparative studies, these data also show that the use of progress monitoring assessments results in better end-of-year scores due to adjusted instruction and regular modification of student goals (as cited in Fletcher & Vaughn, 2009).

In another study, Fuchs and Fuchs (in press) used curriculum-based monitoring (CBM) to prompt teachers’ concerns about student progress using RTI. In RTI, CBM can be used for identifying risks by monitoring responses to general education. In their study, 24 teachers were randomly assigned to CBM progress monitoring groups to identify readers who showed signs of being at risk. The teachers documented students’ reading fluency data in their classes, analyzed the results from the computer-generated graphs, and noted students who fell into the lowest quartile of the class in reading fluency. Teachers collected data for 15 weeks, with individual graphs shown at the end of every data-collection session and with class reports printed every three weeks (Fuchs & Fuchs, in press). At the end of every three weeks during the 15-week data collection, teachers were asked, “Do you have children whose progress seems problematic?” The teachers involved in the study expressed concern about statistically significantly more students, with effect sizes exceeding one standard deviation (Fuchs & Fuchs, in press). The teachers participating
in the study, who were monitoring students’ progress, described features of students’ performances to explain their concern based on their observations and data collected to monitor students’ progress; teachers who used CBM to monitor student progress could justify whether students needed different forms of instruction based on students’ performance. In contrast, teachers not participating in the study cited reasons beyond their control (i.e. special education status, attention problems, or motivation issues), stating the reason for students’ lack of progress was because of external factors outside of what the teacher could control. Experimental teachers’ decisions reflected greater realism about responsiveness to students’ progress and their instructional structure demonstrated greater increase of student success. Teachers stated that systematic progress monitoring would be used to monitor students’ reading progress and to signal the need for additional or differentiated forms of instruction when using the RTI model of intervention to identify risk.

In a similar study, Fuchs, Deno, & Mirkin (1984) conducted experimental research documenting how teachers use progress monitoring to enhance student progress. Thirty-nine teachers in a New York Public School participated for 18 weeks in a control group or progress monitoring group. In the progress monitoring group, teachers measured students’ reading performance with CBM oral reading fluency twice weekly. The teachers then scored and graphed progress performances. Children whose teachers employed RTI to measure CBM achieved significantly better than students in the control group on measures tapping a variety of reading skills, including a fluency test as well as decoding and comprehension subtests of the Standard Diagnostic Reading Test (Fuchs, Deno, & Mirkin, 1984). Results indicated rather large effect sizes ranging between .94 and 1.18. The teachers in the study used CBM to graph data analysis taken from monitoring students’ progress to effect greater reading scores in fluency, decoding, and comprehension. Teachers expressed satisfaction, as a result of graphing students’ results over the 18 weeks to monitor reading performance. Teachers could clearly visualize results because of the documentation taken to monitor students’ progress in reading. Students in the experimental group differed significantly at the $p < .05$ level, when compared to students in the control group.
Stuart, Rinaldi, and Higgins-Averill (2011) conducted interviews with teachers about their perceptions of RTI and its effect on progress monitoring during the second year of its implementation at an urban school. Participants in the study included 26 educators; of the 26 participants, 24 held general education teaching licenses and nine held additional special education licenses. The researchers wanted to gain comprehensive and long-term views of teachers’ perceptions of school; data collected in this study spanned a 12-month time period. Two 90-minute focus groups were convened by the researchers, and follow-up interviews were also conducted with the participants. Researchers analyzed the data in two stages. In the first stage, focus group data were coded into as many analysis categories as possible; in the second stage, data were sorted and reorganized inductively and deductively by chunking and clustering into similar categories (Stuart, Rinaldi, Higgins-Averill, 2011). Results from the interviews indicated a definite shift in teachers’ perceptions of RTI between the first and second year of implementation regarding progress monitoring. Participants discussed feelings of the RTI model as being an administrative directive (Stuart & Rinaldi, 2009). Data from the study indicated that the participants viewed their goals more clearly and could deliver instructional material more effectively. Results also showed that participants felt that they made a shift in the manner in which they used data to inform instruction (Stuart, Rinaldi, & Higgins-Averill, 2011). Teachers reported effective use of progress monitoring in addressing the needs of students and felt more in control when the RTI was implemented. The teachers in the school viewed themselves as change agents who engaged in collaborative efforts using progress monitoring to implement RTI. The collaboration among the faculty allowed progress monitoring as a best practice approach for RTI.

**Early identification.** A third support for RTI, according to the Council for Exceptional Children (2011), indicates that one of the primary benefits of using an RTI approach is in the early identification of students with learning difficulties. RTI allows students to receive immediate intervention rather than waiting until there is an established pattern of academic struggle. Fairbanks, Sugai, Guardino, and Lathrop (2007) and Rogers (2010) conducted studies to recognize and support the RTI
model for identification of students with specific learning disabilities relating to teacher perceptions

Fairbanks, et al., (2009) report their study of investigating RTI for behavior support in second grade classrooms. Participants in the study included 10 students between the ages of seven and eight and two general education teachers. The purpose of the study was to observe the effectiveness RTI behavior supports to detect students early demonstrating problem behaviors. In this study, “check in and check out” (CICO) was used under the RTI behavior logic. Fairbanks et al. (2009) question, “Does a relationship exist between implementation of CICO targeted intervention as a form of RTI behavior logic and (a) percentage of participants engaged in problem behavior, (b) frequency of office referrals using RTI, and (c) teacher perceptions of problem behavior and intensity?” (p. 291). The general education teachers worked collaboratively during their observation and intervention procedures. An experimental design was used to study CICO implementation and effectiveness, and a targeted CICO group intervention was designed and implemented by the two teachers. The researchers conducted analysis of the graphed data and considered trends, response rates, and variability. Four of the 10 students required more intensive interventions at the secondary level, and four other students required more intensive individualized instruction at the tertiary level. Teachers perceived the RTI model a valuable model in detecting behavior problems early and improving the identification of students who might require more intensive instructional support. Teachers responded that the interventions were easy to implement and improved the general climate of the classroom; the RTI plan was viewed as a positive experience. Given the increasing number of demands (differentiated instruction, accountability, individualized instruction for students with disabilities) being experienced by classroom teachers, the efficient adoption and accurate use of evidence-based practices are especially important priorities to identify struggling students.

In a recent study, Rogers (2010) distributed a survey to 80 elementary education teachers to explore the impact of the effectiveness of early intervention programs on teacher self-efficacy in RTI. The 80 elementary educators were grouped by their perceptions of their own efficacy.
with early intervention strategies in RTI. Four groups were established, ranging from higher levels of teacher efficacy (Group 1) to lower levels of teacher efficacy (Group 4). These analyses allow observation of differences between groups of teachers’ perceptions of their school’s engagement in different early intervention and RTI activities (Rogers, 2010). All teachers were given a series of early intervening activities and were asked whether their schools engaged in evidence-based instruction to meet the needs of struggling learners. According to Rogers (2010), 56% of teachers reported that their school engaged in evidence-based instruction for all students, 61% reported that their schools utilized problem-solving school-based teams, and 78% reported that their school utilized evidence-based early interventions for at-risk students. The majority of Group 1 reported feeling either somewhat or very prepared to engage in RTI for early intervention based on their higher levels of teacher efficacy. In all groups, 50% of teachers reported being involved in early intervening activities or RTI, and RTI early intervention had an overall decrease in student assessment referrals to special education (Rogers, 2010).

RTI criticism

Student placement. Although support for using RTI is present in research, some educators, practitioners, and researchers criticize using RTI as a method to identify students with specific learning disabilities (SLD) because of the inconsistencies of student referral and placement in special education, cost-effectiveness, and teacher training. Furthermore, inconsistencies such as the definition of effective classroom instruction, the clarity of the referral process, and the issue of how to address disproportionality with RTI, are present in studies by Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, and Woodruff (2009), Goodman and Webb (2006), and Bahr (1991), citing criticism of the RTI model. While RTI may serve as a gatekeeping mechanism by preventing inappropriate placement in special education, it may also extend an already lengthy evaluation and eligibility process for identifying students who could benefit from special education (Bender & Shores, 2009).
Vaughn et al. (2009), examined the effectiveness of using RTI on students’ responses to reading interventions and placements in either general or special education. Two cohorts of students (Cohort 1: \(n=536\); Cohort 2: \(n=494\)) and their classroom teachers participated in this study during both of its years. Students who received instruction from 2003–2005 are referred to as Cohort 1; students who received first- and second-grade instruction from 2004–2006 are referred to as Cohort 2. Low responders showed more progress at lower rates and struggled with reading even after invention; high responders progressed at higher rates and showed signs of reading comprehension. In the beginning of the second grade, both cohorts of students who scored at or above prior identified benchmarks in nonsense word fluency, phonemic segmentation fluency, and oral reading fluency on screening measures did not receive secondary or tertiary interventions in second grade (Vaughn et al, 2009). The high responders, students scoring higher in academic measures in both cohorts, received either 13 or 26 weeks of secondary intervention (RTI-Tier 2) for 30 minutes daily with their classroom teacher. For the low responders, students scoring low on academic measures, all students received an additional 26 weeks of secondary intervention, and because these students did not meet the prior benchmark criteria in second grade, they received tertiary services (RTI-Tier 3) for approximately 100 sessions in the 26 weeks. Students meeting the benchmark did not receive an additional 26 weeks of intensive interventions. Vaughn et al., (2009) used a regression-discontinuity design; lower and higher responders were compared on several measures of reading that indicated significant findings for reading comprehension and word reading in favor of the lower responder group. Vaughn et al. (2009) showed interest in teachers’ perceptions of the academic component and student placement component in the RTI intervention. The study indicated that students at risk for reading problems were perceived by their teachers as having lower academic competence over time (Vaughn et al., 2009). Teachers were asked to measure the rate of each student with questions such as, “In reading, how does this child compare with other students?” and “This child’s overall motivation to succeed academically is?” Students who were low responders were perceived by
teachers as less academically competent than were students who were high responders (Vaughn, et al., 2009). Some low-performing students still received tertiary services from their teachers; however, some teachers were unsure of the students’ placement because of their academic deficiencies in reading.

Goodman & Webb (2006) conducted an observation study to examine reading achievement scores of students with a suspected reading disability to determine effectiveness of RTI. The participants in the study consisted of 66 third- and fourth-grade students in a large suburban neighborhood with a low socioeconomic status. Students selected in the study were referred to special education because of some form of an observed reading disability. The purpose of the study was to compare reading levels between the students suggested for special education with students in the general education classroom to identify any potential teacher bias. The study was conducted over a three-year time period.

Findings from the study indicated that 24 of 66 students in the study were classified as having a reading disability, and three qualified for special education. Another finding of this study was that of 40 students who passed the reading achievement tests, 11 were diagnosed with a reading disability but passed the standardized assessment anyway (Goodman & Webb, 2006). Teachers responded to students’ low reading scores by referring them to special education. As a result, students with academic deficits are more likely to receive special education services, and this may also impact teachers’ sense of self efficacy, according to the authors who state that to a certain extent, special education programming may have negatively impacted teacher efficacy by creating a process in which all struggling learners were immediately removed from the classroom to receive individualized instruction in a more restrictive setting. This study shows how teachers need to be able to identify students accurately and understand the difference between students requiring placement in special education or students needing more support services in general education. RTI serves as a method to detect student achievements, but often students spend undue time in limbo where they may linger between special and general education without due process.
A report by Bahr (1991) explored whether classroom teachers’ perceptions of difficult-to-teach students were racially biased when implementing RTI. Participants in the study included 40 teachers who nominated students they felt were difficult to teach. Half of the students labeled “difficult to teach” were African-American and the other half were white. Teachers participated in interviews and observations; teachers also documented student performances according to students’ academic measures. Results indicated that 13 of the 18 African-American students’ behavior was classified as off-task, whereas the behavior of six of the 20 Caucasian students was defined as poor work. Additionally, 13 of the 18 African-American difficult to teach students had been retained at least one grade level, versus only six of 20 Caucasian difficult to teach students (Bahr, 1991). A MANOVA identified Caucasian students (M=179.50, SD= 19.65) scoring reliably higher than black students (M=158.75, SD=32.52) on a Woodcock subtest. According to Bahr (1991), a central finding of this study was that a significantly larger number of African American students than Caucasian students were rated for referral by teachers, and this result is consonant with recent evidence indicating continued disproportionality in the placement of African American students in special education using models of intervention.

**Teacher training.** A second criticism draws attention to general and special educators’ training in the area of RTI. Educators in both special and general education classrooms remain unclear about the specific roles and responsibilities to identify students with SLD and then utilize RTI as a method of intervention as a result of limited or non-existent training. Teacher preparation must focus not only on ensuring that teachers receive and encompass validated intervention models and methods, but it should also center on developing expertise in accurately and separately identifying students who have learning disabilities from other students who are not achieving for other reasons (Goodman & Webb, 2006). Without useful teacher training, RTI will never achieve successful results for both general and special education teachers.

Four annual surveys conducted by the Council for Exceptional Children’s (CEC) Council of Administrators of Special Education (CASE)
with Spectrum K12 educators all indicated a lack of teacher training as the biggest obstacle to implementing RTI between the years of 2008–2011. In 2011, the report analyzed data from the 1,390 respondents who participated in the survey. A margin of error for this survey is plus or minus 3.4% at the 95% confidence interval. In the 2011 Survey Report, 60% indicated the lack of training as the largest barrier of implementation. The 2010 RTI survey report analyzed data from 1,101 respondents, 761 of whom completed the entire survey. A margin of error for this survey was plus or minus 3.5% at the 95% confidence interval. In the 2010 report, 53% indicated insufficient teacher training as somewhat of an obstacle, and 37% indicated training as a significant obstacle to implement RTI. In RTI 2009 Survey Report, the report followed data from 728 respondents, 563 of whom completed the entire survey. The margin of error for this survey is plus or minus 4.6% at the 95% confidence interval. In the 2009 survey, 51% indicated insufficient teacher training as somewhat of an obstacle, and 36% indicated insufficient teacher training as a significant obstacle. In the RTI 2008 Survey Report, the report analyzes data from 424 respondents who completed the survey. The margin of error for this survey is plus or minus 4.6% at the 95% confidence interval. Lack of teacher training was identified as the biggest obstacle to implement RTI, but a percentage was not cited on the survey report. Results from the survey show that a majority of districts in the study provide professional development, but a majority of the districts trained less than 25% of their staff.

**Guidelines for implementation**

The criticism mentioned in this paper should by no means be regarded as critical flaws; rather, they should reflect RTI as a new model, one that researchers, educators, and practitioners must grow and change with as they meet the needs of struggling students in schools. Despite these criticisms or limitations, the research findings suggest that RTI is a promising approach, particularly because of its focus on sound instructional principles such as effectively teaching all children, intervening early, using research-based interventions, monitoring student progress, and using assessments to inform instructional decision-making (Cole-
man & Buysse, 2006). According to Wright (2007), RTI offers a specific blueprint for schools that promises to greatly expand their capacity to support marginal, struggling students. The blueprint includes guidelines for:

- Launching RTI throughout a school community;
- Establishing a strong intervention team;
- Creating research-based intervention plans that can actually work in classroom settings by understanding the RTI model, implementing individualized strategies, monitoring progress frequently, incorporating problem-solving methods, and documenting data;
- Monitoring student progress using sensitive and time-efficient measures;
- Applying decision rules to determine in weeks, not months, whether a student has responded successfully to the interventions tried.

Teachers should be aware of the complications to implement RTI effectively. The events and procedures need to be carefully described, carried out, and documented to ensure that effective decision making and responsive instruction occur.

**Future implications**

Though research found in existing studies (Myers et al., 2009, Fuchs & Fuchs, in press, Fuchs, Deno, & Stuart, 1984, Fairbanks et al., 2009) documents successful implementation of RTI, a common thread found within current RTI literature is the need for further research, particularly in the area of classroom teacher efficacy toward RTI. While many articles have addressed the positive potential of effective RTI implementation, there are many issues both supporting (i.e. early identification and progress monitoring) and critical of (i.e. student placement and teacher training) RTI that have not been studied extensively and require further evidence-based studies to support RTI implementation. RTI may offer benefits over more traditional methods of SLD.

RTI may also identify students with SLD at earlier ages, thereby potentially lessening the impact of the disabilities or preventing some students from developing disabilities; however, further research is needed (Stecker, Fuchs, & Fuchs, 2008). Educators should first address...
the concerns, challenges, and limitations of teacher efficacy before executing RTI for individuals. There is a need to shift from services offered only in special education classrooms for students who demonstrate academic or behavioral problems to services provided in general education classrooms for those students. Shinn (2007) questioned if the field of education can go further and if teachers can apply these fundamental concepts to all students, regardless of labels.

Further research is needed to substantiate the findings of effective implementation of RTI, modification of the interventions, enhancement of teacher efficacy, and progress monitoring of students. The search for appropriate instructional materials should be systematic and ongoing (Wiener & Soodak, 2008).

**Conclusion**

In conclusion, teachers should seek both consultative and support services when implementing RTI to ensure students with SLD receive the most optimal education.

For teacher educators, there are questions as to how best prepare all teacher candidates with the knowledge, skills, and dispositions necessary to implement the RTI model. Research provides support and criticism of the RTI model; however, despite criticism, educators need to ensure students receive necessary services. Educators need to demonstrate higher levels of efficacy in RTI implementation to reduce inappropriate student placements and to increase proficiency through professional development and training. Educators are given the opportunity to build the capacity of all teachers to serve students with learning difficulties by preparing teachers to implement RTI as a problem-solving model, intervene early, and incorporate ongoing progress monitoring. Given the support and criticism in the different studies presented, much research is still needed in how to best prepare future general and special educators in an RTI model. RTI has the potential to assist many struggling students by providing them necessary interventions, consequently reducing the number of students who are referred and placed in special education programs.
Supports and criticisms of response to intervention: Educators’ perceptions

References


Successful literacy interventions: An RTI case-study analysis

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Abstract
The following case study describes the assessment methods, assessment-based instructional decisions, implementation and reevaluation of interventions, and exploration of instructional contexts for two 3rd graders who demonstrated difficulties in reading. The reading coach administered diagnostic assessments and delivered research-based instruction; as a result, both students made remarkable gains within the Response to Intervention framework.
Successful literacy interventions: An RTI case-study analysis

“I think RTI is some sort of reading program for special education students,” replied a teacher when a colleague inquired about Response to Intervention (Vaughn, Linan-Thompson, & Hickman, 2003). Most recognize it as another, oft-used, educational acronym. Indeed, Response to Intervention (RTI) can be a difficult concept to grasp (Fuchs & Fuchs, 2009). But through experience, conversations with administrators and teachers, a few meetings with the district director of special populations, and considerable reading, the first author developed a better understanding of the purpose and uses of RTI. Acquiring this level of understanding took considerable time and effort. It would be arduous for every teacher to do the same. Instead, this article tells the story of how the reading coach at a Title 1 school in the southwest restructured its approach to better implement the RTI model to support struggling readers. The restructuring ultimately led to a school-wide implementation of the coach’s rendition of literature circles, and some empirically successful interventions for at-risk students. The case studies in this article evidence an effort to take the RTI model seriously and to use it for its primary purpose of ensuring student success (Barnett, Daly, Jones, & Lentz, 2004; Johnston, 2010; Mesmer & Mesmer, 2008).

The role of this reading coach
Initially, the role of the new reading coach (first author) at Eagle Elementary (all school and student names are pseudonyms) was to meet with students who needed extra support in reading. (The term “at-risk” is not used here because not all of the students were labeled at-risk.) The classroom teacher, the reaching coach, and administration chose the students based on state standardized test scores. Students who had not passed, had to retake, or had passed by a small margin, were identified as needing extra reading support and included in small groups assigned to the reading coach. Some students without standardized test results were also referred to the reading coach if their scores on district-mandated reading assessment, the Developmental Reading Assessment (DRA; Beaver, 1991), did not meet the desired grade-level expectations. At this
school, the classroom teacher, administrative team, and reading coach met every six to eight weeks to renegotiate reading groups.

The school year began with 11 groups targeted for reading support. Each group ranged from three to five students from grades 2 through 5. Of the 39 students, 20 (51%) were learning English as a second language. (All of the English language learners spoke Spanish as their first language.) The reading coach used guided reading (Pinnell & Fountas, 2007) to support students in their reading development, especially the second graders. The third-, fourth-, and fifth-graders often received comprehension strategy instruction and were given more time to practice higher-level skills in literature circles.

**Reading coach redefined**

The initial meeting with the district’s special populations coordinator began the negotiations that ultimately redefined the reading coach at Eagle Elementary. This district adhered to RTI’s three-tier model (Vaughn et al, 2003), which places students on one of three levels of support, and students are moved through the process as needed. The Tier 1 curriculum is the existing classroom instruction. If a student does not respond to Tier 1 instruction, the classroom teacher intervenes to provide support for the student, in addition to continuing the existing Tier 1 curriculum. If there is still insufficient response, the student is officially placed on Tier 2, and receives yet another type of intervention. In the case of reading difficulties for this school, if the student had not responded to the regular curriculum and additional classroom interventions, the reading coach and the school’s instructional specialist would check the fidelity of the interventions being used. If the interventions were deemed appropriate, but there was insufficient growth, the student was referred to the reading coach for extended Tier 2 and 3 interventions.

Tier 2 interventions at Eagle Elementary required student placement in a group of less than three, twice a week, for 30 minutes. Students on Tier 3 received instruction three days per week for 30 minutes, also in a group of less than three. In this particular situation, the coach had four groups of two, and 18 one-on-one sessions per week. These small groupings are important for two reasons. First, small groups allowed for
more targeted instruction and increased the likelihood that interventions were employed properly. For example, a Tier-3 student struggling with fluency who did not respond to Readers Theatre (Young & Rasinski, 2009) in a group setting might make considerable growth through the Neurological Impress Method (NIM) (Heckelman, 1969). The NIM option is not designed for more than one student at a time. Therefore, because of group size, the student might be restricted to slow, moderate progress, rather than the rapid growth as documented in the following case studies.

The second reason for the lighter schedule for the reading coach was flexibility. With support from administrators, this reading coach had long wanted to model lessons in classrooms for larger groups of students. Heretofore, the use of the reading coach in classrooms was sporadic at best. Conversely, the new schedule allowed the coach more time to spend instructing whole groups. This coach used the opportunities to begin implementing literature circles school wide. The original purpose of the collaboration between the first and second authors was to describe the implementation of the literature circles implemented by the first author in his transformed role of reading coach. However, a focus on the small-group instruction developed as some remarkable gains emerged from the targeted RTI interventions. The remainder of this article highlights the literacy transformations of two 3rd grade students.

**Overview of case studies**

The following case studies describe the assessment methods, assessment-based instructional decisions, implementation and reevaluation of interventions, and exploration of instructional contexts for two students. The first case study is a description of the interventions used with a 3rd grader who chose to call himself Lightning. (His original pseudonym was Emilio, but when the reading coach sought the student’s input, he cleverly requested the pseudonym “Lightning”.) The next young reader, also a third grader, had no qualms with the pseudonym of Maria. Both cases involved one-on-one literacy instruction in the same classroom with the same reading coach.
**Lightning**

Toward the end of the school year, basking in the spring light and the glow of some reading success, Lightning sat across from the reading coach clutching his copy of *Diary of a wimpy kid: The last straw* (Kinney, 2009). He hugged the book lovingly, radiating happiness. He was concurrently reading two other titles. As with other good readers, Lightning also had his next reading target in mind—a nonfiction book about bikes. He would have already checked it out, but according to his library record, he had reached his limit. Apparently, the librarian and Lightning differed in their concepts of “limit.” However, it is important to note that Lightning had not always been an avid reader. In fact, reading had been a thorn in his side.

Lightning was a third-grade student with a history of reading difficulty. A review of his records revealed that he had been reading below grade level his entire elementary school career. His classroom teachers and academic coaches had provided him with reading support since 1st grade. When asked about his reading, his former first grade teacher replied solemnly, “Oh, Lightning, poor baby.” In second grade, his demeanor clearly reflected defeat, and unmistakable misery when reading. His oral reading was choppy, laborious, and, quite frankly, boring. He had no favorite books, and, according to him, his greatest fear were reading tests because he was certain he would not know the words. He had been assigned to small groups ranging from three to six students. However, his progress was slow in the small-group configurations, and he continued to struggle, falling further behind his peers. It seemed that grade-level reading was far out of reach.

His 3rd grade school year started similarly to those previous. Lightning was assigned to a group of five students, where he received guided reading instruction (Pinnell & Fountas, 2007). He began the year on a DRA level 18, approximately one year below grade level. After six weeks of guided reading intervention, he made no assessed growth. His DRA remained the same, an 18. In fact, his 3rd grade Reading Curriculum Based Measurement (R-CBM) indicated a decline in reading rate (WPM). His early 3rd grade baseline R-CBM score was 54 WPM, but after six weeks of intervention his score had decreased to 36 WPM.
Fortunately, due to the school’s restructuring to implement the RTI framework, the reading coach’s schedule was more dedicated to Tier 2–3 students, and Lightning’s needs could be addressed individually. With a Tier-3 designation, he qualified for 30 minutes per day, three days per week with the reading coach.

Although Lightning was reading at a DRA level 18, this designation did not adequately inform instruction. It was time to figure out what was holding him back. Lightning was asked to read a passage that was deemed to be two levels above his independent reading level, and the results were analyzed to inform his need for instruction. The common practice of using passages slightly above a reader’s independent level allows the teacher to observe the kinds of reading skills and strategies that students employ with text that slightly challenges them (Allington, 2006; Krashen, 2004).

Lightning read the Level 20 passage with 93% accuracy, with poor fluency, and at a slow, laborious pace (55 WPM). Most of his miscues were classified as visual; he knew that letters made certain sounds, and words read aloud should match them. Interestingly, Lightning’s comprehension was adequate according to the DRA comprehension rubric (Beaver, 1991). However, the DRA requires at least 95% reading accuracy, so this passage was deemed to be at Lightning’s instructional level.

This assessment revealed extremely valuable information. His comprehension was adequate, but his accuracy and fluency seemed to be holding him back. Lightning needed greater automaticity—reading words effortlessly and rapidly (LaBerge & Samuels, 1974). There are various methods used to increase automaticity; all of which could be easily employed in this situation because of the one-on-one environment. The reading coach initially chose repeated readings (Samuels, 1979) because repeated readings is a relatively easy way to increase word recognition. It helps readers become more automatic as they work toward fluent reading. According to research, the selected texts can be brief and the number of repetitions is optimal at four (Samuels, 1979).

The intervention began in mid October. Lightning entered the room and seemed excited to have the reading coach’s full attention. The coached explained the method of repeated readings. Lightning was to
read the passage aloud four times, and chart his growth on four graphs that were drawn on the board. (See Appendix A for a completed example.) After the readings, the reading coach would tell Lightning the level of comprehension, number of errors, the rate at which the passage was read, and the amount of expression observed. (Comprehension was measured only on the first and last reading.)

The role of the reading coach was a bit more demanding. The coach timed the reading to determine the read words-per-minute rate. As the student read, the coach verbally corrected errors made by the student, and marked them on the teacher copy of the passage. Expression was measured on a 1–4 scale rubric adapted from fluency research (Zutell & Rasinski, 1991). The coach used the DRA comprehension rubric (Beaver, 1991) to assess comprehension, based on the student’s retelling of the story after the first and last readings.

Most of the passages that Lightning read were actually poems from gigglepoetry.com. The coach selected and copied poems and pasted them into Microsoft Word, then determined readability statistics to determine their approximate reading levels. Lightning’s passages ranged from 2.1 to 4.9 on the Flesch-Kincaid (Flesch, 1948; Kincaid, Fishburne, Rogers, & Chissom, 1975) readability formula. For example, *How to torture your teacher* (Lansky, 2010) was calculated to be a lower second-grade level text consisting of 201 words (see Table 1). On Lightning’s first reading of this poem, his comprehension was 12 of 24 (50%); on the last reading he was scored 100% on the comprehension check. His beginning reading rate was 63 WPM. At this school, typically, the expectation for a second grader is to be reading at approximately 90 WPM. Lightning had almost achieved this by his third reading at 85 WPM. However, by his fourth, Lightning read at an impressive 108 WPM. His reading errors decreased from 16 to eight over the four readings, thus achieving a 96% accuracy. Finally, his prosody, based on the rubric (see Table 1), increased from a 2 to a 3.

The reading coach continued to use the repeated reading technique with Lightning, but with more complicated texts. One selected poem, entitled *Ish* (Lansky, 2010) was more appropriate for third grade, which was Lightning’s current grade level. On the first reading, he read at 34
WPM, but he increased to 95 WPM. Across the four readings, his oral reading errors decreased greatly from 21 to 2. Additionally, his prosody increased from a 1 to a 3. Importantly, after the initial reading, Lightning’s comprehension was 38% (9 of 24). But, after the four readings, he comprehended 100% of the text.

It became evident while watching Lightning that he thoroughly enjoyed the method of repeated readings. The reading coach continued to use the graphs to chart Lightning’s progress on four readings of a selected poem or text during the half-hour sessions. As is noted in research, the visual representation of progress can be motivational (Allington,

<table>
<thead>
<tr>
<th>Reading</th>
<th>Text</th>
<th>Level</th>
<th>Comprehension</th>
<th>Rate (WPM)</th>
<th>Errors</th>
<th>Prosody</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>How to torture your teacher</em> (Lansky, 2010)</td>
<td>2.1</td>
<td>50%</td>
<td>63.43</td>
<td>16 (92%)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>68.73</td>
<td>12 (94%)</td>
<td></td>
<td></td>
<td>2</td>
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<tr>
<td>3</td>
<td>X</td>
<td>84.76</td>
<td>9 (96%)</td>
<td></td>
<td></td>
<td>3</td>
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<tr>
<td>4</td>
<td>100%</td>
<td>107.79</td>
<td>8 (96%)</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Table 1
Repeated readings record

<table>
<thead>
<tr>
<th>Reading</th>
<th>Text</th>
<th>Level</th>
<th>Comprehension</th>
<th>Rate (WPM)</th>
<th>Errors</th>
<th>Prosody</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Ish</em> (Lansky, 2010)</td>
<td>3.2</td>
<td>38%</td>
<td>34.22</td>
<td>21 (77%)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td>56.84</td>
<td>4 (96%)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td>91.48</td>
<td>1 (99%)</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>100%</td>
<td>94.17</td>
<td>2 (98%)</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2
Repeated readings record
1983; Samuels, 1979). Using Lansky’s humorous poetry mitigated the possibility of the passages becoming tedious. Also, allowing Lightning to choose his passages from a collection selected by the reading coach helped keep him engaged. During his intervention, Lightning chose passages on soccer, weather, holidays, and his favorite college football team, the Texas Longhorns. Some of these readings he chose were more difficult than the poems, ranging from a Flesch-Kincaid level 4.7 to 13.3. The 13.3 selection was far too difficult the first time he read it, but by the fourth reading, Lightning had very good comprehension, only seven errors, an expression score of 2, but a diminished rate of 40 WPM (Table 3). Of course, he was not always allowed to choose, mostly because Lightning occasionally picked college-level material.

Lightning was re-assessed after eight weeks of the repeated readings intervention. His DRA level increased from 18 to 24 (see Figure 1). Lightning was beginning to close the gap between his reading level and that associated with his grade level, a DRA 34. Although Lightning had previously made no progress in small groups; he made over half a year’s growth in two months using repeated readings. His fluency as measured on his next R-CBM showed an increase as well. He went from the previously recorded 36 to 80 WPM. The one-on-one relationship with his reading coach and the use of repeated readings seemed to combine for an effective intervention for Lightning.

<table>
<thead>
<tr>
<th>Reading</th>
<th>Text</th>
<th>Level</th>
<th>Comprehension</th>
<th>Rate (WPM)</th>
<th>Errors</th>
<th>Prosody</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Texas Longhorns (CBS Interactive, 2010)</td>
<td>13.3</td>
<td>6</td>
<td>29.02</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td></td>
<td>34.29</td>
<td>20</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td></td>
<td>38.35</td>
<td>12</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td></td>
<td>40</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
But, his story was not over yet. Again, determining an independent DRA reading level of 24 is important, but it did not diagnose needs for instruction. So, Lightning was again assessed with a higher-level passage to make his reading difficulties more transparent to the reading coach. Lightning, again, had difficulty with accuracy and rate. However, this time it was noted that his expression only sometimes varied to match the meaning of the story. After administering a higher-level DRA, it was clear that not only was his automaticity holding him back, but prosody might be compounding the problem. Repeated readings were helping with his automaticity, but the coach needed to attend to his reading prosody: intonation, expression, stress, pause, volume (Kuhn, Schwanenflugel, & Meisinger, 2010).

The coach did not want to sacrifice automaticity for prosody, so he chose the Neurological Impress Method (NIM; Heckelman, 1969) as a suitable technique for Lightning. When Lightning returned from winter break, the reading coach described the new intervention. The coach utilized a modified version of the method described by Heckelman. Indeed, it was more of a hybrid of NIM and repeated readings (Samuels, 1979). In this variation, the reading coach sat next to Lightning. The coach and student read their own copies of the book out loud. The coach read fluently into the dominant ear of the student, while Lightning “trailed” behind the coach. The coach read slightly ahead of Lightning, and with appropriate prosody. After each page was read using this NIM technique, Lightning read the page back to the teacher—essentially a repeated reading of the page. It was amazing to hear how the coach’s voice had been “etched” into the mind of the student. After following the coach’s example, Lightning read with incredible expression. Page after page, Lightning varied his expression to match the meaning, paused for effect, and stressed particular words. With this modified NIM method, henceforth referred to as Chase Me-Show Me, Lightning read like a proficient reader.

The materials used for the Chase Me-Show Me sessions were texts approximately 4–8 levels above Lightning’s DRA level. For example, *Scary Stories 3: More Tales to Chill Your Bones* by Alvin Swartz (1991) is a DRA level 38. The text was offered as an option by the reading
coach, and Lightning expressed interest. Of course, choosing texts within the 10-level range did not necessarily work every time. In one case, *Bunnicula* (Howe, Howe, & Jacobi, 1982) was too difficult, and despite NIM’s benefits, Lightning could not render a fluent reading of the text. Perhaps the difficulty was due to the use of frequent sarcasm in *Bunnicula*, making it a challenge for younger readers. Teachers need to be mindful of the text chosen. If the text cannot be read back to the teacher fluently with few errors, the text may be too difficult. The goal is to select high-interest texts, but using full trade books is difficult with repeated readings because of their length.

The Chase Me-Show Me intervention as developed by this reading coach was used for another eight weeks. Lightning’s DRA level increased from a 24 to a 30. Lightning was then only slightly behind the third grade expectation. Remarkably, he read a DRA level 30 text with very good comprehension, 99% accuracy, at 99 WPM, and great expression—a score of 4 according to the rubric. Although his R-CBM reading rate did not increase as much as it had after the repeated readings segment, this time it increased from 80 to 85 WPM, but his expression had clearly improved (see description of score 4 in Appendix B).

Again, the story was not yet over. Given his new role, this reading coach continued to work with Lightning and support his reading progress. Lightning no longer entered the room defeated and strained. Instead he would practically bound into the room, ready to tackle anything laid before him. One day, for example, Lightning was entertaining the reading coach with an extremely fluent production of *Skippyjon Jones and the big bones* (Schachner, 2007). He was all smiles, full of giggles, and bursting with confidence.

The giggles, however, turned somewhat bittersweet because in this case, the interventions worked. Lightning was reading on grade level, and in early spring achieved an impressive 80% on his mock state reading assessment. The reading coach had to inform him that, due to his success, the one-on-one instruction would be ending. Lightning was happy to know that he had exceeded the expectations, but was clearly upset about the end of the successful relationship. The coach, of course, promised to visit frequently, and made good on his promise. Letting
Lightning go was both the saddest and happiest moments for the reading coach that year. It was a dream come true to see Lightning reading quietly with his classmates, so carefree and confident. Observations by the teacher and reading coach indicated that Lightning could now enjoy and understand his grade level reading. He would remind the reading coach, in his special Lightning way, “Now, don’t forget about your chubby little friend, Mr. X.” Obviously, the coach needs no reminder.

Maria
In late 2009, Maria was a third-grade student with a history of reading difficulties. She was well aware of these difficulties and admitted to not reading frequently because of them. She especially feared reading aloud in any environment. This all changed, fortunately.

Maria was a quiet student. One might infer her shyness was due to her age or perhaps her home culture or speech impairment. The reading coach originally attributed her quietness to those factors as well, but soon realized that her lack of proficiency in reading also contributed to her less-than-enthusiastic demeanor. Maria had trouble reading and was over a year behind her peers.

In the beginning of her intervention, Maria hardly spoke. In fact, this was the rare student who did not seem happy to visit the reading coach. Maria seemed immune to the novelty. She knew the reading coach was there for a more specific purpose than to jovially bounce around the school; he was a reading teacher, and Maria did not like to read. However, as her reading improved, she began to open up. She engaged in conversation and even smiled occasionally.

Although her difficulties crossed the curriculum, this analysis will focus on her reading. Maria began her 3rd grade year on a DRA level 18. This again is considered as end-of-year, first-grade reading. According to Maria’s beginning-of-the-year R-CBM, she read grade-level passages at 60 WPM, some 40 words below expectation. She was seen initially four days a week by the reading coach in a group of four students on similar reading levels. The reading coach used guided reading as an intervention (Pinnell & Fountas, 2007). This method was chosen because of the number of students in the group and the students’ similar
reading levels. Guided reading could accommodate all students in the small group, and the teacher could address individual teaching points as needed. This intervention lasted six weeks, when the reading coach revised Maria’s instruction.

In an effort to make better use of the RTI model, Maria, a tier-3 student, was reassigned to the reading coach for individualized reading intervention three days per week for 40 minutes per day. At the beginning of the one-on-one intervention, her DRA level was a 20 and her R-CBM reading rate was at 64 WPM, which indicated the previous intervention had yielded some gains. Again, the independent reading level portrays what a student does well, but not necessarily how she apply skills and strategies with more challenging text, so Maria was assessed using a level-24 passage in order to discern more specific reading behaviors.

The DRA measures word reading accuracy and comprehension. This school district also requires teachers to measure prosody and rate. According to the assessment, Maria struggled in every area measured. Because no area was significantly lower than the rest, the goals for Maria were more difficult to prioritize. In this case, the reading coach chose to address the most important process in reading—comprehension.

Based on the National Reading Panel’s (National Institute of Child Health and Human Development, 2000) report of research-based strategies, the reading coach selected graphic organizers as a means to support Maria’s reading comprehension. Graphic organizers incorporate multiple strategies and integrate reading and writing (NICHD, 2000).

The first day entailed a quick preview of the intervention with the reading coach describing the Multiple Strategy graphic organizer (Appendix C) and the task to Maria. Initially, the coach selected *Alfie’s gift* (Hilton & Smith, 1992), a DRA-level 24 text, which was slightly above her independent level. However, Maria was not automatic in her reading; she struggled through only two pages and left the graphic organizer untouched. Apparently, Maria could not work far beyond her independent reading level. The DRA level 24 was obviously frustrating, so a lower-leveled book was selected for the next day.

The reading coach introduced a new book, a level 20, at the next session. He reviewed the graphic organizer and the coach and student
engaged in the task. Again, the task was difficult, and again the student struggled through the text. As before, the graphic organizer was overshadowed by the need for more efficient word recognition. Maria struggled with contractions, certain phonograms and affixes (often unread), irregularly spelled words, and blends (e.g., “black” would be pronounced “back”). Maria read in a monotone, word by word, and the process was laborious, thus taking its toll on the student and reading coach.

Comprehension can be difficult if a student cannot read fluently (Jenkins, Fuchs, van, Espin, & Deno, 2003; Klauda & Guthrie, 2008; Reutzel & Hollingsworth, 1993), so the coach chose an easier text. On day three, the coach decided to use a DRA level 18 for the comprehension instruction. As Maria read *A pot of stone soup* (O’Brien, 1996), she did not stop to fill out the graphic organizer without prompting. The coach had to remind her of the objective of completing the organizer. Maria, however, only stopped on her own when she came to an unknown word. In this case, there were fewer instances of difficulty decoding, and there was evidence of self-corrections, but completing the graphic organizer was not Maria’s goal. The graphic organizer was completed only after great effort and guidance. Maria asked two questions, answered them both, made one prediction (which came true), and rendered the following summary: “there were a little boy walked day and night looking for food he tod (told) the lady to cook a stone.”

After careful reflection, the reading coach deemed this intervention a complete failure instructionally. Luckily, interventions that do not provide positive results can be abandoned for better ones. Subsequently, the coach revised the intervention with a strategy geared towards increasing automaticity. The reading coach decided to again employ the Neurological Impress Method (NIM; Heckelman, 1969) because it had shown potential with other students. However, the coach wanted to keep an emphasis on comprehension, so the NIM Plus was chosen (Flood, Lapp, & Fisher, 2005). NIM Plus is the same echo reading method, but with a comprehension component. The “Plus” component requires the teacher to ask comprehension questions based on the reading after the teacher-led shared reading. Although the component is more accurately de-
scribed as comprehension assessment rather than instruction, it ensures that students keep their eyes on the prize—comprehension.

Because Maria’s confidence in reading was very low, the coach wanted to provide immediate chance for success. Therefore, the NIM Plus method was again modified as a combination of NIM Plus with a repeated reading—referred to by the reading coach as Chase Me-Show Me with the coach sitting on the dominant side of the student, they read aloud from two copies of the same book. The coach read at an appropriate pace, and prosodically, slightly ahead of Maria, while she “chased” behind. At the conclusion of each page, Maria immediately read the page again alone. In this way the Maria could see instant success of the strategy and feel more confident about oral reading. In this NIM variation the student repeated the text and was able to replicate the “voice” of the teacher that had been impressed during the first reading. Maria noticed her increased proficiency, and clearly enjoyed reading aloud with this support.

After the first failed week of intervention, Chase Me-Show Me was implemented for Week 2, and was used consistently for the remainder of the eight-week intervention period. After seven weeks of Chase Me-Show Me, Maria was assessed at a DRA level 28. The results were so shocking that she was given an alternate DRA, to confirm her level 28 success. Her comprehension was adequate on both assessments. She read with 96% accuracy on the first story at 73 WPM and 99% accuracy at 88 WPM on the alternate story. In addition, her subsequent R-CBM reading rate was 89 WPM—a 25 WPM gain in seven weeks. According to oral reading fluency norms (Hasbrouck & Tindal, 2006), a rate of 89 WPM, indicates that the reader is making adequate progress in third grade and placing her above the 50th percentile.

The Chase Me-Show Me technique was deemed successful as it increased her reading level by approximately one grade level (from DRA 20 to 28). In light of the growth, her intervention was not changed for the next eight weeks. Similar to the first eight weeks, Maria’s reading level increased by almost another year. She ascended from DRA 28 to 34. A DRA 34 was the expectation for a third grader at the time of the assessment. At the end of 16 weeks, Maria’s R-CBM reading rate was at
97 WPM, thus placing her at the 50th percentile for third grade readers (Hasbrouck & Tindal, 2006). Maria was reading and comprehending grade level material with a fluency rate commensurate with her peers. She had much to say about this in the follow-up interview.

During the interview, she sat across from her reading coach. She was delighted to find out that others wanted to know more about her. Following is the transcript from Maria’s interview:

Reading Coach: What are you reading now?

Maria: Arthur at Recess and ... umm ... a biography about Sam Houston.

Reading Coach: How do you feel about reading?

Maria: Good because it helps me get smarter. I like it because I’m on a high level.

Reading Coach: Have your feelings about reading changed since last year?

Maria: Yes. Last year I did not read a lot of books. This year I am.

Reading Coach: Why do you read more books?

Maria: Because I am a good reader.

Reading Coach: How did you feel about our strategy for reading? The one where we read together and you read back to me—Chase Me-Show Me.

Maria: It helped me with the book. Even if I got stuck, I can still understand the story. It helped me a lot.

Reading Coach: What will you read next?
Maria: Something. I don’t know.

Reading Coach: What made reading difficult for you before?

Maria: Nobody helped me.

Surely, teachers had tried to help Maria. All of her previous teachers are well known to the reading coach and they no doubt gave her assistance. Perhaps the real answer is, “No one helped me in the right way.” Or, phrased more academically, “No one took the time to give me direct, intense, research-based, and assessment driven literacy instruction.”

It was interesting to note that Maria said she eventually liked reading because she was on a higher reading level. She had somehow assumed the teacher mentality—that reading well means reading on a higher level. This is a common downside of using overtly leveled-texts for reading instruction and assessment. But, she also mentioned reading more books and understanding them. Maria knew the goal of reading. She knew that it was not just about speed, or the amount of words she knew, or pleasing the teacher; it was about meaning.

The Chase Me-Show Me intervention for Maria was successful. But, fortunately (and unfortunately), the coach did not have to say goodbye to sweet Maria. Her mock reading standardized test score was only 57%. Her teacher feared that she might not pass the third grade reading standardized test. This surprised the reading coach, as he had witnessed that Maria could read and comprehend grade-level text. Therefore, the coach reverted to assessment analysis; a tool he had utilized as a part of his own restructuring for the school’s new emphasis on RTI.

A careful analysis of her practice test revealed two patterns. The coach discussed each of these with Maria during her scheduled intervention time. First, Maria had missed every vocabulary-related question on the test. These questions were all similar in that they asked, “What word in the sentence helps the reader know the definition of …” Apparently, using context clues was a skill she had not yet developed. Although she could orally state the definitions, she was unable to identify the word in context that helped her define the vocabulary word in question. There-
fore, the reading coach modified her intervention to include this skill specific to standardized testing.

Second, she had missed every question on the practice test that started with “The reader can tell…” These questions ask the reader to infer. After a brief discussion with Maria, she revealed she did not realize that she was “the reader”. This question format completely confused her, so she guessed at answers. Again, these skills and phrasings using “the reader” are more specific to the state test; arguably, no authentic reading experiences will likely require a reader to answer these types of questions. However, understanding this type of question was also added to her intervention. (The coach strongly disagrees with teaching to a test, but has a bigger problem sending students in unprepared for such test items.) The coach and Maria had worked too hard to boost her confidence and reading ability to see it shattered by test-question confusion. Therefore, instead of exiting her from the intervention as he had done with Lightning, Maria continued with the reading coach to augment her much-deserved success in reading.

Discussion

The common factor

Although Stake (Denzin & Lincoln, 2003) argues against comparing across case studies, one common factor in these examples is the reading coach, who was completing his doctoral coursework under the supervision of Kathleen Mohr. She observed the reading coach during limited whole-, small-, and one-on-one lessons with students. This reading coach is personable, dynamic, and very enthusiastic about reading and is very positive in his interactions with students. He excels at connecting with downtrodden readers, so any effect in attitude or achievement is likely due in part to his ability to relate to and motivate students. It is a special treat to be assigned to this reading coach, and students, especially the many young male students, seemingly appreciate his instruction. The second author thinks it is important that the personality of the coach was a positive effect on student growth in these cases.
Other common factors and salient features in these cases are worth noting. First, the one-on-one context seemed to support more targeted instruction and intense practice. Research indicates the smaller the class, the higher the student achievement (Glass & Smith, 1979), especially in one-on-one situations (Baker & Others, 1990; Jenkins, Mayhall, Peschka, & Jenkins, 1974). In addition to personalized attention, these students met three times a week with the reading coach for at least 16 weeks. For some readers, this frequent individualization may be needed to make substantive gains in reading achievement (Gallant & Schwartz, 2010).

The focused attention that this reading coach provided to selected students was the result of a school’s intent to understand and implement RTI on behalf of struggling students. Key personnel held meetings and discussions and received input in order to revise the program. This reading coach embraced the notion that RTI emphasizes – that students need to be monitored for their response to instruction and that modifications must be made if approaches do not yield the desired growth. This flexibility requires that those responsible know enough methods and techniques to provide varied and appropriate instruction. This coach also realized that methods need enough time to work and provided sufficient time for students to learn and benefit from an intervention. Knowing how long a student needs an intervention is not an elementary science, but the use of assessment can provide insight into the question of duration.

Although the use of assessment is often a double-edged sword, some evaluation is necessary to diagnose students’ status and needs and to monitor the quality of an intervention. In this case, as with many, teachers are required to administer regularly-scheduled assessments in addition to those that might be used to monitor intervention effects. This reading coach used and compared the mandated assessment to confirm or inform his findings, rather than add unnecessary assessments to the instructional cycle.

The two cases described here both evidenced a need for fluency instruction, yet each had idiosyncratic elements. Certainly, not all struggling readers need to focus on their fluency, but these third graders had
not been able to move beyond a beginning reader, and increasing their fluency allowed them to sound and feel more proficient, which may have contributed to their ability to comprehend text.

Because of the students’ initial lack of automaticity, this reading coach employed a combination of repeated readings and the Neurological Impress Method. In both cases he utilized or modified a variation of these approaches to accommodate his students. Lightning needed fluency and prosody development; Maria needed fluency with a focus on comprehension. So, while some of the processes were similar, the reading coach customized the sessions for each student, modifying methods as warranted. With data from Maria’s mock state exam, the reading coach was also able to diagnose some language issues that were hampering her test-taking skills. This careful analysis of student data provided additional insight into Maria’s need for instruction.

Finally, with his more comprehensive approach to remediation, this reading coach looked beyond any weakness initially diagnosed and targeted for instruction. Some teachers make the mistake of zeroing in on one skill or proficiency to develop, without considering others that may be contributing to a student’s deficiencies. With a diagnostic approach to the use of oral readings, this reading coach found several aspects of reading that he prioritized for instruction. He also looked for transfer of skills across texts and levels, and considered motivational aspects in his reading interventions. The interventions used here were appropriate for the given schedule and appealing to these third graders. It is hoped, however, that these are instructional characteristics that other educators can adopt as they seek to implement RTI plans with their students. These case descriptions are intended to encourage other educators to explore varied instructional options to support specific student needs in the hopes that many more youngsters will become proficient, confident readers.
References


Supports and criticisms of response to intervention: Educators’ perceptions


Appendix A

Comprehension | Errors | Rate | Prosody
## Prosody rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| **4** | Consistently reads in meaningful phrases  
smooth reading  
self correcting  
difficulties are resolved quickly  
processing on the run  
Consistently reads punctuation appropriately  
Consistently conversational/sounds like natural language  
Consistently varies expression and volume to match the meaning of the passage |
| **3** | Mostly reads in meaningful phrases  
Mostly reads punctuation appropriately  
Mostly conversational/occasional breaks caused by specific words  
Mostly varies expression and volume to match the meaning of the passage |
| **2** | Sometimes reads in meaningful phrase groups but overall effect is choppy  
Sometimes reads punctuation but often fails to pay attention to punctuation  
Sometimes conversational, but moderately slow pacing  
Sometimes varies expression and volume, but student focus remains largely on reading word by word |
| **1** | Seldom/Never reads in meaningful phrases  
frequent pauses  
hesitations  
false starts  
repetition  
sound-outs  
multiple attempts  
inventing text  
Seldom/Never reads punctuation  
Seldom/Never conversational/slow and laborious pace  
Seldom/Never varies expression and volume  
little or no expression  
word calling  
monotone  
quiet voice or “trails off” |
## Multiple Strategy Graphic Organizer

<table>
<thead>
<tr>
<th>Important Questions</th>
<th>Answer Questions with Inferences and Text Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make/Revise/Reject Predictions</td>
<td>Reflect</td>
</tr>
</tbody>
</table>

**Summary**

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Science & technology
The relationship between finger strength and spin rate of curve balls thrown by NCAA Division I baseball pitchers

George Woods III
Frank Spaniol
Randy Bonnette

Abstract
The purpose of this study is to investigate the relationship between finger strength and the spin rate of a curve ball by NCAA Division I baseball players. Fifteen NCAA Division I baseball players, (age 19.4 ± 1.18 years, height 183.56 ± 5.61 cm, weight 83.90 kg ± 8.41 kg, lean body mass (LBM) (73.45 ± 5.94) participated in this study. Performance data were collected at Texas A&M University-Corpus Christi during two regularly scheduled practice times and once in the biomechanics laboratory. Performance data included index pinch strength (IPS), middle pinch strength (MPS), total pinch strength (TPS), and spin rate for curve balls (SRC) measured by RevFire® technology. Additionally, throwing velocity (fast ball and curve ball), standing broad jump (SBJ), height, weight, age, body composition, rotational power (RP), and hand grip strength (HGS) were obtained. Measurements were also taken for SBJ, HGS, IPS, MPS, TPS, and RP variables. Means and standard deviations were calculated for each performance variable. All pinch strength variables were analyzed by Pearson correlation coefficient (r) against spin rate of a curve ball. The alpha level was set at p ≤ 0.05. Statistical significance was found between IPS and SRC (r = -.61) and between TPS and SRC (r = -.47). The results show that index pinch strength
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Specifically, as well as total pinch strength (index and middle fingers), is significantly correlated with spin rate of a curve ball. While overall strength is important to sport skills, the Magnus effect seems significantly affected by the amount of pressure placed on the ball by the index finger, which shares an inverse relationship with pinch strength. Data indicate that baseball pitchers need to be aware of how much pressure they are applying when throwing the curve ball. Therefore, particular attention should be placed on the coaches to ask questions and evaluate what the athletes feel when they pitch.

The relationship between finger strength and spin rate of curve balls thrown by NCAA Division I baseball pitchers

Today, baseball is big business. Naturally, when enormous amounts of money are at stake that are directly related to the performance of players, owners and managers are looking to quantify as much as possible to protect their investment. To be more productive financially and athletically, administrators of Major League Baseball (MLB) and NCAA schools are looking to add top talent and potential to their respective rosters. For that reason, baseball players are now measured with numerous performance tests to gauge their future impact with their team. Moreover, this statistical data have changed the game of baseball as we know it. For example, predicting what a player may be able to do in the future is often more important than present performance levels. Consequently, due to the enormous impact pitchers have on the outcome of games, this is where most of the prediction of returned value is placed. Further, many studies have been designed to assess multiple biomechanical aspects of a pitcher, including upper and lower body power, strength, and arm velocity (Escamilla, Fleisig, Barrentin, Zheng, & Andrews, 1998; Fleisig, Kingsley, Loftice, Andrews, 2006; Jinji & Sakurai, 2006; Spaniol, 2009; Szymanski et al., 2007; Wilk, Meister, Fleisig, & Andrews, 2000). Currently, many coaches in NCAA Division I baseball and MLB use the baseball athletic testing system (BATS), a test battery to appraise players’ strengths and weaknesses with focus on sport-specific aspects of throwing velocity, bat speed, and batted-ball velocity (Spaniol & Hill, 1997, p. 288). However, no specific test to date is used to garner
any information about how to test the effectiveness of a pitched curve ball. Additionally, no specific finger strength test, measured by a pinch gauge, and spin rate, as measured by the RevFire R1T1A, has been used to evaluate the relationship of finger strength on pitching a curve ball. Ultimately, research has led to a better understanding of the kinematic chain and the mechanics needed to increase throwing velocity (Escamilla et al., 1998; Roman-Lui, 2003). However, throwing hard is not the only thing coaches and owners need to know to evaluate pitchers.

As stated, the importance of finger strength as it pertains to spin rate and curve balls has not been extensively studied, as research is lacking in this specific area. Comparable research outside of baseball can be found in a study by Carré, Asai, and Haake (2002) that focused on a football (soccer) curve kick and in a study by Iino and Kojima (2009), who investigated the top spin of a table tennis forehand on performance level and ball spin (spin rate). Although not directly related to baseball, their findings can be applied to this study, as both studies looked at spherical projectiles and topspin, something this study looked at intently. Specifically, Carré et al. (2002) and Asai et al. (2002) determined the cause of different trajectories was due to the change of spin and impact (pressure) conditions on the ball. They also found that drag and lift increases with imparted spin (Carré et al., 2002 p. 198). Interestingly, this was the only article in which spin rate, direct impact forces, and pressure were associated with one another and therefore led to questions regarding if finger strength pressure was associated with the determination of spin rate of a curve ball. Further, Iino and Kojima’s (2006) study concluded that when racket velocity increased there was a proportional increase in the ball spin (spin rate) of the forehand topspin. Conversely, their study did not take into consideration the impact forces generated by the increased velocity placed on the ball.

Briggs (1959) conducted a more baseball-specific study that investigated the spin rate of curve balls. The researcher noted that the lateral deflection (curve) of a baseball was caused by differences in the pressure surrounding the pitched ball, also known as Bernoulli’s principle (1959). Bernoulli’s principle states that as the velocity of a fluid is increased, the pressure is decreased (Allman, 1982; Briggs, 1959). Therefore, Briggs
determined that it was this pressure differential that tended to push the ball downward (1959). Further, the force of the low pressure that is generated by the faster velocity of fluid around the ball is called the Magnus effect (Alaways, 1998; Allman, 1982). Subsequently, Briggs (1959) concluded that the velocity of the pitched curve ball had little effect in the amount that it curves; however, he did find that the spin of the ball was the greatest factor concerning the amount of Magnus effect on the ball. Likewise, Brancazio (1993) went a step further and concluded through his research that spin rate on the ball had proportional effect on the Magnus force. Similarly, Alaways, Minsh, and Hubbard (2001) elaborated on the Magnus effect, stating that they found speed had no significant contribution to the break of a curve ball due to variations of only 10%–20% on his subject population, 21 Olympic baseball pitchers in 1996 (p. 64). Further, Alaways (1998) and Alaways and Hubbard (2001) concluded in two related studies that the total break of a curve ball is nearly entirely accounted by changes in spin, which could lay within the amount of pressure is imparted on the ball. Additionally, Jinji and Shinji (2006) also studied spin rate and spin axis of a curve ball and found similar results as did Alaways and Hubbard (2001), Briggs (1959), and Allman (1982). All concluded that spin rate as a component of break was significantly responsible for an increase in the Magnus force placed on the ball. Therefore, these studies show that the amount of spin rate of a curve ball affects the production of Magnus force.

Based on these results, it was logical to determine whether the amount of pressure applied to the ball would have any effect on the spin rate of the ball, which would affect Magnus force and ultimately how much the ball would curve. Thus, the purpose of this study was to investigate the relationship between finger strength and the spin rate of a curve ball by NCAA Division I baseball players. Finger strength was determined by a pinch gauge. The pinch gauge assessed the amount of pressure applied by the participant’s index finger in kilograms (kg). Spin rate was determined by RevFire R1T1A-2 Baseball Package and will be recorded by revolutions per second (RPS). It was hypothesized that there will be no significant relationship between finger strength and the spin rate of a curve ball by NCAA Division I baseball players.
Methods
This study collected performance data at Texas A&M University-Corpus Christi (TAMUCC) during two regularly scheduled practices and one session in the biomechanics laboratory. Fifteen NCAA Division I baseball players, (age 19.4 ± 1.18 years, height 183.56 ± 5.61 cm, weight 83.90 kg ± 8.41 kg, lean body mass (LBM) (73.45 ± 5.94) participated in the study. The subjects were selected by a purposive sampling method (n=15). All participants signed a consent form to participate before being tested. Also, all participants were on the active in-season roster and purposively assigned to four groups on three different testing days. The first day of testing was conducted in the biomechanics lab where descriptive data were collected which included standing broad jump (SBJ), height, weight, age, body composition-lean body mass (LBM), rotational power (RP), and hand grip strength (HGS). The second and third day of testing occurred during regular practice days where throwing velocity (MPHcurve), index pinch strength (IPS), middle pinch strength (MPS), total pinch strength (TPS) and spin rate for curve balls (SRC) data were collected. Measurements for the curve ball were taken by RevFire® technology, which is designed to measure the spin rate with an accuracy of +/- 0.25 (RPS) (RevFire, 2010, October 25). Three trials were performed for the SBJ, HGS, IPS, MPS, TPS, and RP variables; the measures were averaged for analysis. Further, five trials were taken for SRC, SCF, and MPH for both curve and fast balls, which were also averaged for analysis. Means and standard deviations were calculated for each performance variable. All pinch strength variables were analyzed by Pearson correlation coefficient (r) against spin rate of a curve ball. The level of significance was set, a priori, at p ≤ 0.05.

During the first day of testing, the 15 pitchers were placed in four different groups, based on their pitching rotation during two days of intra-squad scrimmage. Subsequently, each group started at the height and weight station, and participants were asked their ages. Height was taken in centimeters (cm), and weight was taken in kilograms (kg) with a standard clinical scale (model ws670).

The next station was a hand grip strength test measured by a hand dynamometer. Standard protocol was used for data collection during
this test, which included having the participant standing and having the tested arm bent at a right angle so that his forearm was parallel to his thigh. The handle of the dynamometer can be adjusted if required for hand size of the participant. The base should rest on first metacarpal (heel of palm), while the handle should rest on middle of four fingers. When ready, the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds (Heyward, 2006; Hoffman, 2006). Results were taken in kg.

Additionally, the participants were tested for body composition using an Omron bioelectrical impedance device. An established protocol was followed in the use and testing with this device, which included selecting an athletic build for each one of the 15 participants, entering their height, weight, and age, and then having the participant hold the Omron thumbs up around the two grips away from his body. The results provided body fat percentages, which was used to calculate LBM.

The next test station was SBJ. The objective of this test was to measure leg power with a whole body movement action, much like the sport specific movement of a baseball pitcher. A tape measure (at least 10 feet) was secured to the floor in a straight line and a test station constructed. The participant straddled the straight line about a shoulder width apart, performed a counter movement first and then jumped as far as possible along the line of the tape measure. The distance from the starting line to the edge of the participant’s nearest heel was measured in centimeters as the jump distance (Heyward, 2006; Hoffman, 2006).

From there, a large area was used in the biomechanics lab to test RP. This test measures core strength and total body power. For baseball players, it simulates the rotational core movement common to the sport. A 3 kg power ball was needed for testing. The participant extended his arms out away from his body holding the 3 kg power ball. If standing on the right side, the participant placed his left hand directly under the power ball and his right hand and the end of the power ball, making a 90 degree angle if looking at the hand placement from a lateral stance. The participant then approached a pre-determined line and drew the power ball back, with only a slight bend at the elbows, keeping the ball between the waist and chest. A power rotational explosion toward the
wall was encouraged and then measured by a radar gun in MPH and converted to meter per second (m/s). This protocol was used for measurements on both the right and left side depending on the pitchers’ dominant throwing hands (Spaniol, 2009).

In the next practice, pinch strength, spin rate, and velocity were taken at TAMUCC’s Chapman field. Pinch strength was taken with a Baseline hydraulic pinch gauge (HiRes large head 12-0228) for finger strength assessment in kg. Pinch gauge protocol that came with the instrument was used for all data collection. The IPS, MPS, and TPS were taken before the pitchers entered their bullpen session. A participant would take a seat on the bench that was adjacent to the bull-pin. Further, the researcher held the head portion of the gauge while the participant placed his thumb underneath the finger pad. Next, the participant placed either his index or middle finger on the top portion of the pad and squeezed at maximal isometric force for three to five seconds. Total pinch strength was then collected by having the participant place both fingers on the pad and follow the previous protocol.

The final portion of data collection consisted of spin rate and velocity obtained by the RevFire R1T1A-2 baseball package. The two RevFire baseballs that were used are collegiately weighted (5 oz) with 108 double stitches that are within the specifications of the NCAA. Spin rate was measured by the corresponding instrument called the RevFire monitor, which the researcher held during throwing. Spin rate was measured by revolutions per second (RPS). At the same time, a radar gun was used at the opposite side of the RevFire monitor, behind the pitcher, for velocity measurements. A Jamar radar gun was used and readings were collected in MPH and converted to m/s. Each of the four groups followed this procedure systematically.

**Results**

The data was coded and the Statistical Package for the Social Sciences (SPSS) was used for the purpose of data analysis. Means and standard deviations were determined for IPS, MPS, TPS, SRC and SRF measured by RevFire®, SBJ, RP, height, weight, LBM, HGS, age, and throwing velocity for the curve ball. Results are summarized in Table 1. All pinch
strength variables were measured by Pearson correlation coefficient ($r$) against spin rate data for a curve ball and can be seen in Figures 1,2,3, as well as in Table 2.

The 15 NCAA Division I baseball pitchers (age 19.4 ± 1.18 years, height 183.56 cm ± 5.61 cm, weight 83.90 kg ± 8.41 kg, LBM 73.45 kg ± 5.94 kg, Table 1) had a mean TPS of 16.62 kg ± 1.66 kg, a mean IPS of 8.24 kg ± .98 kg, a mean MPS of 8.41 kg ± .95 kg, while the mean SRC was found at 36.58 rps ± 4.34 rps, as seen in Table 1. Additionally, the mean throwing velocity was found at 31.69 m/s ± 1.42 m/s, the mean for HGS 26.58 kg ± 4.59 kg, LBM 73.44 kg ± 5.95 kg, RP 14.39 m/s ± 1.09 m/s, and SBJ 251.83 cm ± 11.48cm (Table 1). Statistical significance was found with the relationship between TPS and SPC ($r = -.48$, Figure 1, Table 2) and between IPS and SRC ($r = -.61$, Figure 2, Table 2) respectively. Furthermore, the relationship between TPS and HGS was found to be statistically significant ($r = .78$, Figure 3, Table 2).

Discussion

The major finding in this study was SRC, IPS, and TPS were significantly correlated; TPS and SRC ($r = -.48$, figure 1, table 2) and IPS and SRC ($r = -.61$, figure 2, table 2). The principles behind this are broken down into understanding how the Magus effect is proportionally affected by spin rate and the terminal finger strength and ultimate spin rate for a curve ball. Spin rate of a thrown baseball is caused by pressure placed on the baseball by finger strength proportionally contributing to the Magnus effect on the thrown pitch (Alaways, 1998; Allman 1982; Briggs, 1959; Brancazio, 1993). Specifically, spin rate and its proportionality to Magus Effect was found to have an inverse relationship with finger strength in this study. Interestingly, it was not the strength and power of the 15 participants that influenced this outcome. Rather, it was the controlled manner of the amount of grip pressure that ultimately determined the spin rate and Magnus effect on the ball.

As with all studies, this one must take into account many other variables that may play a role in findings. Mindfully, Alaways and Hubbard (2001) stated in their study that Sikorsky and Lightfoot (1949) had suggested that seam orientation played a notable role of lift and trajectory.
of a four seam curve ball. In contrast, it was later found by Watts and Ferrer (1987) that seam orientation played less of a role when spin rates were higher (>0.4RPS), as commonly found in curve balls. Additionally, Alaways (1998) discovered that the drag coefficient for a baseball is minimized due to the fact that it takes less than a half second for a baseball to reach the catcher if thrown from a regulation mound, 60’6” from home plate. Importantly, neither drag nor seam orientation played a big role in the amount of spin rate, which demonstrates the importance of spin rate and how it proportionally affects the Magnus force placed on the ball (Alaways et al., 2001; Briggs, 1959; Brancazio, 1993).

Therefore, as explained by Bernoulli’s principle, it is the difference in high and low pressure acting on opposing sides that influences the ball to curve (Alaways, 1998; Allman, 1982; Briggs, 1959).

Similarly, Carré et al. (2002) found when spin rate is increased, the predicated curved path is greater when considering the flight in a gas fluid state (p. 196). Additionally, Iino and Kojima (2009) found that improved top spin related to increased spin rate had greater effects in ball movement in table tennis (p. 212). Consequently, when spin rate is increased, the trajectory of the spherical objects was exacerbated by an increased Magnus force (Briggs, 1959). Ultimately, these findings, though outside the baseball domain, strengthen the evidence found in this study.

The results of this study illustrated that the greater the spin rate, the farther the ball curves due to an increased Magnus effect, as found in many studies (Alaways, 1998; Briggs, 1959; Allman 1982; Brancazio, 1993). In particular, this finding coincides with statistical evidence from Briggs (1959) and Alaways et al. (2001), which found the amount of break of a curve ball caused by Magnus Effect is greatly affected by the spin rate of the baseball. However, a delicate balance must be achieved in order for a curve ball to obtain optimal performance. Therefore, this study proposed a dynamic system approach for evaluation and analysis. Moreover, this system is composed of two components. The first is applied finger strength or pressure of the index and middles fingers. The second facet is spin rate of a thrown curve ball. Concerning the first component, a stronger negative correlation is seen with the index
finger and spin rate, \( r = -0.61 \), than with the middle finger and spin rate \( r = -0.21 \). Biomechanically, this may be due to which finger is the last to apply force on the ball when released. However, as the results suggest, as the amount of applied pressure increased on the baseball, the RPS decreased. As discussed by Briggs (1959) and Alaways et al. (2001), it is natural through our understanding of physics to expect a spinning projectile flying through a fluid environment to interact with the gas around it to form boundary layers around the projectile (baseball). Further, the researchers stated that the new-formed low pressure on the south side of the ball would increase the velocity of the fluid traveling around it (Alaways et al., 2001; Briggs, 1959). Therefore, it stands to reason that the last finger on the ball, the index, would impart the most important pressure to the ball as it is the last finger to influence spin rate. However, the second component of the dynamic system approach states spin rate can only affect to a sub-maximal level according to the results of this study. Spin rate was seen at a higher RPS when the participants were averaging less finger strength or pressure on the ball. Interestingly, the findings suggest a curve ball has a delicate balance of appropriate finger pressure, or a terminal pressure, to impart an optimal spin rate to achieve the greatest Magus Force. Although studies have previously suggested an increase in Magus Effect could be achieved by increasing spin rate, none of these studies specifically examined finger strength as the catalyst or inhibitor to spin rate. Therefore, based on the findings of this study and the collective knowledge of previous curve ball studies, the results seem to allude to a terminal finger strength pressure that can be placed on the ball to obtain optimal spin rate; that is, if the pitcher goes over the terminal pressure, the added force will be detrimental to the curve ball, slowing the spin rate, and thus decreasing the Magnus Force. In contrast, if the pitcher can maintain optimal terminal pressure, specifically the index finger, spin rate will increase leading to an increased Magnus Force imparted on the ball. Ultimately, a small pressure change specifically in the index finger could make a huge difference in the effectiveness of a pitcher’s curve ball.
**Conclusion**

To conclude, the present study demonstrated that while overall strength and power are important factors in performance as a pitcher, the overall system dynamic of finger strength and spin rate determines how much the Magnus effect will influence the trajectory of the curve ball. Further, the last finger imparting pressure on the ball, the index finger, may be the reason why there is a higher correlation with the IPS and SRC as opposed to MPS and SRC. Additionally, research suggests within this dynamic system of strength (pressure) and spin rate, a terminal amount of strength can be added before it becomes detrimental to maximal spin rate. Therefore, future studies should be conducted that measure pinch strength and optimal gripping pressure for desired pitches to achieve the most advantageous spin rate for best performance.

**Applications in sport**

The data suggest that baseball pitchers need to be conscious about how much pressure they are applying with their fingers while throwing a curve ball. Moreover, research indicates that when terminal pressure is neared, optimal spin rate may be achieved. However, if terminal pressure for the desired spin rate is passed, it will carry a negative effect on the curve ball’s performance. Therefore, particular attention should be placed on coaches to ask questions and evaluate what the athlete feels when throwing pitches. Specifically, they should ask pitchers to narrow their focus to the feel of the pitch. Ultimately, the information learned can be used as a teaching aid concerning increasing a pitcher’s performance.

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References


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Equity and STEM: Insights and recommendations

Steve R. Rodriguez

Abstract

This chapter addresses equity issues regarding access to technology and to career and educational opportunities in science, technology, engineering, and mathematics (STEM). The author reviews germane literature regarding inequities that are tied to socioeconomic status and gender and provides recommendations for ameliorating those inequities. The discussion centers upon defining all key related terms, describing the range of current issues and research about gender and technology, and offering recommendations for promoting gender equity and for conducting related research, especially as concerns technology and women’s relative representation in STEM fields.
Introduction

This chapter explores equity issues related to access to technology and to career and educational opportunities in science, technology, engineering, and mathematics (STEM)-related fields. Specific objectives include the following:

1. Defining educational equity, the digital divide, digital equity, technology, gender stereotypes, gender, and gender equity

2. Summarizing current disparities regarding women’s representation in STEM education and careers

3. Summarizing and discussing the range of issues currently discussed in the literature in regard to gender and technology

4. Providing suggestions derived from the literature for promoting equitable access to technology for all

5. Summarizing research and offering suggestions for fruitful future research directions concerning gender equity and technology issues.

The underlying thesis of this discussion is that making strides toward greater degrees of equity for females and for those of low socioeconomic status is of critical concern. Failure to do so will perpetuate females’ limited participation in studying and working in STEM-related fields while also limiting related opportunities for those of low socioeconomic status.

Definition of terms

Discussion of gender and technology is grounded in a number of related terms and concepts. Defining terms is required to provide a clear understanding of the issues at hand.

Literature in areas such as instructional and information technology and science education have long reflected concern about whether
females are provided with equal opportunities to access and use technology in comparison to males. The issue is couched within the larger concept of educational equity. While the literature is rife with case studies and equity-related projects and models, oddly, cogent definitions of educational equity are largely missing.

The U.S. Department of Education (2011) set the following national goal in a draft of its strategic plan for 2011–2014: “To significantly reduce the achievement gap for all students, regardless of race, ethnicity, national origin, age, gender, disability, language, sex, and socioeconomic status” (p. 5). This goal serves as a sound basis for deriving an operational definition of educational equity for the United States today: Educational equity, when attained, will result in comparable educational achievement by all students.

Narrowing the broad focus on educational equity to a more specific focus on equitable access to technology, the notions of the digital divide and digital equity emerge. The digital divide refers to “... the gap or imbalance that exists between those who have access to information and communications technology and also to the unequal access of resources” (Information and Communication Development for Technology, 2008, p. 1). The digital divide may occur based upon whether individuals reside in rural versus urban settings and based upon their educational and socioeconomic levels. On a global level, nations that are underdeveloped in an industrial sense may also be on the losing end of the digital divide (Information and Communication Development for Technology, 2008). The digital divide also refers in part to uneven access to technological tools based upon individuals’ gender.

Another germane term related to this discussion is digital equity. Solomon, Allen and Resta (2003) elaborate on the meaning of digital equity:

Digital equity in education means ensuring that every student, regardless of socioeconomic status, language, race, geography, physical restrictions, cultural background, gender, or other attributes historically associated with inequities, has equitable access to
advanced technologies, communication and information resources, and the learning experiences they provide. (p. xiii)

Becker (2006) has noted that research regarding digital equity in education reveals real disparities in access to technology. More specifically, this author notes that these disparities concern “inequities in how technology is distributed to and used for different groups of students” (p. 5). These differences among students often pertain to gender as well as socioeconomic status.

In today’s world of ubiquitous computing and connectivity, the term “technology” is often used to refer to computers, computer networks, the Internet, and myriad other “hard technology” devices such as smart phones, tablets, and digital music players. This focus on technological tools provides a limited perspective on technology. A broader, more helpful definition for present purposes is that technology is “the practical application of knowledge especially in a particular area” (Technology, 2012). Why, one might ask, is this latter definition more helpful than the former? The answer concerns the disproportionate, lower involvement of women as opposed to men in certain STEM fields of study and careers (American Association of University Women, 2010). So, in considering issues concerning gender and technology, it is appropriate to look beyond access to technology tools to allow for consideration of the fields of study women have historically entered in disproportionately lower numbers than men. Lack of representation of women in STEM fields is a critical social and educational issue in the United States today (American Association of University Women, 2010):

The number of women in science and engineering is growing, yet men continue to outnumber women, especially at the upper levels of these professions. In elementary, middle, and high school, girls and boys take math and science courses in roughly equal numbers, and about as many girls as boys leave high school prepared to pursue science and engineering majors in college. Yet fewer women than men pursue these majors. Among first-year college students, women are much less likely than men to say that they intend to major in science, technology, engineering, or math (STEM). By graduation, men outnumber women in nearly every science and engineering
field, and in some, such as physics, engineering, and computer science, the difference is dramatic, with women earning only 20 percent of bachelor’s degrees. Women’s representation in science and engineering declines further at the graduate level and yet again in the transition to the workplace. (AAUW, 2010, p. xiv)

The commentary within AAUW’s 2010 report indicates that women are underrepresented in STEM fields, with low participation and graduation rates in college programs at the baccalaureate and graduate levels. This reality is no doubt a major cause of the disparate number of women who are working professionally in STEM fields.

The White House’s Office of Science and Technology Policy (n.d.) offers a pertinent related comment:

Supporting women STEM students and researchers is not only an essential part of America’s strategy to out-innovate, out-educate, and out-build the rest of the world; it is also important to women themselves. Women in STEM jobs earn 33 percent more than those in non-STEM occupations and experience a smaller wage gap relative to men. And STEM careers offer women the opportunity to engage in some of the most exciting realms of discovery and technological innovation. Increasing opportunities for women in these fields is an important step towards realizing greater economic success and equality for women across the board.

The National Women’s Law Center (2012) provides related relevant background information and confirms the disparity between women and men who are involved in STEM-related studies and careers:

Title IX of the Education Amendments of 1972 prohibits sex discrimination in educational programs or activities that receive federal funding. Title IX requires that women and girls be given equal opportunities to pursue science, technology, engineering, and math (STEM) fields free from discriminatory barriers. It mandates equality of opportunity at all education levels regardless of gender, and covers career counseling and guidance, admissions, recruitment, outreach, and retention practices. Since 1972, Title IX has opened the doors for women to pursue many fields, but in STEM women
remain underrepresented in classes and fields that are pathways to high wage careers. (p. 1)
The U.S. Department of Education’s Office of Civil Rights (2012) also reports continuing disparity in college-level, STEM-related accomplishments between women and men: “Between 2000–01 and 2008–09, the number of degrees and certificates awarded in ... STEM fields to women ... increased by 5.9%. However, in 2008-09, 31.0% of the degrees and certificates in STEM fields were earned by women.” (p. 4)
Thus, women have recently continued to lag behind men in completing college-level degrees and certificates in STEM fields.
In a 2011, the Economics and Statistics Administration of the U.S. Department of Commerce issued a report which further supports the view that women are underrepresented in STEM careers. The report—Women in STEM: A gender gap to innovation—offers the following major conclusions:
• Women are greatly underrepresented in STEM careers
• Women are similarly underrepresented in terms of holding college degrees in STEM related fields
• Women hold fewer than 25% of jobs in STEM related fields, as was true in the previous decade
• The wage differential between women and men is smaller in STEM careers than in non-STEM ones
• Women hold disproportionately fewer undergraduate degrees than do men in STEM fields, especially in engineering
• Women holding degrees in STEM fields are less likely than men to work in a STEM-related job; these same women are more likely than men to work in the fields of education or health services
In the same 2011 report, the Economics and Statistics Administration suggested some reasons why women holder disproportionally fewer jobs in STEM fields than men. Cited factors include an inadequate number of female role models; gender stereotypes; and lack of flexibility in STEM fields to accommodate family needs. The overall conclusion was that evidence substantiates the need to provide women with support and encouragement to prepare for and enter into STEM fields.
Gender stereotypes and gender equity
Gender stereotypes are likely a factor affecting the discrepancy between men’s and women’s involvement in STEM studies and careers. Gender stereotypes concern simplified perspectives of the roles of males and females in a variety of contexts, including educational and employment fields. Such stereotypes may hinder members of both genders from studying or entering fields which are stereotypically seen as more appropriate for persons of one gender over the other. For example, nursing may be viewed by some as an employment field more appropriate for women than for men. Or working as an engineer may be viewed as more appropriate for a man than a woman.

Concern about equitable access to technology for both males and females has led to the articulation of yet another concept—gender equity. Gender may be defined as “sex,” that is—as in an individual’s sex (Gender, 2012). While new views regarding gender have broadened to consider terms such as “transgender,” this discussion focuses on traditional views of female and male gender (see Gender Equity Resource Center, 2012). Equity pertains to fairness and to lack of bias or favoritism in how we treat others. So gender equity concerns the absence of bias in regard to an individual’s given gender. If gender equity is present in a given context, then individuals of all genders and sexual orientations have equal access to and use of technology. This concept also applies to encouraging both females and males to pursue academic studies and careers without bias in regard to gender-based stereotypes. The need to encourage all students to pursue studies and careers in the areas of science, technology, engineering, and mathematics is underscored by wide interest and initiatives under the STEM umbrella (National Science Board, 2010).

Now that pertinent definitions and related discussion have been offered, the next section of this discussion focuses upon the major issues and problems associated with gender equity within the overall realm of technology.
Framing the gender equity and technology issue

Various authors have offered conceptual and research frameworks pertaining to females’ low rates of involvement with information and communication technologies (ICT) and science, engineering, and mathematics. As suggested earlier, the academic and career STEM fields may be viewed as technologies under the definition of technology as the practical application of knowledge in given area of endeavor. In this section, the author describes some literature-based conceptual frameworks and presents an additional categorical framework of research done in this area.

Zickuhr and Smith (2012) of the Pew Research Center make the following comment in regard to general societal trends regarding technology use:

As of 2011, Internet use remains strongly correlated with age, education, and household income, which are the strongest positive predictors of Internet use among any of the demographic differences we studied. Yet while gaps in Internet adoption persist, some have narrowed in the past decade (p. 4)

The report offered by Zickuhr and Smith is of interest with regard to technology use in society as a whole. Their discussion, however, does not directly address equitable access to technology and preparation for STEM careers in American schools. Nonetheless, their data-packed report on the role of the Internet in American life may be of interest to those who want to know more about current demographic data concerning technology use by all members of American society.

In other works of interest, Littleton and Hoyles (2002) identify three stages of development pertaining to females’ relative use of technology. Sanders (2005) uses Littleton and Hoyles’ work as an analytic framework for classifying research in this area. Stage 1 pertains to noticing imbalances in attitudes toward gender within the home and school. Stage 2 concerns providing role models and collaborative groups so as to change females’ participation in ICT activities. Stage 3 focuses upon challenging the dominant view of ICT as a male domain—culturally and historically. Sanders (2005) suggests that the majority of research in this area is concerned with Stage 1, with some research in Stage 2 and very
Factor Summary of what the research indicates

Parents Parents may hold gender stereotypes and encourage males’ computer use more than females’ use.

Media Media perpetuate gender stereotypes concerning technology use.

Race and Ethnicity Students of color have fewer computer use opportunities than white students. Females of color may be subject to biased treatment on the basis of both race and gender.

Socioeconomic Status (SES) There is a positive correlation between families with high SES and encouragement of girls as computer users.

Male Culture of ICT Computing culture is dominated by males. The violent tone of the language of technology may be problematic for females.

Table 1
Social influences affecting females’ technology use in education

<table>
<thead>
<tr>
<th>Factor</th>
<th>Summary of what the research indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Parents may hold gender stereotypes and encourage males’ computer use more than females’ use.</td>
</tr>
<tr>
<td>Media</td>
<td>Media perpetuate gender stereotypes concerning technology use.</td>
</tr>
<tr>
<td>Race and Ethnicity</td>
<td>Students of color have fewer computer use opportunities than white students. Females of color may be subject to biased treatment on the basis of both race and gender.</td>
</tr>
<tr>
<td>Socioeconomic Status (SES)</td>
<td>There is a positive correlation between families with high SES and encouragement of girls as computer users.</td>
</tr>
<tr>
<td>Male Culture of ICT</td>
<td>Computing culture is dominated by males. The violent tone of the language of technology may be problematic for females.</td>
</tr>
</tbody>
</table>

Table 2
Age, stage, and pipeline issues affecting females’ technology use in education

<table>
<thead>
<tr>
<th>Factor</th>
<th>Summary of what the research indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool</td>
<td>Very young children may have differential gender-based attitudes and behaviors differently regarding computer use.</td>
</tr>
<tr>
<td>Gender Differences by Age</td>
<td>Gender-based attitudes and behaviors regarding technology increase with age.</td>
</tr>
<tr>
<td>Pipeline Issues</td>
<td>Males greatly outnumber females in following the pathway or pipeline of taking computing classes in high school, then earning a college degree and developing a career in computing.</td>
</tr>
</tbody>
</table>
Table 3
Experience, attitude, and use patterns affecting females’ technology use in education

<table>
<thead>
<tr>
<th>Factor</th>
<th>Summary of what the research indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>Most studies reveal that boys have greater computer experience than do girls.</td>
</tr>
<tr>
<td>Attitudes</td>
<td>The majority of research on gender and technology has addressed attitudes. However, results are not</td>
</tr>
<tr>
<td></td>
<td>consistently reliable and are sometimes confusing.</td>
</tr>
<tr>
<td>Computer Use Patterns</td>
<td>Males dominate enrollment in high school, college, and graduate computer programming programs and related</td>
</tr>
<tr>
<td></td>
<td>job positions.</td>
</tr>
</tbody>
</table>

Table 4
Classroom factors affecting females’ technology use in education

<table>
<thead>
<tr>
<th>Factor</th>
<th>Summary of what the research indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peers</td>
<td>Students appear to hold gender stereotypes which influence each other. Both genders feel that boys</td>
</tr>
<tr>
<td></td>
<td>are better at computing than girls. Boys’ stereotypes appear to be stronger than girls’ stereotypes.</td>
</tr>
<tr>
<td>Public/Private Context</td>
<td>Computing performance varies depending upon whether the context is public or private. Both genders</td>
</tr>
<tr>
<td>and Stereotype Threat</td>
<td>performed worse in public when the assigned task was expected to be difficult. In observational</td>
</tr>
<tr>
<td></td>
<td>studies, the observer’s gender affects performance in that girls performed better when alone or when</td>
</tr>
<tr>
<td></td>
<td>observed by a female in contrast to a male.</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>Studies addressing pedagogy issues and gender and technology, while numerous, are poorly conceived</td>
</tr>
<tr>
<td></td>
<td>and provide few useful findings.</td>
</tr>
<tr>
<td>Curriculum</td>
<td>Criticism of computer curricula exists. Themes for improving curricula for girls include tying it to</td>
</tr>
<tr>
<td></td>
<td>real-world issues and designing it to appeal to a range of learning styles.</td>
</tr>
<tr>
<td>Teachers and Faculty</td>
<td>Studies reveal that teachers may hold sexist views regarding girls’ computing abilities.</td>
</tr>
</tbody>
</table>
Sanders (2005) provides a comprehensive framework of extant research related to gender and technology in education. Tables 1, 2, 3, 4, and 5 provide the major elements of this framework and their sub-components with related commentary. Sanders’ work is paraphrased and summarized: the summaries, while drawn directly from Sanders’ work, are reworded and are not direct quotes. As per Table 1, the first category that Sanders describes concerns how social influences may affect females’ use of computers.

In her review of literature, Sanders (2005) also identifies “Age, Stage, and Pipeline Issues” (p. 7) as a second category of issues affecting females’ use of technology, as per Table 2.

Sanders’ (2005) third category, “Experience, Attitude, and Use Patterns” (p. 8), is explained in Table 3. The fourth category derived from

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Special efforts affecting females' technology use in education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor</strong></td>
<td><strong>Summary of what the research indicates</strong></td>
</tr>
<tr>
<td>Interventions</td>
<td>With some exceptions, research on interventions concerning gender and technology at all educational levels typically lack an evaluative component, are confounded because of multiple interventions occurring simultaneously, and are not longitudinal, thereby failing to reveal long-term effectiveness.</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>Research in teacher education concerning gender and technology has focused almost exclusively upon education for in-service teachers; has tended to use voluntary participants; and has largely been inconclusive. There is strong need for well-designed research in this area for pre-service teachers, which has been visibly absent to this point.</td>
</tr>
<tr>
<td>Departmental Change</td>
<td>There is need to establish departmental gender equity policies at all levels of education.</td>
</tr>
</tbody>
</table>
Equity and STEM: Insights and recommendations

Sanders’ literature review concerns classroom factors, as explained in Table 4. The fifth and final category derived Sanders’ (2005) work has to do with special efforts as described in Table 5.

Sanders’ (2005) review of literature provides a useful overview of the kinds of issues that have been addressed and conclusions that have been drawn in this area. Her review—suggesting where related research has been deficient or missing—suggests many opportunities for fruitful future research. Some directions for useful future research drawn from her work are as follows:

- Identify gender stereotypes parents may hold and study interventions that may ameliorate them
- Study ways to encourage parents with low SES to encourage girls to use and study computers and other technologies
- Study interventions that will encourage girls to take pipeline computer and STEM courses in high school leading toward related college degrees
- Identify gender stereotypes held by teachers as well as by boys or girls and explore interventions to diminish them
- Study design factors that may make curriculum and instructional materials on technology and STEM fields more desirable to girls
- Do more interventions and studies with pre-service as opposed to in-service teachers
- Conduct studies in this area that are longitudinal and have a strong added evaluation component

The need for stronger evaluation of STEM related education programs is supported by the Mathematica Policy Research group (2012). A report issued by this group notes that two-thirds of federally supported STEM programs have not been fully evaluated since 2005. Thus the relative effectiveness of such programs is undetermined.

Another study of interest was conducted by Carlisle, Jackson, and George (2006). These authors developed and implemented a framework for Social Justice Education in the Schools (SJES). The SJES framework includes the following five components: (1) inclusion and equity, (2) high expectations, (3) reciprocal community relations, (4) system-wide approach, and (5) direct social justice education and intervention. The
authors identify “gender oppression” as a form of “social oppression” (p. 57). The authors suggest that their SJES framework may serve “... as a reflexive frame through which broad school communities can critically access their strengths and weaknesses of their environments relative to social justice” (p. 62). The SJES model is noteworthy because of its broad yet focused system-wide concern with social justice and its inclusion of the greater community and direct instruction on social justice.

**If gender equity is the solution, what’s the problem?**

Roblyer and Doering (2013) offer a cogent statement of the overarching problem at hand: “Technology use remains dominated by males and certain ethnic groups. Studies show that when compared with male and whites, females, African Americans, and Hispanic minorities use computers less and enter careers in math, science, and technology at lower rates” (p. 18). Leggon (2006) supports this view: “One critically important aspect of the digital divide concerns the intersection of race/ethnicity and gender. Failure to address this intersection will result in a policy that is flawed at best, and ineffective—even counterproductive—at worst” (p. 108). Socioeconomic and language factors also contribute to the existence of the overall digital divide issue and to the associated problem of lessening inequities concerning females’ access to technology in its various forms (cf. Information and Communication Development for Technology, 2008; Solomon, Allen & Resta, 2003; United Nations, 2005).

While the digital divide stands as an overarching dilemma, the matter of increasing gender equity so as to promote females’ involvement in computer studies and careers continues to loom as a critical problem. The criticality of addressing the issue was suggested in a United Nations (2005) report:

While there is recognition of the potential of ICT as a tool for the promotion of gender equality and the empowerment of women, a “gender divide” has also been identified, reflected in the lower numbers of women accessing and using ICT compared with men. Unless this gender divide is specifically addressed, there is a risk that ICT
may exacerbate existing inequalities between women and men and create new forms of inequality. (p. 3)
The issue is multi-faceted and complex—involving gender stereotypes; teachers’, parents’, and students’ attitudes; SES and racial factors; educational and policy matters; and less than optimal research design in this area in many cases.

In the following section, the author offers literature-based recommendations for lessening gender inequity concerning females’ use of technology.

**Recommendations for promoting gender equity**
Simplistic solutions to the gender equity problem do not exist. As reported by the United Nations (2005), a Women’s Forum at the second Global Knowledge Partnership Conference generated a set of major recommendations regarding gender equity at the global level. These recommendations, presented verbatim, included the following:

- Mainstreaming and monitoring of a gender perspective in all ICT initiatives
- Collecting sex disaggregated data on the use of ICT and women’s participation in policy-making as well as developing targets, indicators and benchmarks to track the progress of women’s and girls’ access to the benefits of ICT
- Identifying and promoting good practices and lessons learned on the ways women and girls are using ICT
- Capacity-building towards gender equality in education and employment
- Enhancing democracy and women’s participation through electronic connectivity
- Developing research and policies on health and environmental hazards of ICT industries (p. 4).

The American Association of University Women (2010) offers another set of categories in answer to the question, “Why are there so few women in science, technology, engineering, and mathematics?” (p. 5). AAUW posits, “The answer lies in our perceptions and unconscious beliefs about gender in mathematics and science ... stereotypes,
bias, and ... cultural beliefs can change; often, ... identifying a stereotype or bias begins the process of dismantling it” (p. 9). AAUW offers related three major recommendations for ameliorating gender inequities vis-à-vis technology and other STEM studies and careers:

1. Cultivating young females’ accomplishments, interest, and perseverance in science and engineering

2. Developing environments in higher education settings that are supportive of women’s studies and career development in science and engineering

3. Counteracting bias against women, especially concerning their involvement in science and engineering

AAUW (2012) offers a number of related action-based strategies subsumed under their three major recommendations, as follows:

To promote cultivation of girls’ achievements, interest, and persistence in science and engineering—and, presumably, technology as well—AAUW recommends the following:

- Sharing information about females’ achievements
- Exposing girls to successful role models
- Teaching students about the dangers of stereotypes
- Teaching girls that intellectual skills develop over time
- Encouraging and assisting girls to develop spatial skills
- Assisting girls in identifying career-relevant skills
- Encouraging girls at the secondary level to take STEM related courses
- Reducing teachers’ reliance on stereotypes by specifying performance expectations

To develop environments at colleges and universities that are supportive of women studying in science and engineering—and, again, presumably in technology--AAUW recommends the following:

- Actively recruit women to major in a STEM related field
Equity and STEM: Insights and recommendations

- Clarify the characteristics and qualities of good science and engineering students
- Emphasize connections with real-life in introductory STEM classes
- Instruct professors and the dangers of stereotypes and the benefits of thinking beyond them
- Specify performance expectations in STEM courses
- Proactively support women who are STEM majors
- Enforce compliance to Title IX requirements in STEM courses
- Assess departmental climate to identify possible negative factors affecting female faculty
- Mentor all faculty
- Help faculty find a balance between work and life

To counteract bias, AAUW recommends the following strategies:
- Encourage individuals to learn about their own implicit biases
- Encourage persons to be aware of how their biases affects their decisions
- Parents and teachers should monitor and correct biased actions that may discourage women from STEM studies and careers
- Make others more aware of biases affecting women in STEM fields of study
- Establish specific, clear criteria for success and make those criteria transparent

AAUW’s recommendations are useful because of their specificity and practicality. They would be strengthened if the parties most likely to assume responsibility for implementing some of their recommendations were more clearly identified. The suggested strategies provide a good foundation for addressing gender equity issues in STEM fields of study, which include technology.

A final recommendation for ameliorating gender inequities concerns related research. Germane suggestions are provided in the next and final section of this discussion.

**Future research directions**

What kinds of research and research questions will yield the most useful findings as regards the gender equity issue? The suggestions that follow
were derived from reviews and commentary on extant research in this area:

• New research should explore the reasons why people of all ages, including young children, teachers, and parents, acquire gender stereotypes concerning technology and seek to identify effective courses of actions to counteract acquisition of gender stereotypes
• Research should focus upon educational opportunities for both pre-service and in-service teachers to learn about gender equity issues and what courses of action they can take to address them
• Descriptions of intervention and instructional programs in this area should move beyond simple case studies to include in-depth evaluative components utilizing appropriate qualitative, quantitative, or mixed methods so as to better determine the relative effectiveness of given interventions
• Longitudinal studies should be conducted with individuals of varying ages and educational levels to better ascertain the long-term, enduring effects of given interventions
• Policy analyses should be conducted to ascertain the current state of institutional policies; related research should be conducted to determine how such policies may affect individuals’ behavior in regard to gender equity matters
• Instructional materials and curricula concerning computer usage and programming should be evaluated to identify sources of bias toward females and to determine design factors and other revisions that might reduce such sources of bias

Finally, comprehensive, district-wide initiatives focused upon the promotion of social justice education should continue to be planned, implemented, and evaluated in light of community needs (Carlisle, Jackson, & George, 2006).


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Appendix

Survey

With the accountability and other things that districts and legislation mandate, do you still enjoy teaching?
Yes, very much | Yes, most of the time | Yes/No, some of the time | No, most of the time

*Explain.*

Do you feel you are appreciated by students?
Very much | Most of the time | Somewhat | No

*Explain.*

Do you feel you are appreciated by parents?
Very Much | Most of the time | Somewhat | No

*Explain.*

Do you feel you are appreciated by colleagues?
Very Much | Most of the time | Somewhat | No

*Explain.*

Do you feel you are appreciated by administrators?
Very Much | Most of the time | Somewhat | No

*Explain.*

May we contact you for additional information? _____ Yes _____ No
Contact email or phone number: ________________________________
Ethnicity: ______________________ Gender: _____________________
# of years teaching ______________
What grade level have you taught in the past? __________________
What grade level are you teaching now? ______________________

Are you a _____urban teacher, ______ rural teacher,
_____suburban teacher?
Abstract

Even though education may adopt and implement mobile technologies, unless users are pushed beyond their comfort levels or unusual situations force new adaptations, without innovative educators who model effective use, higher education will continue to operate as it has in the past. Over a decade since Prensky (2001) coined the terms Digital Native and Digital Immigrant, the differences have begun to blur and higher education is very slowly adopting, adapting, and integrating mobile technology and its applications into the educational environment. Professors are leveraging the selection of appropriate topics, providing examples, and encouraging participation through mobile social media apps. While events of 9/11 changed policies regarding cell phones in schools, it continues to be up to educators to effectively adapt mobile learning to engage students today and tomorrow. Using examples from an interview study of students who were involved in early integration of mobile technology in the classroom, this chapter discusses the changes in use of mobile technology for learning.
Blurring the differences: Digital natives and digital immigrants

On the morning of Tuesday, September 11, 2001, minutes after the vice-principal slipped into my junior-high classroom and whispered to me the events unfolding nationally, the fire alarms sounded in our school and I escorted my students onto the ball fields. As teachers sidled over to each other in alarm, trying not alert students, we became aware that we were not under attack, but some fool had called in a bomb threat. This kept staff and student body on the ball fields for more than three hours while officials searched the building. Events of that day changed school protocols for emergencies locally and nationally. At that time in our district, cell phones were banned for students on school premises, and teachers cautioned that being caught using one would be cause for reprimand. However, on that day, as we stood for hours and word got out that a plane had hit the twin towers, students began to covertly and soon overtly make and receive calls on their cellphones. Anxious parents soon began arriving at the campus to collect their children, and teachers wished that they hadn’t left their own cellphones in their desks, purses, or cars. Ultimately, the school district re-wrote its policies on cellphone use. But, have those changes in policy made a difference for mobile technology as a learning tool in today’s educational settings?

About the same time as the events of 9/11, a catchy term came into use—Digital Natives and Digital Immigrants (Prensky, 2001). Prensky (2001) labeled students born since 1983 “digital natives” and admonished their educators, “the digital immigrants,” that they needed to adapt educational delivery and adopt mobile technologies to meet the needs of these new learners (para. 3). According to Prensky (2007), these “digital natives” have a natural technological aptitude, and they are craving these new mobile technologies as a part of their educational environment. Not only have they already mastered mobile devices and experienced how useful they can be, but also this generation requires knowledge in short bursts, prefers multi-tasking, and demands that higher education deliver active rather than passive learning (Prensky, 2001). Digital Natives referred to the students standing on the ball field that day who had their technology with them and were using it. Digital Immigrants referred
to the teachers, administrators, and staff who had left their technology behind in the classroom when the sirens sounded.

In 2009, thinking back on the events that took place at school on the day of 9/11, I decided to conduct a qualitative research project to determine the use of mobile technology in education. I started by contacting the 19 then-8th and 9th grade students who had stood with me on the ball field that day. They were members of a unique group called Palm Education Pioneers (PEP, 2001). The year before, in frustration over having no computer lab in our school, the students had encouraged me to find funds for technology. In my search, I was unable to find a grant that covered classroom computers, but I did find a research project that the SRI (formerly Stanford Research Institute) was conducting for Palm, Inc. that would give us 50 Palm Handheld units to use in our classroom. We had to go through two rounds, but ultimately we were awarded the grant and the students had just been introduced to them on Monday, September 10. One of the biggest concerns, I heard on Tuesday morning was “why couldn’t we bring our Palms? It wouldn’t be so bad out here if we had our Palms.” These same students spent the next nine months intensely invested in research projects and community involvement activities that proved to me how much more engaged they could become when technology was in their hands.

The purpose of this chapter is examine the use of mobile technology for educational use through data and examples from 2001, 2009, and current use, and discuss the future of mobile technology in education.

**Palms in the classroom**

Today, mobile technologies—originally marketed as communication and entertainment devices—have come to play a significant role in society at large. But what role do they play in education, and how are they currently being leveraged to advance learning? What is higher education doing to support students in the academic use of and social understanding of the rapid advances of mobile technology?

Since 2003, the Speak Up initiative, under the non-profit educational technology organization Project Tomorrow, has been conducting surveys of K–12 students, teachers, and administrators regarding the use
of technology in education (Speak Up 2007, 2008). The Speak Up 2008 report stated, “Today’s students are early adopters and adapters of new technologies, creating new uses for a myriad of technology products to meet their sophisticated needs. They serve as technology trendsetters for their peers and, increasingly, for their parents and educators” (Project Tomorrow, 2009, p. 1). The opinions of these students matter because many of them have entered higher education. Ally (2007) noted that due to the increased access and use of mobile technology by these learners, expectations and demands on higher education to be willing and able to deliver access to course materials anywhere, anytime has also increased. Higher education faces designing course material that allows “easy access by the nomadic learners using mobile technology regardless of where they are located and which network infrastructure they are using to access information” (Ally, 2007, para. 2) and regardless of what type of mobile device they use.

Brooks (2009) stated, “While mobile learning technologies are garnering increased attention throughout the academy, there is a lacuna in our understanding of how, if at all, the evolution of students into digitally nomadic learners impacts teaching and learning” (para 2). In his review of Kukulska-Hulme, Ally (2007) notes, “One of the areas frequently ignored in research studies on learning technology is the user of the technology” (para 6). In addition, current consumer studies show that while there is still a gap in ownership of desktop computer technologies between students of higher and lower socio-economic backgrounds, recently, the gap in the ownership of technologies such as web connected gaming devices and mobile technology has become almost non-existent (Molyneux, 2009). This makes the concern of equitable access a moot point and allows higher education to focus on content of delivery rather than means.

Current research does not provide a clear picture of what the use of mobile technology in higher education learning should look like. However, there is a strong imperative to develop a new educational approach which will take into account the needs of the digital natives generation, while also providing for the diversity of learning needs in the
student population and the presence of mature ‘digital immigrant’ students…. Such an approach needs to adopt deep learning—an orientation towards understanding, personal sense-making and active learning. (Litchfield, Dyson, Lawrence, 2007, p. 1)

Students’ social use of mobile technology “can be predictors or at least harbingers of how technology could be used to transform education. But first we have to listen to their ideas” (Project Tomorrow, 2009, p. 1). Thus, for the use of mobile technology to become a truly effective tool for learners, more research needs to be done.

In 2001, Palm, Inc. launched a project to study student use of handheld technology (PEP, 2000). A final report was generated in March of 2002, and the study was shelved. As a teacher participant in this project, my own learning and teaching style were profoundly impacted. I became acutely aware of the need to let students have a voice in the developing uses of technology. I also witnessed the excitement that they brought to the exploration and execution of previously tedious or mundane everyday learning tasks, just because they were allowed to integrate the handheld technology into the project. These students were so excited by the possibilities that handheld technology allowed them that they invented ways to use it that I as a teacher would never have imagined. Today these same students have access to mobile technology that far surpasses the handheld technology they used in 2001.

In January of 2009, via Facebook, I contacted the students who were participants in the Palm Education Pioneers project in 2001. Nine students responded to my requests for interviews and all of them were enrolled in university classes. Because the students were scattered across several states, I invited them to join me in an online educational chat forum called TappedIn. The chat interface provided the ability to connect and gather data across distances, as well as automatically generate a pseudonym for each participant and a transcript that was emailed to me at the end of each session. While synchronous online interviewing has the advantage of being convenient, it does not have the spontaneity of face-to-face interactions, and I noted an interesting similarity between the resulting data and the topic of texting that came up in the interviews. During the interviews, I asked the participants to describe what they re-
membered about their use of the Palms, how they currently used mobile devices, and what ways their current professors incorporated mobile learning into educational activities. The following are themes from an inductive analysis of the chat transcript data from the interviews.

**Students describe texting as less obtrusive**

Depending on the type of mobile technology each student currently had available to them, they described uses that included texting for chat, social networking, and assignment help. They all expressed a preference for texting, using it over phone conversations because they felt it was easier, faster, and less obtrusive.

When asked about texting, the students said they used it because it was “the easiest, fastest, least intrusive way to say a lot of things, and that they would even text their boss. One student stated that [I] “rarely call anyone anymore unless it’s my parents.” Another student said, “I used to refuse to text a little bit, because I’d rather talk to somebody on the phone than just get a text from them. But now, everybody does it, and I think it’s the easiest way to get in touch with people a lot of the time.”

The concept of text being less obtrusive seemed to be important to these students as a reason why they used texting in place of voice. They emphasized less obtrusive several times. They could text in class without being noticed, whether it was texting regarding class assignments or texting outside participants regarding plans for later in the day. They could text instead of having to stop to engage in a much longer conversation. Communication through text went on where voice chat would not be allowed and would be obtrusive.

The participants also emphasized “easiest and fastest.” Easiest extended to more than just being able to hold the device under the table and “unobtrusively” fire off a few words. Easiest also extended to time and space. They could send a message and were allowed to wait for a response. The recipient could simply respond at a time that was most convenient for them, from any convenient location. Within their peer group, they also indicated that it was the most likely means of getting
a response. However, they didn’t feel that they were as likely to get a response from their parents.

**Girls describe boys’ texting instead of calling as “lame”**

The theme regarding social skills was something that I hadn’t expected. There may also be a gender difference in this theme, which deserves further exploration. Discussion revolved around the use of text messaging, and several of the girls commented that they disliked it when someone just wanted to text instead of talking to get to know you. This developed further into one girl specifically saying, “When guys just text instead of calling...it’s totally lame.” Not one of the boys brought this up regarding girls. However, when the girls began discussing it, one young man said he had heard the same thing from other girls. As they all discussed this, it became apparent that they felt texting isn’t “real-life” but talking to each other is, and they worried that “people won’t be able to talk...in real life.”

The discussion indicated that they were co-creating a new set of social norms and rules for their own uses of mobile technology. They discussed with each other when it was appropriate to text and when it was more appropriate to call. Similar to the social norm that was prevalent until the early 1970’s where it wasn’t appropriate for a girl to call a boy, the participants defined current appropriateness as a boy shouldn’t text a girl to the exclusion of talking on the phone or face-to-face.

**Students collaborate via text in class—But not for ‘school stuff’**

When I asked the students what they remembered about our early use of Palms, the first thing that came to mind for them was their excitement over getting to use new technology. They mentioned games, and they mentioned downloading apps. The app they most frequently remembered was the scientific calculator. What they did not immediately recall was the primary use that I was observing – their collaboration for the NASA Student Involvement Program projects.

Later in the interviews, I asked them if any of their current teachers ever had them use their mobile technology, specifically cell phones, to collaborate. Every student answered no, but then several came back with
comments about how neat it would be to be able to share information on projects the way we had with the Palms. Therefore, I felt the early Palm collaboration experience was in the back of their minds. They also mentioned collaboration with each other by asking questions on assignments via texting both in class and out of class even though the instructor does not suggest or require it.

Unfortunately, when asked whether their teachers ever used texting or social media as a means of collaboration, all of the students said no. Some even seemed surprised at the concept, but I could see they felt it might be something interesting to do, especially since they already use handheld technology independently to communicate/collaborate on assignments and share status posts with friends.

Throughout every interview, all of the students talked about the excitement and advantages of being able to connect, whether by phone call, text or to the Internet, anywhere, any time, anyway. They all seemed to feel they would be lost without this ability. I felt that this excitement over using mobile technology and easy routine of use that is already in place for students was something that instructors, especially at the college level, could easily tap in order to facilitate classroom collaboration. It did not mean that all students had to have the same type of cell phones in their pockets. Because applications, such as Poll It, that will work well on the most basic of cellular technology (Poll It, 2009) were rapidly becoming available, providing opportunities and staff development for instructors to become excited like the students would give them the comfort level to adapt and adopt these tools in their classrooms.

Current mobile technology users have developed a new means of business as usual, which is unlike participants in text that have come before them, unlike those spawned by the proliferation of text by Gutenberg, and even unlike the more recent communication of text by email or Internet pages. These users carry each other in their pockets. They are with each other ubiquitously, but they are apart from each other’s presence. It is a new way of knowing and relating, one of which their parents, teachers, and role models have little experience to offer as guidance. Mobile technology users must find their own way. For them
it is a new “zone of proximal development” (Vygotsky, 1978). Loosely, Vygotsky’s theory states that a child depends on an adult to model an action and then the child will be able to reproduce that action. This modeling and copying process is known as the zone of proximal development. Unfortunately, for these digital natives, there is limited history of experience for everyone with the hardware of mobile technology and far less with the mores of social networking, the structures of being always connected, and the yearnings to disconnect. Fortunately, research shows some recognition that these impacts exist and that adults and educators should help students address these impacts. The Digital Youth Project Report (Mizuko et al., 2008) stated that society

is at a unique historical moment tied to longer-term and systemic changes in sociability and culture. While the pace of technological change may seem dizzying, the underlying practices of sociability, learning, play, and self-expression are undergoing a slower evolution, growing out of resilient social and cultural structures that youth inhabit in diverse ways in their everyday lives…. Youths’ participation in this networked world suggests new ways of thinking about the role of education. (p. 7-8)

Based on what I heard from the nine participants, I agreed with Molyneux, (2009) that the majority of college students have one or more mobile devices that give them access to other users via text or Internet and that they are using this mobile technology every day. In most cases they preferred texting over talking and reserved talking for conversations with close friends, family, or when they needed to get information across that was more difficult to communicate in a text message. They also felt that texting was much less intrusive, could be done quickly, and was easier than other forms of communication.

Even though these students used mobile technology every day and they were also early users of handheld technology in education, the irony was that their personal use had increased and moved forward, but the use in education had not. The students’ opinions regarding their use of mobile technology reflected both struggling, floundering in an uncharted territory as well as discovering their own innovation; however,
these experiences were all in the areas of personal rather than educational settings.

**Smarter phones, smarter learning?**

Today the lines between digital native and digital immigrant are becoming blurred. “Of the 6.8 billion people in the world, 4 billion use a mobile phone and 2.5 billion use a toothbrush” (Gamboa, 2013, para. 3). Not just students, but adults as well, own and use mobile technology such as cell phones and touch pads. They are communicating, conducting business, and connecting to information. Ninety-one percent of Americans report having a mobile phone near them at all times, and 25% report using their mobile device as the only means of connecting to the Internet (Gamboa, 2013).

As phones become “smarter,” is the use in educational settings becoming “smarter?” Gamboa (2013) reported that 73% of teachers were using mobile phones for classroom activities, but only two of the seven applications listed require interaction between students. Kik allows texting and eClicker is a response system, but is limited to multiple choice answers. Dropbox, Outliner, Mindjet, Numbers, and JotNotPro are all good applications but limited to increasing productivity rather than interaction. Currently, mobile social networking apps such as Facebook and Twitter are the most highly utilized. A study of over 8,000 faculty found an increase of college professors using social media as a teaching tool from approximately 34% in 2012 to 41% in 2013 (Seaman & Tinti-Kane, 2013). Thus, the affordances of mobile technology, while still limited and considered innovative, are slowly catching up in educational settings, although mobile connectivity is rapidly becoming more commonplace for personal or business use.

Simply having access to smarter mobile devices does not seem to be the key to effectively integrating their use into learning environments. In 2001, I found that unless students were guided and encouraged to use the Palms for learning experiences such as research for the NASA Student Involvement Project, they would opt for beaming messages to each other or playing games. Recent studies of using social media to engage college students (Holstead & Ward, 2013) reported that utilizing
the right application (i.e., Facebook or Twitter versus Reddit or Tumblr), finding the right topic, providing examples, making it part of the routine, encouraging participation, offering incentives, and making it accessible were all important to successful adoption, adaptation, and integration.

According to the Babson Report (Seaman & Tinti-Kane, 2013), professors also feel that class size has a bearing on effective use. Facebook and Twitter are meaningful ways to increase class interaction, but when class size is large, management becomes overwhelming for both professors and students. Because many students check into Facebook and Twitter regularly via their smartphones, “professors are deciding to use social media to help students create a professional online footprint. Some of them are feeling that it is their responsibility to prepare their students to be able to leverage social media in a professional context” (Dame, 2013). This is a favorable indication that higher education is beginning to provide the guidance that students need to negotiate “longer-term and systemic changes in sociability and culture” (Mizuko et al., 2008) brought on by rapid change in mobile technology, and that professors are realizing the importance of and becoming more willing to address these issues.

**Conclusions: Adoption and adaptation in of mobile devices in learning**

For personal and business use, mobile technology continues to change and be adopted at warp speed. However, the adoption in education at all levels mimics molasses. Adoption is similar to implementation, but adaptation involves integration, and even though education may adopt and implement mobile technologies, unless users are pushed beyond their comfort levels or unusual situations force new adaptations, without innovative educators who model effective use higher education will by nature continue to operate as it has in the past. Over a decade since Prensky (2001) coined the terms digital native and digital immigrant, the differences have begun to blur and higher education is very slowly adopting, adapting, and integrating mobile technology and its applications into the educational environment. Professors are leveraging the selection of appropriate topics, providing examples, and encouraging
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participation through mobile social media apps. While events of 9/11 changed policies regarding cell phones in schools, it continues to be up to educators to effectively adapt mobile learning to engage students today and tomorrow.
References
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