

From the Editor

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Welcome to the 2011 winter issue of *The Charter Schools Resource Journal* as we approach the year 2012. Many important educational issues are being debated and re-debated; mathematic education, cyber schools, and charter schools are among the topics of discussion. It is an honor and a pleasure for me to present to our readers three articles, one on mathematic education, another on cyber schools, and the third on superintendents' perceptions of charter schools.

In the first article "Promoting the Investigation of Mathematics in the Real World," Ms. Susan Troutman, Associate Director of Rice University School Math Project finds that when teachers promote the investigation of mathematical concepts in the real world, students are able to link mathematics learned in the classroom to mathematics encountered outside the classroom. Learning mathematics in such a way empowers students' understanding of mathematics. As educators, we should all strive to incorporate real world experiences for students to investigate and make connections beyond the classroom.

In the second article "Implementing Cyber Charter Schools: Recommendations for Administrators, Teachers, and Parents," Ms. Parinya Suwannakit and Dr. Maria Hinojosa find that online learning is growing in many schools including charter schools known as cyber charter schools. However, very little research exists regarding recommendations for administrators, online teachers, and parents on the implementation of cyber charter schools. Their paper provides a review of the pertinent literature on cyber charter school stakeholders and recommendations on successful implementation practices of cyber charter schools.

In the last article "Texas Superintendents' Perceptions of Charter Schools," Drs. Penning and Slate examine the knowledge, understanding, and personal views of 179 district superintendents regarding charter schools in Texas. They find that while student enrollment and waiting lists for charter schools continue to increase, high percentages of superintendents surveyed are neither knowledgeable on charter schools nor support these schools as a possible alternative for improving the educational system. In the midst of widespread popularity of charter schools, and of the charter movement itself, school superintendents are expected to see charter schools with a fresh perspective, in an effort to create a better future for their districts and the entire educational system..

Together these articles serve as a reminder of the educational issues debated in 2011. All the articles are well researched, timely, and tackle important issues. Many thanks to my editorial board members, particularly, Drs. Diane Newby and Brenda Kallio for sharing their perspectives and research. As always, your comments and suggestions will be greatly appreciated.

Happy New Year!

Implementing Cyber Charter Schools: Recommendations for Administrators, Teachers, and Parents

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Online learning is growing in many schools including Charter schools known as Cyber Charter Schools. This paper provides recommendations for administrators, online teachers, and parents on the implementation of Cyber Charter Schools.

Introduction

Online courses are popular in many public schools. In 2002-2003, online courses were offered in about 58% of rural schools and 40% of senior high schools (Kachel, Henry, & Keller, 2005). According to Picciano and Seaman (2007), about 700,000 K-12 students enrolled in online courses in the 2005-2006 academic year, and it was predicted that the growth of online enrollment would be increased about 19% in the next two years. Davis (2009) also mentioned results of 2007-2008 surveys from 867 chief administrators that the number of online learning classes increased in their public school districts in the form of both fully online courses mixed with traditional courses; in addition, there was one or more students enrolled in a fully online class in 75 percent of their public school districts.

Many schools around the nation are reporting similar growth trends in online enrollment. In addition, many researchers agree that online courses offer a very unique and student centered learning environment (Barbour, 2010; Brenner, 2007; Picciano & Seaman, 2007). Offering online courses could support student's learning opportunities; students had choices not only to study in their flexible times and places, but also to adapt their learning styles to meet their needs (Barbour, 2010; Brenner, 2007).

Research shows that the popularity of online learning has now reached charter schools (Darrow, 2010). Brady, Umpstead, and Eckes (2010) stated that from 2003- 2009, the number of cyber charter school offerings have tripled, from 60 schools in 13 states to 100 and 95 schools in 26 states. Darrow (2010) reported that in 2006-2009, the number of charter school students in California who attended online courses increased more than 80% yearly, and the dropout rate in online courses in charter high schools was lower than in traditional public schools. Online charter schools known as "cyber charters" have been accepted as an innovative technology for educational improvement, and the number of students who enrolled in cybercharters increased in the 2008-2009 school year (Marsh, Carr-Chellman, & Sockman, 2009).

Because of the rapid growth of cyber charter schools, offering cyber charter schools to meet the needs of students has been a new challenge for administrators, online teachers, and families (Archambault, 2010; Marsh, et al., 2009; Rose & Plants, 2010). Picciano and Seaman (2007) also stated as online learning continues to grow for the future, the quality of instruction and students' learning must be evaluated. Cyber charter schools allow an education set at its own unique pace. Students in a K-12 experience have one-on-one access to teachers and a flexible schedule in custom-designed courses. Our fast paced world

demands an educational setting that keeps up with student lifestyle. Students attend cyber charter schools for many reasons. Some students work toward professional aspirations; others accommodate busy training schedules, and most deal with illnesses or other family issues (Barbour, 2010). Very little research exists regarding recommendations for administrators, online teachers, and parents, on the implementation of cyber charter schools. This paper will provide a review of the pertinent literature on cyber charter school stakeholders and recommendations on successful implementation practices of cyber charter schools.

Cyber Charter Schools: Definition and Trends

The total number of charter schools in the U.S. has encouraged the use of innovative, adaptive and facilitative technology to create new innovative schooling models (Huerta, d'Entremont, & Gonzalez, 2006). Carr-Chellman and Marsh (2009) indicated that cyber charter schools were public charter schools which delivered course content totally online and course offerings include all levels from PK-12. Cyber charter schools allow students to access their classes by using the Internet at school or at home as home schooling; this method allowed them to create unique flexible learning styles (Barbour, 2010; Brenner, 2007).

According to Cavanaugh (2009), the average number of opened cyber charter schools has increased in the past 10 year (*Figure1*). According to Figure 1, 165 cyber charter schools have opened since 1994. Therefore, on average, 11 cyber charter schools are opening in the United States per year.

The location of the cyber charter schools in the United States varies. In 2009, cyber charter schools were spread across the United States, with Ohio having the highest number of open cyber charter schools (*Figure 2*). States such as Arkansas, Georgia, Illinois, New Hampshire, Texas, and Wyoming, show only one cyber charter school in operation. Research shows a high number of students' enrollment in cyber charter schools in Arizona, California, Ohio, and Wisconsin (Cavanaugh, 2009; Klein & Poplin, 2008; Kowch, 2009; Marsh, et al., 2009).

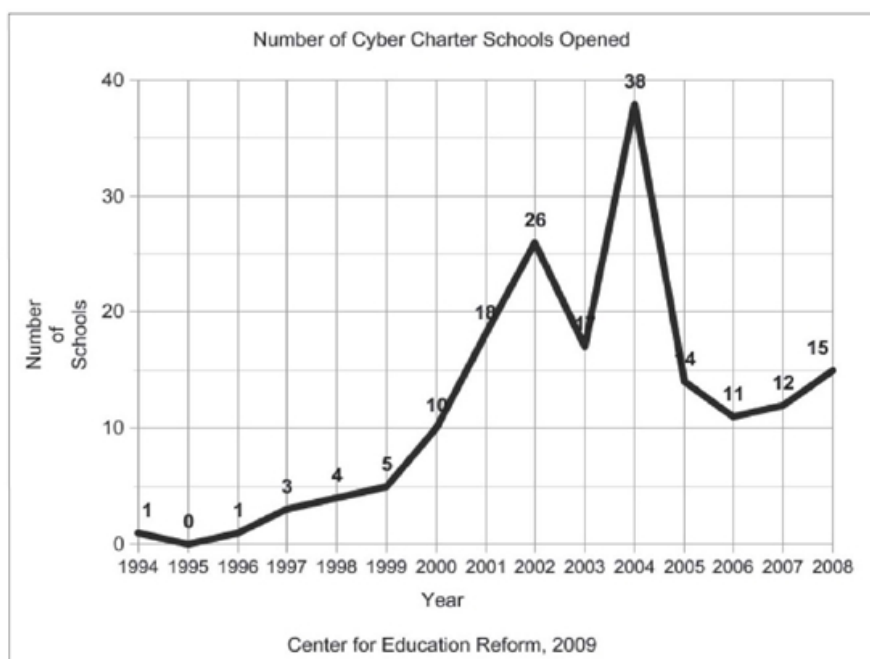


Figure 1. Number of Cyber Charter Schools Opened in the U.S., 1994-2008

(Source: Effectiveness of Cyber Charter Schools: A Review of Research on Learnings, 2009)

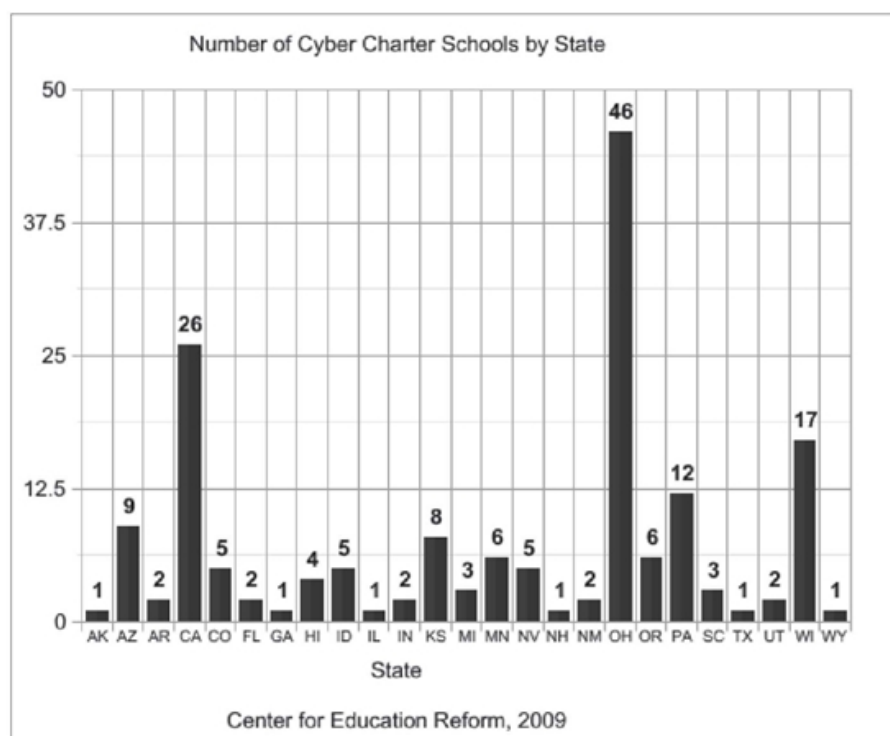


Figure 2. Number of Cyber Charter Schools in Each State, 2009

(Source: Effectiveness of Cyber Charter Schools: A Review of Research on Learnings, 2009)

Recommendations for Administrators on the Implementation of Cyber Charter Schools

An educational movement from traditional to online classes was predicted to increase in the future; therefore, providing an effective online educational system was a new challenge for many educators and administrators (Picciano & Seaman, 2007). Cyber charter schools have increased in popularity and concerned educators and administrators are learning how to develop effective full-online instruction (Archambault, 2010; Brady, et al., 2010; Kachel, et al., 2005; Kowch, 2009; Rose & Plants, 2010).

Research shows that lead administrators should consider the following while implementing a cyber charter school:

- Have a clear understanding about the different educational approaches such as asynchronous-synchronous, fully online-blended, and self-paced and schooled;
- Make a decision about the selection of technological innovation;
- Encourage well-designed online courses to facilitate learning outcomes;
- Support professional development opportunities both inside and outside schools;
- Prepare future online teachers to develop new educational programs (Rose & Plants, 2010); and
- Ensure parents and communities to have a clear vision of cyber charter education (Davis, 2011; Profile, 2010).

Recommendations for Online Teachers on the Implementation of Cyber Charter Schools

Cavanaugh (2009) mentioned that online teachers employed in cyber charter schools were raising the requirement of using a variety of educational approaches to support student achievement in online learning environment. According to Profile (2010), a technology mentor who also teaches in a public K-12 cyber charter school stated that when teaching an online class, everything had to be in an online environment. Profile (2010) mentioned that many teachers were facing the challenges of setting online learning materials and integrating technologies to support online learning communication. Because of graduating in the field of educational technology, she really felt comfortable to teach in the online environment by using many educational tools such as PowerPoint, Class Live, E-mail, Blog, and online Web resources, etc. At the same time, she believed that her experience and the interest of learning new technologies could help her in training other teachers for online course settings and technology integration (Profile, 2010).

Research shows that online teachers should consider the following while teaching in a cyber charter school:

- Have a better understanding of the use of technology and online pedagogy;
- Become familiar with using internet technology tools to create online instructions (Rose & Plants, 2010);
- Manage time demands to create course contents and teaching delivery in online learning environment;
- Develop an effective online course contents and activities; and
- Be ready to deal with student issues such as student access, interaction involving the rules, and assessment method (Archambault, 2010).

Recommendations for Parents on the Implementation of Cyber Charter Schools

Huerta, et al. (2006) stated that “approximately 60% of all Pennsylvania cyber charter students were formerly home schooled” (p. 24). Many researchers have agreed that providing popular cyber charter schools allowed families to be involved with their children’s learning process; at the same time, familial atmosphere could affect the successful online education (Huerta, et al, 2006; Klein, & Poplin, 2008; Stewart, 2002).

According to Klein and Poplin (2008), the research found that many parents were satisfied when their children studied in online class environment at home. They agreed that they had a chance to monitor the learning progress of their children closely and know them better. Furthermore, the parents accepted that they might be able to guide their children for future educational goals.

However, there were some parents who worried about the social life of their child while learning in a cyber charter school; although, many cyber teachers claimed that they normally created and used social network tools in their online class. They believed that these tools could encourage face-to-face interactions in their classes as well (Davis, 2011).

At the same time, many parents and communities suggested that before offering new educational projects, all educators needed to be prepared for many considerations such as

quality of education, teacher support, and assessment and accountability (Klein & Poplin, 2008).

Research shows that parents should consider the following while considering a cyber charter school for their children:

- Prepare home-based setting to support their child/children's learning environment (Huerta, et al, 2006);
- Monitor their child/children as a part time instructor to make successful online education; and
- Evaluate student learning outcomes and collaborate with online teachers to facilitate instructional development (Cambre, 2009; Huerta, et al, 2006)

Conclusion

Administrators, online educators, and parents are aware of the vast amount of different types of educational institutions and entities within the American public education secondary level. Some of these secondary campuses include: private schools, traditional high schools, charter schools and magnet schools. A review of the literature indicted that cyber charter schools are the newest model of education (Marsh, et al., 2009).

Cyber charter schools have been increasing with the demand of innovative education. Although cyber charter schools have been increasing steadily in the United States, very little research exists regarding suggestions for cyber charter school stakeholders in implementation of a cyber charter school program. This paper provides some important recommendations for administrators, online teachers, and parents who are directly involved with the latest public school educational innovation of cyber charter schools.

For administrators, before they make the decision to implement cyber charter school, they have to not only be clear about the different educational approaches that will be used in their schools but also be able to make the community have more knowledge about what they will do and believe that this way can help develop their child/children and society. At the same time, all administrators have to be very creative and organized to find the ways to collaborate with their employees to accept educational changes in their school and agree to develop their performances to improve the educational system (Davis, 2011; Profile, 2010; Rose & Plants, 2010)

Online teachers have to be concerned that teaching in a cyber charter school, the educational development will be totally in an online situation. They need a better understanding of how to use the Internet to deliver the course contents and include educational technology to support online pedagogy. When teaching in an online environment, online teachers should know how and when they will use each online educational tool to support student learning outcomes. They should engage in time management and learn how to create course content and teach in an online environment. They should also be ready to deal with student issues that might be different from teaching in a face-to-face classroom (Archambault, 2010; Rose & Plants, 2010).

For parents, cyber charter school is an educational system that gives their child/children a chance to be close with family members; also, parents can spend more time watching their child/children attain learning outcomes. Parents also have the opportunity to teaching them how to perform good manners in today's society. To improve their child/children's education,

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<http://www.ehhs.cmich.edu/~tcsrj/index.html>

parents need to prepare themselves to be involved with their students' learning activities and be ready to collaborate with the school. Parents have to set the environment in their home to support student learning performances. At the same time, they will have to monitor their child/children instead of the teacher. They can work with the teachers to determine their child/children's learning needs and support them to improve their future (Cambre, 2009; Huerta, et al, 2006).

Based on the review of literature, administrators, online educators, and parents are major groups of people who are aware of the educational development in cyber charter schools. As a result, to improve the effectiveness of cyber charter schools, both educators and parents should be more prepared with facing the changes of innovative technology and improving their professional development (Archambault, 2010; Huerta, et al, 2006; Rose & Plants, 2010).

This review of literature can help stakeholders of cyber charter schools create a clear vision of implementation based on any suggestions gathered by researchers. Educators and parents will have good guidelines to provide successful cyber charter schools; also, many children will have a chance to increase their learning outcomes along with their relationship with their family.

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Promoting the Investigation of Mathematics in the Real World

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When teachers promote the investigation of mathematical concepts in the real world, students are able to link mathematics learned in the classroom to mathematics encountered outside the classroom. Learning mathematics in such a way empowers students' understanding of mathematics.

Introduction

In 1623, Galileo Galilei published in *The Assayer* (as cited in Livio, 2009) a powerful statement concerning the relationship between mathematics and the cosmos.

Philosophy is written in that great book which ever lies before our eyes (I mean the universe) but we cannot understand it if we do not first learn the language and grasp the characters in which it is written. It is written in the language of mathematics, and the characters are triangles, circles and other geometrical figures, without which it is humanly impossible to comprehend a single word of it, and without which one wanders in vain through a dark labyrinth. (pp. 76-77)

According to Galileo, mathematics was simply the language of the universe and to understand the universe you had to speak this language. For many of our students, the use of mathematics as the language of the universe is as difficult to understand as an unfamiliar dialect spoken in a small village in a faraway land. The mathematics of the world is so different from the mathematics taught in most classrooms that young people often leave school ill-prepared for the demands of their work and lives (Boaler, 2008).

As educators, we should strive to incorporate experiences for students to investigate mathematics and make connections beyond the classroom. In this article, I will provide information about the Rice University School Mathematics Project (RUSMP) and describe the elements of the program that brought the mathematics classroom into the real world and how the real world was brought into the mathematics classroom.

Bringing the mathematics classroom into the real world

Modern day private investigators have a wide variety of tools available to them: communication equipment, video cameras, scrambling devices, recorders, binoculars, night vision equipment, transmitters, and counter-surveillance systems. However, even the most sophisticated equipment will not help investigators succeed if they stay within the walls of their offices and do not venture beyond their workplaces to apply their knowledge and use their tools. This situation is no different for students investigating mathematics. Students are given a variety of mathematical devices (e.g., calculators, manipulatives), but these are useless if students are confined to a

restrictive environment and not given the opportunity to see how to apply these tools in their everyday experiences. According to Wallis, Steptoe, and Miranda (2006):

American schools aren't exactly frozen in time, but considering the pace of change in other areas of life, our public schools tend to feel like throwbacks. Kids spend much of the day as their great-grandparents once did: sitting in rows, listening to teachers lecture, scribbling notes by hand, and reading from textbooks that are out of date by the time they are printed. A yawning chasm (with an emphasis on yawning) separates the world inside the schoolhouse from the world outside. (p. 52)

Educators are pressured to align teaching methods and curriculum with the way the modern world works. This means putting a greater emphasis on teaching students to work together and solve problems in small groups and use what they have learned in everyday life situations. In fact, research confirms that students learn better that way than with the traditional “chalk-and-talk approach” (Wallis, Steptoe, and Miranda, 2006, p. 56).

According to Germain-McCarthy (2001), brain-based researchers view the mind’s design as that of a “pattern detector” (p. 4). Learners are always searching for meaning by creating patterns. To enable students to become pattern detectors, it is important that teachers help students make connections between the intuitive, informal mathematics they learn through their own experiences and the mathematics they are learning in school. When students recognize and apply the relationships between and among mathematical content and processes, they advance their knowledge of mathematics and extend their ability to apply concepts and skills more effectively. Understanding connections eliminates the barriers that separate the mathematics learned in school from the mathematics learned elsewhere (National Council of Teachers of Mathematics [NCTM], 2000). If students are able to make connections between mathematical concepts learned in classroom settings and mathematics experienced in everyday life, they are likely to perceive mathematics as a meaningful endeavor that makes sense.

Real-world contexts provide opportunities for students to look for patterns and connect what they are learning to their own environment. Trips outside of the classroom allow students to engage in meaningful conversations about their experiences and understandings of the uses of mathematics in the world around them. Students applying their mathematics knowledge by estimating measurements and looking for geometric shapes in the architecture on school playgrounds, neighborhood parks, city museums, and college campuses and estimating and calculating the cost of purchases at grocery stores or shopping malls are examples of mathematical investigations beyond the classroom. Mathematical learning in such contexts is not enrichment; it is the foundation of empowering children’s understanding of mathematics (English, Humble, & Barnes, 2010).

Educators do a disservice to students if students see mathematics as being disengaged from the real world. Teachers should help students establish mathematical meaning in their day-to-day life experiences. The Rice University School Mathematics Project (RUSMP), established in 1987 in order to provide a bridge between the university’s mathematics research community and Houston-area mathematics teachers, has collaborated with surrounding school districts to provide

students and teachers with such opportunities, whereby students investigate the connections between the mathematics learned in classrooms and the environment filled with mathematics.

RUSMP Programs

Over 7,000 teachers have participated in RUSMP programs over the past twenty-five years. RUSMP programs enhance the mathematical knowledge of PreK-12 teachers and promote more effective teaching and greater student involvement. The interchange between RUSMP and Houston-area schools continues to yield a body of research about how teachers teach and students learn mathematics. Independent evaluations indicate that teachers who have participated in RUSMP programs improved their mathematical knowledge, modified their classroom practices, and changed their beliefs about mathematics teaching (Parr, Papakonstantinou, Schweingruber, & Cruz, 2004). Furthermore, their students performed significantly better on the state mandated criterion-referenced assessments in mathematics than comparable students whose teachers had not participated in the programs (e.g., Houston Independent School District, 2006; Killion, 2002).

RUSMP offers a yearly, four-week Summer Campus Program for Houston-area PreK-12 mathematics teachers. With an emphasis on the integration of authentic problem-solving and real-world applications (see Figure 1), as well as the use of manipulatives and technology in the mathematics classroom, the program provides a hands-on approach to professional development in pedagogy and mathematics content. Local master teachers who have demonstrated teaching techniques consistent with RUSMP's philosophy provide instruction in the program and model teaching advocated by the National Council of Teachers of Mathematics *Standards* (NCTM, 2000). Rice University mathematics and science faculty, visiting mathematicians, and mathematics educators address topics which enhance and transcend traditional classroom mathematics emphasizing mathematics content, school reform, real-world applications of mathematics, and gender and minority issues in mathematics education. Upon successful completion of the Summer Campus Program, participants receive graduate and gifted/talented credit. For more information about RUSMP, visit the website <http://rusmp.rice.edu>.

During the Summer Campus Program, teachers embark on mathematical scavenger hunts and visit museums looking for evidence of mathematics in the real world. These mathematical scavenger hunts consists of looking for geometric shapes in exhibits and architecture, searching for relationships that can be represented with ratios, and seeking out examples of mathematical concepts that are incorporated in their surroundings. The teachers are given cameras and mini-camcorders to record examples of the mathematics found during their explorations. These images are then shared with fellow teachers as posters (see Figure 2), PowerPoint presentations, or videos. When teachers return to their classrooms in the fall, they are encouraged to implement with their students similar mathematical scavenger hunts on their own school campuses.

During visits to The Museum of Fine Arts, Houston, teachers attend a *Math + Art = Fun!* tour where they are challenged to look closely at artwork to discern the connections between mathematics and the visual arts. Many artists employ mathematical concepts in their works that teachers and students can use as a springboard for discovering mathematics in the visual arts (Ward, in press). Teachers' reflections on their museum visit include:

- “The museum opened my eyes to an entirely different way of teaching that I will incorporate in my lessons. I know that combining art and math will help me grab the attention of the group of students who are more right-brained.”
- “I never would have thought that I could learn so much math and get so many activities and ideas from the art museum. It was just awesome. Being the sister of an artist, I knew that artists use measurement and other mathematical concepts. However, I never thought of using a painting to teach so many concepts. I really enjoyed today’s trip and hope to use art in my lessons in the coming years.”
- “The marriage of art to math will be peppered throughout my math year. My students will use the Flip video to make connections with real-world geometry. This supports student creativity. My classroom will foster discovery and I will be a facilitator in my classroom.”

The RUSMP Summer Campus Program’s teachers also explore the Children’s Museum of Houston and the Houston Museum of Natural Science, looking for examples of mathematical concepts. Teachers investigate the exhibits for specific information featuring numbers and mathematical applications, and use this information to create knowledge hunts for students to complete during future visits to the museums.

During the school year, RUSMP collaborates with teachers to provide learning experiences for students as they tour the Rice University campus looking for evidence of geometry, patterns, fractions, and other mathematical concepts. The students find examples of fractions, lines of symmetry, patterns, diameters, circles, angles, and other geometric concepts embedded in the buildings and architecture on campus (see Figures 3 & 4). One teacher reflected on her students’ visit to the Rice University campus by saying “Our students usually see fractions in isolation and in textbooks. The visit to Rice University helped them make connections to the work they do in school and see how it is related to the real world.” These activities empower lifelong learning. Integrating “outside” mathematics with “inside” classroom mathematics can sow the seeds to develop flexible, creative, future-oriented mathematical thinkers and problem solvers (English, Humble, & Barnes, 2010).

Investigations, such as those mentioned above, address the following National Council of Teachers of Mathematics standards (NCTM, 2000):

- Connections Standard – Students recognize and use connections among mathematical ideas. They also recognize and apply mathematics in contexts outside of mathematics (p. 274).
- Communication Standard – Students communicate their mathematical thinking coherently and clearly to peers, teachers, and others while they analyze and evaluate the mathematical thinking and strategies of others (p. 268).
- Problem Solving Standard – Students build new mathematical knowledge through problem solving and solve problems that arise in mathematics and in other contexts (p. 256).
- Geometry Standard – Students analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships (p. 232).

Bringing the real world into the mathematics classroom

Bridging mathematics to the world beyond the classroom will help students realize that mathematics is a relevant tool that will be utilized every day of their lives. Being able to select and apply problem solving strategies and evaluate solutions for reasonableness are valuable life skills. Given some ingenuity and effort, teachers can engage students with relevant lessons to bring the real world into the classroom.

Children's literature is integrated into the RUSMP Summer Campus Program to introduce mathematics concepts in context. Without context, mathematics becomes reduced to what Carl Sandburg described in his poem, *Arithmetic*: "*Arithmetic is numbers you squeeze from your head to your hand to your pencil to your paper till you get the answer*" (Haury, 2001, p. 4). By attending to the mathematics in literature, teachers can facilitate the realization by students that mathematics, including arithmetic, is a "spontaneous and natural expression of human minds attempting to capture important aspects of our experienced and imagined worlds" (Haury, 2001, p. 4). Integrated literature-based activities offer students opportunities to engage in worthwhile mathematical activities that encourage them to create mathematical problems from the stories presented and to communicate their ideas about the connections between the mathematics of the real world and the mathematics taught in the classroom (Ward, 2009).

During the RUSMP Summer Campus Program, teachers videotape interviews with adults and students explaining how they use mathematics in their occupations or in daily activities. These videos are placed on the Collaboration and Course Management section of OWL-Space. OWL-Space is a virtual workspace designed to promote teaching and learning, as well as collaboration between members of the Rice University community. Participating teachers have access to these videos during the school year to share with their students. The videos reveal the use of mathematics in a variety of occupations, including a police officer using mathematics to measure distances to report an accident, a homemaker using mathematics to cook and to calculate sales prices, and a chemist using mathematics for measurement conversions. One teacher reflected on this activity by commenting:

"The math in the real world video was a great activity. I was surprised how many people interviewed were of the opinion that they did not use math in their lives and that many people were math phobic. It was upon asking probing questions that they realized they were not as afraid of math as they thought they were and that they did use math every day. They just had not thought about it."

Video chat technology can also be used to bring experts into the classroom, take virtual field trips, or collaborate with other schools in real time (Federoff et al., 2011).

Today's technology enables students to explore applications of mathematics without leaving the classroom. Short excerpts from movies and television shows that demonstrate mathematics being used in the real world are incorporated to enrich RUSMP lessons. The *Mathematics in Movies*' website, <http://www.math.harvard.edu/~knill/mathmovies/>, provides a collection of movie clips

in which mathematics appears and gives a brief description of the mathematical concepts used in each movie.

The RUSMP Summer Campus Program provides opportunities for teachers to discuss and explore sundry internet resources, such as the ones listed below, that interactively demonstrate connections between mathematics and the real world.

- The *Futures* channel connects mathematics, science, technology, and engineering to careers and achievement; provides a context and purpose for what students are learning; and allows them to envision their own successful futures.
<http://www.thefutureschannel.com/>
- *Learn Alberta* is a multimedia resource that includes interactive math activities, print activities, learning strategies, and videos that illustrate how math is used in everyday life. <http://www.learnalberta.ca/content/mejhm/index.html?l=0>
- The *Math-kitecture* site allows students to take geometric tours in which they look for shapes in buildings and structures. Three-dimensional panoramic views of architecture are available on this site. <http://www.math-kitecture.com/geometry.htm>

Teacher reflections

At the end of the school year, teachers are asked to submit reflections in which they articulate their implementation of the ideas and teaching strategies they gained from their participation in the RUSMP summer program. The following are excerpts from select submitted reflections.

- “I was asked to teach three intensive days of summer school for incoming sixth-grade students. Every day, we took a couple of breaks and walked around with the Flip video focusing on finding a different type of math in real life. This was their favorite part of the day and during lunch they begged to watch their clips over and over. I look forward to using this technology in my classroom and plan on using it as one of my daily stations.”
- “The ‘math goggles’ were definitely on in the classroom when it came to implementing art into my lessons. I checked out the teacher’s lesson plans that the Museum of Fine Arts, Houston supplied. There were art pieces that worked well with the measurement and geometry lessons.”
- “I was able to incorporate math lessons from the Houston Museum of Fine Arts. I planned a field trip to the museum and taught students how to find geometric shapes and patterns in art. At the museum, students were placed into groups with a digital camera and instructed to find geometric shapes, patterns, and any math-related art. Lastly, when we arrived back at school, the students were instructed to create a PowerPoint project and present it to the class just like we did during the summer program. This was a great and fun experience.”
- “The most important thing I learned was that students like to do different things. We grew up with lectures and worksheets. Students like to do fun and real-life activities.”
- “There was never a doubt in my mind that I was a good math teacher. But now I have at my fingertips the tools and resources for my students to learn and perhaps for the first time to LOVE math!”

- “It is my hope that my students will come to understand that math is a universal language that everyone speaks.”
- “There is sometimes a big gap between the mathematics class and the real world. Anything to make them stop, look around, and think about this relationship would benefit students.”

Conclusion

Is this some mischievous trick played on us, such that all the human struggles to grasp and comprehend ultimately lead to uncovering the more and more subtle fields of mathematics upon which the universe and we, its complex creatures, were all created? (Livio, 2009, p. 9)

By promoting the investigation of mathematical concepts in the real world, RUSMP enables teachers to assist their students in linking the mathematics learned in the classroom to the mathematics utilized beyond the school setting. Teachers of mathematics have a great opportunity to transform learning as they lead students on a journey to explore the relevance of mathematics inside and outside the classroom. When students learn in context, by practical engagement, and by personal discovery, they are given the opportunity to acquire new skills, work collaboratively with others, and develop a better sense of themselves, their potential, and the workings of their world.

We believe that every young person should experience the world beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances...(These outside the classroom) experiences, help us to make sense of the world around us by making links between feelings and learning. They stay with us into adulthood and affect our behavior, lifestyle and work. They influence our values and the decisions we make. They allow us to transfer learning experienced outside to the classroom and vice versa. (Department for Education and Skills, 2006, pp. ii-1)

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Figure 1. A third-grade student and teacher search for mathematical concepts embedded in campus architecture.



Figure 2. Students divide a circle in half by walking along one of its diameters.



Figure 4. Incorporating newspapers into a fraction, decimal, and percent lesson brought real world mathematics into the classroom.

Texas Superintendents' Perceptions of Charter Schools

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In this study the knowledge, understanding, and personal views of 179 district superintendents regarding charter schools in Texas are examined in the following areas: (a) knowledge of state and federal laws regarding all charter schools in Texas, (b) knowledge of charter schools in Texas (i.e., student population, academic performance, special education, operating expenditures, funding, student-teacher ratio), (c) reasons for consideration or rejection of charter schools in their districts, and (d) personal views regarding charter schools in Texas. Descriptive statistics are provided for each survey question, and implications of the findings are discussed.

In her foundational study of Michigan's 524 public school district superintendents, Ogden (1995) determined that most superintendents viewed charter schools negatively. Ogden concluded that district superintendents "were skeptical about the ability of charter schools to provide better educational outcomes for students" (p. 107). Ogden also documented that 73% of all district superintendents surveyed believed that the underlying motivation for charter schools was political, not educational. Following Ogden were three more studies in which their authors (Occhino, 2001; Sperling, 1999; Sutton, 2002) revealed similar findings, although some differences were apparent due to participant demographic characteristics.

In 2001, Sutton examined the perceptions of 103 district superintendents in Virginia. He documented that most superintendents had negative perceptions of all charter schools, and 47% of those superintendents surveyed indicated that they had a good understanding of the charter school movement in their state (Sutton, 2002). Sutton also stated that 79% of the superintendents surveyed reported that they did not think that charter schools were a positive solution for improving education in their state. In Virginia, district superintendents must make a recommendation to the district's board of trustees for a home-rule charter to be granted (Sutton, 2002). Sutton also determined that many initiatives to open home-rule charter schools were rejected by superintendents. Additionally, 82% of the superintendents surveyed contended that charter schools did not provide equal education for all students (Sutton, 2002). Other views shared by 78% of superintendents were that charter schools were not innovative and did not improve student performance. For instance, 92% of all respondents also expressed concern over state funding being diverted to charter schools instead of financing the improvement of traditional schools. Furthermore, 81% of superintendents rejected the claim that charter schools improved parental involvement because of their smaller sizes (Sutton, 2002).

Sperling (1999) also addressed district superintendents' perceptions regarding charter schools in Michigan. Sperling's research was a follow-up study to the foundational study of Ogden (1995). In his research, Sperling (1999) surveyed 111 school district superintendents from five different counties. He reported that 23 of the superintendents had started the process of establishing home-rule charter schools in their districts. Sperling (1999) also stated that 71% of all superintendents surveyed strongly believed that the charter school movement in Michigan was not a viable solution for the improvement of the education in their state (Sperling, 1999). Some evidence of how views changed can be noted in 1995 when 66% of superintendents were opposed to charter schools (Ogden, 1995), whereas in 1999, 72% were opposed (Sperling, 1999). Furthermore, Sperling's 1999 findings were that 53% of the superintendents surveyed believed that they were very knowledgeable of charter schools in Michigan, as compared to the 44% of superintendents that Ogden surveyed (Sperling, 1999).

Sperling's study is important in the sense that it illuminated the decline of support for charter schools by district superintendents in Michigan. That is, within a 4-year time period, a higher percentage of superintendents opposed charter schools in 1999 than in 1995. It is also similar to Sutton's (2002) study in terms of the negative superintendent perceptions both encountered. Sperling (1999) noted that 81% of district superintendents did not believe that more parental involvement occurs in charter schools as compared to traditional public schools. Sperling (1999) also confirmed that most superintendents perceived that the charter school movement is not the solution to school reform in their states. Sperling (1999) also stated that 73% of superintendents believed that funding was being diverted inefficiently to charter schools. In other words, these superintendents believed that charter schools had taken away funds that could have otherwise been used to improve existing traditional public schools (Sperling, 1999).

In another study on district superintendents' perceptions of charter schools, Occhino (2001) reported that New Jersey operated the same way as Virginia. Superintendents must make a recommendation to the district's board of trustees for a home-rule charter to be granted. However, Occhino (2001) noted that of the 56 superintendents interviewed and surveyed, 74% did not believe that charter schools were worth the effort required to make them a part of school reform in their districts. One difference in Occhino's study is that only 23% of respondents considered themselves strongly knowledgeable regarding charter schools; a much lower percentage than in the other studies (Ogden, 1995; Sperling, 1999; Sutton, 2002). Findings in Occhino's study also revealed three major areas of opposition from superintendents regarding charter schools: (a) charter schools compete with district schools over students, (b) charter schools have less accountability, and (c) charter schools have a reputation of mismanaging funds (Occhino, 2001). However, of the superintendents with charter schools in their districts, Occhino (2001) commented that 63% viewed these schools as a valid component of school reform in their state (Occhino, 2001). This finding was not the same as Ogden's 1995 study in which no differences were present between responses of superintendents in districts with charter schools and those superintendents in districts without charter schools (Ogden, 1995).

Whereas Sutton (2002) classified superintendents as rural, urban, and suburban, he did not obtain statistically significant differences in their responses. However, in all three states, most of the responses came from rural districts having no charter schools in their communities (Occhino,

2001; Ogden, 1995; Sperling, 1999; Sutton, 2002). In terms of economics, Occhino (2001) reported that 68% of superintendents favoring charter schools came from low-socioeconomic school districts. In these studies, 78% of the superintendents surveyed were males and 67% of them held doctoral degrees (Occhino, 2001; Ogden, 1995; Sperling, 1999; Sutton, 2002).

Since the inception of charter schools in Texas in 1996, only one study has been conducted in Texas regarding superintendents' perceptions regarding charter schools (Center for Education Reform [CER], 2010). The focus of studies has concentrated mostly on academic performance, ignoring the analysis of how superintendents perceive charter schools. Given the important role that superintendents play in charter schools (i.e., They must make a recommendation to the district's board of trustees for a home-rule charter, Texas Education Agency [TEA], 2009) and the widespread nature of charter schools in Texas, it is important to understand the views of superintendents regarding charter schools. For detailed information regarding the history of charter schools in Texas, readers are referred to a recent article by Penning and Slate (2011). Penning and Slate (2011), though providing historical information regarding Texas charter schools, did not examine superintendent views in Texas regarding charter schools.

Recently, the Texas Center for Educational Research (TCER, 2011) conducted an evaluation of new charter schools in Texas. Though not a study in which superintendents' views of charter school were examined, the TCER study did provide data regarding the efficacy of charter schools. Noted on page vii,

This evaluation provides little evidence that new open-enrollment charter schools are improving students' academic outcomes. Analyses comparing open-enrollment charter students' academic outcomes to those of similar students who remained in the traditional district schools indicate that open-enrollment charter schools had negative and statistically significant effect on students' mathematics outcomes in Grades 4 through 8. In addition, analyses comparing the performance of new open-enrollment charter schools with their more established peers find that charter school student outcomes do not improve as schools gain more experience. (TCER, 2011)

The following research questions were addressed in the present study: (a) What knowledge do district superintendents in Texas have of state and federal laws regarding charter schools in Texas?; (b) What knowledge do district superintendents in Texas have of charter schools in Texas?; (c) What reasons do district superintendents in Texas have for the consideration of opening or rejecting charter schools in their districts?; and (d) What personal views do district superintendents hold regarding all charter schools in Texas?

Method

Selection of Participants

In Texas, there are 1,042 district superintendents (CER, 2010; TEA, 2009). For this study, 250 potential participants of the entire population were targeted to obtain a minimum of 166 superintendents (Olejnik, 1984). The 250 potential participants comprised the number of

superintendents with charter schools in their districts. The TEA's district directory was used to identify the sampling of superintendents along with their e-mail addresses. The 250 superintendents were selected by using the procedure of simple random sampling (Gall, Borg, & Gall, 1996). For this study, each superintendent on the population list was assigned a number according to his or her ordinal position on the directory list obtained from TEA. Then a table of randomly selected numbers was used to select a total of 250 superintendents. These superintendents received invitation phone calls to participate in the study. They were also informed that within seven days from the time of the phone call that they were going to receive an e-mail with a link to an online World Wide Web survey. The online survey facilitated a more efficient response process as compared to the mailing of paper documents. One follow-up phone call to each potential participant was also conducted two weeks after the surveys were e-mailed, to remind superintendents to complete and submit the surveys.

Participants

Two hundred and fifty superintendents were randomly selected to participate in this study. Within a month and a half (i.e., March and April, 2009), 179 respondents from all across Texas completed the online survey to represent 71.6 % of the total surveys sent. The superintendents were 39 (21.8%) females and 140 (78.2%) males. Most of the superintendents, 131 (74.3%) were from rural school districts (0-4,999 students). The next largest group of respondents, 40 (22.3%) superintendents were from suburban schools (5,000-24,999 students), and the smallest number, 6 (3.4%) superintendents were from urban school districts (25,000-200,000 students). Of the 39 female respondents, 27 (69.2%) came from suburban schools, 11 (28.2%) from rural districts, and 1 (2.6%) from an urban school district. Out of the male respondents, 106 (75.7%) were from rural school districts, 29 (20.7%) from suburban school districts, and 5 (3.6%) from urban school districts. Because the interest in this investigation was on superintendents' views toward charter schools, no analysis was conducted to determine the extent to which gender or school district location was related with superintendent's views regarding charter schools.

In regard to years of experience, the highest number of respondents, 115 (64.2%) were superintendents with 0-5 years of experience. In this category 22 (56.4%) of the respondents were females and 93 (66.4%) were males. The next largest group of respondents, 38 (21.2%) were superintendents with 6-10 years of experience. Within this category, 11 (28.2%) were females and 27 (19.2%) were males. The third largest group, 16 (8.9%), were respondents with 11-15 years as superintendent. In this category, 3 (7.7%) were females and 13 (33.3%) were males. And the group with the least number of respondents, 10 (5.6%), were superintendents with over 15 years of experience. In this last category, 3 (7.7%) were females and 7 (5%) were males. Most participants were males from rural school districts with 0-5 years of experience as superintendents. Similarly, because the interest in this investigation was on superintendents' views toward charter schools, no analysis was conducted to determine the extent to which experience was related with superintendent's views regarding charter schools.

Instrumentation

For this study, the instrument used was a modified version of Occhino's (2001) survey that was administered to superintendents in New Jersey. Occhino's survey contains 49 items, divided into six sections: (a) personal reactions to charter schools, (b) implementation of charter schools, (c) reasons to reject charter schools in the district, (d) effects of charter schools in the district, (e) demographic survey, and (f) a comments section. The Occhino (2001) survey was selected as a model for this study for four reasons: (a) the instrument emphasized the role of superintendents and their perceptions of charter schools; (b) the survey was designed for a large number of participants; (c) the survey was straightforward, clear, and designed to be easily completed in a short period of time; and (d) the instrument's results had high reliability and well-developed content validity.

The survey in this study has five sections with a total of 40 questions. It was modified to address the four research questions of this study and was piloted by 10 Texas superintendents. Recommendations of superintendents were taken into account and final changes were made to the survey instrument. Sections I and II are the knowledge clusters of the survey instrument. These two sections are made up of yes/no response questions. Section I has 10 questions from which participant knowledge of state and federal laws regarding charter schools in Texas was ascertained. Section II includes 10 questions in which knowledge of charter schools in Texas was obtained from participants. Section III and IV are the attitudinal clusters of the survey instrument. These two sections were developed using Likert scale items to indicate levels of agreement. The items used were the following: "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree." Section III has eight questions with reasons for consideration or rejection of charter schools in districts. Section IV has eight questions in which participant's personal views regarding charter schools in Texas were examined.

Score Reliability

The survey administered to district superintendents in Texas, "Survey of Public School Superintendents," was a modified version of the survey that Occhino administered in New Jersey (Occhino, 2001). His version was examined for score reliability using Cronbach's coefficient alpha, which estimates internal consistency reliability by determining how all items on an instrument relate to all other instrument items and to the total instrument (Cronbach, 1951). An alpha coefficient of .89 was obtained for survey scores on Occhino's instrument, thus providing an acceptable level of reliability for the survey items (Cronbach, 1951). In this study, Cronbach's coefficient alpha was calculated for each cluster of survey items. The Cronbach's coefficient alpha for Section I was .92, for Section II it was .85, for Section III it was .88, and for Section IV it was .84. In all four sections, the coefficient alphas were sufficiently high for research purposes (Cronbach, 1951).

Score Validity

To ensure face and content validity (Gall et al., 1996), the survey used for this study was piloted with 10 Texas district superintendents who were not included in the sample population. These

individuals reviewed the survey, and made suggestions and criticisms to improve the instrument. One of the suggestions made was to include only factual statements for Sections I and II of the survey with updated information. Some statements were then revised and updated. Another suggestion taken into account was to eliminate the open-ended questions of the survey, because they covered some of the same information already covered in Sections III and IV. The demographic section of the survey was also changed to make it easier for participants to complete. Because the changes were made, content validity was established by a jury of experts, with this jury of experts being comprised of the 10 Texas school district superintendents.

Results

Knowledge of Laws Regarding Charter Schools

To determine the extent of superintendents' knowledge regarding state and federal laws applicable to charter schools, Section I of the survey was designed to gather data targeting the first research question of this study. Research Question 1: What knowledge do district superintendents in Texas have of state and federal laws regarding all charter schools in Texas?

Section I of the survey presented superintendents with 10 factual statements pertaining to state and federal laws regarding charter schools. Superintendents were asked to either respond "Yes" if they believed that the statement was true, or "No" if they believed that the statement was false. In Table 1, percentages of responses by each of the 10 statements are presented.

Table 1

Percentage of Responses of District Superintendents to Survey Section I

Statement	Yes (%)	No (%)
1.1 Any individual or organization can apply to open a charter school in Texas.	60.9	39.1
1.2 School districts are permitted to apply to open charter schools.	58.7	41.3
1.3 Charter schools in Texas receive funding from property taxes.	37.4	62.6
1.4 All charter schools in Texas are not independent from traditional school districts.	48.0	52.0
1.5 All charter schools in Texas are held accountable for state assessments, such as TAKS.	49.7	50.3
1.6 The accountability ratings for most charter schools are the same for charter schools and traditional school districts.	40.2	59.8
1.7 All charter schools in Texas are held accountable financially by the Texas Education Agency.	46.4	53.6
1.8 All charter schools in Texas are required to provide Special Education services to students.	32.4	67.6

1.9 Open-enrollment charter schools in Texas are a type of charter school not allowed to reject students based on low academic performance.	43.0	57.0
1.10 Parents can enroll their children in charter schools regardless of where they are zoned.	73.2	26.8

In Item 1.1 superintendents were asked if they believed that any individual can apply to open a charter school. The data presented in Table 1 revealed that 109 (60.9%) superintendents chose “Yes” for this item. Approximately 40% of superintendents responding did not know that any individual can apply for a charter (TEA, 2009). For Item 1.2, 105 superintendents (58.7%) responded with “Yes,” agreeing with the statement that school districts are permitted to apply to open charter schools. Again, approximately 40% of participants responded incorrectly, unaware that any school district in Texas can apply to open a charter school (TEA, 2009).

In Item 1.3 superintendents were asked if they agreed with the statement indicating that all charter schools in Texas do not receive funding from property taxes. For this item, 67 (37.4%) superintendents disagreed with the statement, demonstrating that approximately 70% of superintendents did not know that charter schools in Texas do not receive any funding from property taxes (CER, 2010; TEA, 2009). In response to Item 1.4, which asked superintendents if all charter schools in Texas are not independent from traditional school districts, 86 (48%) correctly responded Yes. Over 50% of superintendents did not know that not all charter schools in Texas are independent from school districts. Indeed, many school districts have opened their own charter schools. However, most charter schools statewide and nationally are independent from traditional public schools (CER, 2010; TEA, 2009).

In Item 1.5 superintendents were asked if all charter schools in Texas are held accountable for state assessments, such as TAKS. Eighty-nine (49.7%) stated that indeed all charter schools in Texas are accountable for state assessments. For this item, over 50% of superintendents responded that they did not know that all charter schools in Texas are held accountable in some way or another for state assessments such as TAKS. This fact includes those charter schools that receive ratings under alternative accountability procedures (TEA, 2009).

Seventy-two (40.2%) superintendents correctly agreed that the accountability ratings for most charter schools are the same for charter schools and traditional school districts. For this item, 59.8% of respondents failed to recognize that ratings for charter schools are the same as compared to traditional school districts. Special considerations for the ratings are equally applicable to both (TEA, 2009). Superintendents were asked in Item 1.7 if all charter schools in Texas are held accountable financially by the Texas Education Agency. Nearly half of the superintendents ($n = 83$, 46.4%) agreed with this statement. Over half of the respondents for this item demonstrated that they did not know that all charter schools in Texas are indeed financially accountable to the Texas Education Agency (TEA, 2009).

In Item 1.8 superintendents were asked if charter schools in Texas are required to provide special education services to special needs students. Fifty-eight (32.4%) agreed with this item. Indicated in the data was that superintendents incorrectly believed that not all charter schools are

required to provide special education services. In Item 1.9 superintendents were asked if open-enrollment charter schools in Texas are a type of charter school not allowed to reject students based on low academic performance. The response of Yes was selected by 77 (43%) of superintendents. Over 50% of all superintendents incorrectly believe that open-enrollment charter schools can reject students based on academic performance. Superintendents were asked to indicate on Item 1.10 whether parents can enroll their children in charter schools regardless of where they are zoned. Forty-eight (26.8%) chose No as a response, unaware of the fact that charter schools in Texas are not permitted to restrict student enrollment based on zoning (CER, 2010; TEA, 2009).

Knowledge of Charter Schools in Texas

To determine the extent of superintendents' knowledge regarding charter schools, Section II of the survey was designed to gather data for the second research question of this study. Items for this section were taken from the research literature regarding charter school characteristics. Research Question 2: What knowledge do district superintendents in Texas have of charter schools in Texas? As with Section I of the survey, in Section II superintendents were presented with 10 factual statements to which participants responded with either "Yes" or "No" for each statement. The results of Section II are presented in Table 2.

Table 2

Percentage of Responses of District Superintendents to Survey Section II

Statement	Yes (%)	No (%)
2.1 Academic gains for elementary and middle school students who have remained in charter schools for several years are significantly higher than their matched counterparts in traditional public schools.	17.9	82.1
2.2 The vast majority of students attending charter schools never have passed state assessments while attending traditional public schools.	55.9	44.1
2.3 The student-teacher ratio is lower in charter schools as compared to traditional public schools.	55.9	44.1
2.4 Operating expenditures per pupil in charters are, on average, about \$1,000 lower than at geographically-matched traditional public districts.	74.9	25.1
2.5 Charter schools receive 6.1% to 7.3% less in state and local tax funding per pupil than do traditional public schools.	81.6	18.4

2.6	Students who have enrolled in charter schools are academically doing better, on average, than if they had remained in their traditional public schools.	42.5	57.5
2.7	The existence of charters in or near a district or campus leads to improvements of academic performance for students who remain in traditional public schools.	49.2	50.8
2.8	Charter schools have a larger percentage of Spec. Ed. students than traditional public schools.	13.4	86.6
2.9	Charter schools serve a larger percentage of minority students as compared to traditional public schools.	87.7	12.3
2.10	All high performing charter schools in Texas are not under the authority of traditional school districts.	77.7	22.3

Superintendents were questioned in Item 2.1 if academic gains for elementary and middle school students, who have remained in charter schools for several years, are significantly higher than their matched counterparts in traditional public schools. Responses to this item indicated that the highest number of superintendents, 147 (82.1%), chose “No” and 32 (17.9%) superintendents chose “Yes.” In other words, many superintendents were aware that charter schools have a mixed effect on student achievement over time (CER, 2010; Gronberg & Jansen, 2005; TCER, 2011; TEA, 2009).

One hundred (55.9%) superintendents stated that the vast majority of students attending charter schools have not passed state assessments while attending traditional public schools. For this item, over 55% of respondents correctly agreed that most students in charter schools did not pass state assessments in district schools. Superintendents were asked in Item 2.3 if the student-teacher ratio is higher in charter schools as compared to traditional public schools. To this item, 100 (55.9%) superintendents agreed. For this item, most respondents correctly agreed with the fact that the student-teacher ratio in charter schools is lower than traditional public schools (TEA, 2009).

In Item 2.4 most of the responding superintendents, 134 (74.9%), chose the Yes response when asked if operating expenditures per pupil in charters are, on average, about \$1,000 lower than at geographically-matched traditional public school districts. It is clear that most respondents correctly knew that charter schools spend less money per pupil than traditional public schools (CER, 2010; TEA, 2009). One hundred and forty six (81.6%) superintendents agreed that charter schools receive 6.1% to 7.3% less in state and local tax funding per pupil than do traditional public schools. For this statement, superintendents correctly agreed with the statement in Item 2.5 whereas only a small percentage of respondents disagreed.

Superintendents were asked in Item 2.6 if students who enrolled in charter schools are academically doing better, on average, than if they had remained in their traditional public schools. Seventy-six (42.5%) agreed with this item, while 103 (57.5%) chose “No” as their response. Superintendents were asked in Item 2.7 if the existence of charters in or near a district or campus leads to improvements of academic performance for students who remain in traditional public schools. Less than 50% (49.2%) of the responding superintendents agreed with the statement, whereas 91(50.8%) responded with “No.”

Most superintendents, 155 (86.6%) disagreed with the statement indicating that charter schools have a larger percentage of special education students as compared to traditional public schools. For this item, most respondents incorrectly rejected the fact that charter schools have more special education students as compared to traditional public schools (TEA, 2009). When superintendents were asked in Item 2.9 if charter schools serve a larger percentage of minority students as compared to traditional public schools, 157 (87.7%) agreed by responding Yes. Almost all superintendents were aware that charter schools serve more minority students than traditional public schools. Superintendents were asked to indicate in Item 2.10 whether or not all high performing charter schools in Texas are under the authority of traditional school districts. Most respondents, 139 (77.7%) agreed, indicating that they were aware that most high performing charter schools are not a part of traditional school districts.

Reasons to Reject or Open Charter Schools

To determine superintendents’ views regarding the opening or rejecting of charter schools, Section III of the survey was designed to address the third research question of this study. Research Question 3: What reasons do district superintendents in Texas have for the consideration of opening or rejecting charter schools in their districts?

Superintendents were asked eight questions in Section III of the survey to indicate their level of item agreement on a four-point Likert scale which contained the choices of “Strongly Agree (SA),” “Agree (A),” “Disagree (D),” and “Strongly Disagree (SD).” Percentages of responses for each question appear in Table 3. The questions in Section III were designed to gather data to determine superintendents’ reasons for opening or rejecting charter schools.

Table 3

Percentage of Responses of District Superintendent to Survey Section III

Statement: Charter schools should be implemented because	SA	A	D	SD
3.1 it is time for fundamental changes in education.	1.7	35.2	52.5	10.6
3.2 the business community is demanding change in education.	3.9	21.8	60.9	13.4

3.3 parents are demanding a change in education.	8.4	17.3	42.5	31.8
3.4 they are an educational idea that makes sense.	8.4	17.3	23.5	50.8
3.5 the current system is not working for all students.	2.8	22.3	58.1	16.8
3.6 they do not require much additional funding.	2.8	22.3	64.2	10.6
3.7 my district is not meeting the needs of all students.	5.6	19.6	59.8	15.1
3.8 innovative programs are not available in traditional public schools.	8.4	16.8	48.0	26.8

Superintendents were queried in Item 3.1 if charter schools should be implemented because it is time for fundamental changes in education. A majority of superintendents, 94 (52.5%) answered “Disagree” and 63 (35.2%) chose “Agree.” Only 3 (1.7%) superintendents chose “Strongly Agree.” Nineteen superintendents (10.6%) chose “Strongly Disagree.” By disagreeing with Item 3.1, over half of all respondents indicated an objection to the idea of charter schools being essential to change. In response to Item 3.2, in which superintendents were asked if charter schools should be implemented because the business community is demanding change in education, a majority, 109 (60.9%) answered “Disagree” and 39 (21.8%) of the superintendents responded with “Agree.” Twenty-four (13.4%) of the superintendents answered “Strongly Disagree” and only 7 (3.9%) of superintendents chose “Strongly Agree.”

When asked if charter schools should be implemented because parents are demanding a change in education, 76 (42.5%) of the superintendents answered “Disagree” and 57 (31.8%) chose “Strongly Disagree.” Thirty-one (17.3%) of the respondents selected “Agree” and 15 (8.4%) answered “Strongly Agree.” Most respondents did not see charter schools as an answer to the demand from parents for better education. Superintendents were asked in Item 3.4 if charter schools should be implemented because they are an educational idea that makes sense. A majority, 91 (50.8%) of the superintendents, responded “Strongly Disagree” and 42 (23.5%) chose “Disagree.” Thirty-one (17.3%) of the respondents selected “Agree” and only 15 (8.4%) answered “Strongly Agree.” It is evident by the responses to this item that most respondents did not agree that charter schools are an educational option that makes sense.

Most superintendents, 104 (58.1%), chose “Disagree” in response to Item 3.5, which asked superintendents if charter schools should be implemented because the current system is not working for all students. Forty (22.3%) of the respondents answered “Agree” and 30 (16.8%) chose “Strongly Disagree.” Only 5 (2.8%) of the superintendents selected “Strongly Agree” for an answer. Most respondents disagreed with the idea of implementing charter schools because of problems with the current system. When questioned if charter schools should be implemented

because they do not require much additional funding, 115 (64.2%) of superintendents responded “Disagree” and 40 (22.3%) chose “Agree.” Nineteen (10.6%) of the respondents selected “Strongly Disagree” and only 5 (2.8%) chose “Strongly Agree.” As with other items in this section, most superintendents continued to disagree with the implementation of charter schools; however, the reason for disagreement this time was funding.

In response to Item 3.7, in which superintendents were asked if charter schools should be implemented because their district is not meeting the needs of all students, 107 (59.8%) of the respondents chose “Disagree” and 35 (19.6%) selected “Agree.” Twenty-seven (15.1%) of the respondents chose “Strongly Disagree” and only 10 (5.6%) selected “Strongly Agree.” Over 75% of respondents once again disagreed with the implementation of charter schools. For Item 3.7, the variable was meeting the needs of all students. Superintendents were queried in Item 3.8 if charter schools should be implemented because innovative programs are not available in traditional schools. “Disagree” was selected by 86 (48%) of superintendents and 48 (26.8%) chose “Strongly Disagree.” Thirty (16.8%) of the respondents selected “Agree” and only 15 (8.4%) chose “Strongly Agree.” For this last item in Section III, over 75% of respondents did not believe that the implementation of charter schools is the answer.

Personal Views of Charter Schools

To determine superintendents’ views in regard to all charter schools in Texas, Section IV of the survey was designed to answer the fourth research question of this study. Research Question 4: What personal views do district superintendents hold regarding charter schools in Texas? In Section IV of the survey, superintendents were asked eight questions to indicate their level of item agreement on a four-point Likert scale. Percentages of responses by each question are presented in Table 4. The intent of the questions in this section was to determine the extent of superintendents’ views of charter schools, such as their level of openness to the implementation of charter schools in their districts.

Table 4

Percentage of Responses of District Superintendent to Survey Section IV

Statement	SA	A	D	SD
4.1 I feel that charter schools are a part of the future of public education in Texas.	2.2	22.3	57.0	18.4
4.2 I am not skeptical about charter schools’ ability to provide better educational outcomes for students.	2.2	21.8	54.2	21.8
4.3 I want to be involved in charter schools.	1.7	22.3	64.2	11.7

4.4 I believe that charter schools in Texas promote equal education for all students.	5.0	19.0	56.4	19.6
4.5 I am pleased to have the opportunity to try new academic strategies, such as those provided by high performing charter schools.	9.5	43.0	24.0	23.5
4.6 I am waiting to see how charter schools are performing before reacting.	6.7	17.3	55.3	20.7
4.7 I feel that charter schools serve the educational needs of all students.	8.4	15.6	57.0	19.0
4.8 I am aware of the impact of charter schools in Texas.	5.6	18.4	56.4	19.6

Superintendents were asked in Item 4.1 to rate the extent of their agreement with how they feel regarding the future of charter schools as related to public education in Texas. A majority, 102 (57%) of respondents answered “Disagree” and 40 (22.3%) chose “Agree.” Thirty-three (18.4%) superintendents chose “Strongly Disagree” and only 4 (2.2%) selected “Strongly Agree.” The intent of this question was to measure each respondent’s level of agreement regarding the future of charter schools. Over 75% of superintendents disagreed with the statement in Item 4.1, showing no interest in the implementation of charter schools.

When asked to rate the extent of their agreement as to their lack of skepticism about charter schools’ ability to provide better educational outcomes for students, 97 (54.2%) of superintendents responded “Disagree.” Thirty-nine (21.8%) of the respondents chose “Strongly Disagree” and 39 also chose “Agree.” Only 4 (2.2%) superintendents chose “Strongly Agree.” The intent of this question was to determine if superintendents are skeptical regarding the effectiveness of charter schools. Over 70% of all respondents demonstrated skepticism, with approximately 60% selecting “Disagree.” Superintendents were questioned in Item 4.3 to rate the extent of their agreement with wanting to be involved in charter schools. A majority, 115 (64.2%) chose “Disagree” and 40 (22.3%) selected “Agree.” Twenty-one (11.7%) respondents answered “Strongly Disagree” and only 3 (1.7%) chose “Strongly Agree.” The majority (75.9%) of respondents indicated that they did not want to be involved with charter schools.

More than half of superintendents, 101 (56.4%) responded “Disagree” when asked if they believed that charter schools in Texas promote equal education for all students. Thirty-five (19.6%) respondents answered “Strongly Disagree” and 34 (19.0%) chose “Agree.” Only 9 (5.0%) selected “Strongly Agree.” Most respondents did not believe that charter schools promote equality. Superintendents were asked in Item 4.5 to rate their extent of agreement with whether they were pleased to have the opportunity to try new academic strategies, such as those strategies provided by high performing charter schools. To this item, 77 (43.0%) respondents chose “Agree” and 43 (24.0%) selected “Disagree.” Forty-two (23.5%) answered “Strongly Disagree” and 17 (9.5%) chose “Strongly Agree.” Over 52% of respondents agreed with the

statement but a surprisingly high percentage, almost half, of the respondents did not agree with the statement.

For Item 4.6, more than half of all respondents, 99 (55.3%) responded “Disagree” when asked to rate the extent of their agreement with the statement “I am waiting to see how charter schools are performing before reacting.” Thirty-seven (20.7%) of the superintendents chose “Strongly Disagree” and 31 (17.3%) selected “Agree.” Only 12 (6.7%) superintendents answered “Strongly Agree.” Most respondents did not agree to wait to see charter schools’ performances before they chose to react. Most superintendents, 102 (57.0%), answered “Disagree” to the statement indicating that charter schools serve the educational needs of all students. Thirty-four (19.0%) respondents chose “Strongly Disagree” and 28 (15.6%) selected “Agree.” Only 15 (8.4%) superintendents chose “Strongly Agree.” The majority (76%) of respondents did not believe that charter schools serve the educational needs of all students.

For Item 4.8, superintendents were asked to rate their extent of awareness of the impact (i.e., student enrollment, funding, academic performance) of charter schools in Texas. More than half, 101 (56.4%), respondents chose “Disagree” and 35 (19.6%) selected “Strongly Disagree.” Thirty-three (18.4%) answered “Agree” and only 10 (5.6%) superintendents chose “Strongly Agree.” Most respondents (76.4%) admitted that they did not consider themselves aware of the impact of charter schools.

Discussion

Based on the growth of charter schools since their inception in Texas, this research study was intended to clarify the views of Texas superintendents in regard to charter schools. Apart from the study conducted in 2000 by the School of Urban and Public Affairs (CER, 2010), no studies have been conducted in Texas in which public school superintendents’ perceptions regarding charter schools were investigated, even though students continue to withdraw from traditional district schools to enroll in charter schools (TEA, 2009). Readers should note that a recent study was conducted by the Texas Center for Educational Research (2011) on charter schools. In this study, no data were obtained related to superintendent perceptions of charter schools. It must be noted that perceptions are a factor that influence superintendents’ decisions to recommend or reject charter schools (Occhino, 2001; Ogden, 1995; Sperling, 1999; Sutton, 2002). However, limited data are available in which public school superintendents’ perceptions regarding charter schools in Texas were analyzed.

The first research question was focused on how much superintendents know about the laws that affect charter schools. More than 50% of responding superintendents incorrectly answered seven of the 10 factual statements given in Section I of the survey instrument. These responses indicated that most superintendents were not knowledgeable of basic state and federal laws that affect charter schools. The findings of this study were similar to the results reported by Sutton (2002) in which only 47% of the 103 surveyed superintendents in Virginia demonstrated understanding of charter schools in regard to state and federal laws. Results delineated in this study are also similar to Sperling’s (1999) findings, where only 53% of the superintendents surveyed demonstrated knowledge of state and federal laws in regard to charter schools in

Michigan. To make intelligent decisions regarding the support or rejection of charter schools, superintendents should be well informed of state and federal laws that affect such schools. Lack of knowledge regarding state and federal laws will affect perceptions of charter schools negatively (Occhino, 2001; Ogden, 1995; Sperling, 1999; Sutton, 2002). However, superintendents who are knowledgeable about state and federal laws tend to have positive perceptions of charter schools (Occhino, 2001; Sperling, 1999; Sutton, 2002), as confirmed by this study.

The second research question was focused on how much district superintendents knew about charter schools in Texas (i.e., student population, academic performance, special education, operating expenditures, funding, student-teacher ratio). More than 50% of responding superintendents indicated that they did not know that most charter school students perform better academically, on average, than they would in a traditional school. The fact is supported by researchers across the country in the field of charter school research (Gronberg & Jansen, 2005; National Charter School Research, 2008). In a very recent study (TCER, 2011), however, evidence was yielded that conflicted with the Gronberg and Jansen (2005) and the National Charter School Research (2008) studies as noted previously in the TCER (2011). This finding coincides with the item in the previous paragraph, indicating that most superintendents did not believe that charter schools are better academically for students when compared to traditional public schools. The findings of this study also support Ogden's conclusion that "district superintendents were skeptical about the ability of charter schools to provide better educational outcomes for students" (p. 107).

More than 80% of respondents also incorrectly indicated that charter schools do not serve a large percentage of special education students compared to traditional public schools. However, enrollment figures indicate that the percentage of special education students (12.5%) served by charter schools is higher than the percentage of these students in traditional district schools (11.9%) (TEA, 2009). As demonstrated in this study, most superintendents were not knowledgeable regarding the composition of special education students in charter schools in comparison to traditional public schools. Special education data are important because they affect accountability and funding in important ways. For instance, large special education numbers can result in additional funding for a school or district. However, state and federal academic accountability requirements for special education students can place additional pressure on a school or district in regard to performance ratings, and also with compliance issues. Consequently, the argument asserted by many superintendents that charter schools do not have the special education numbers that would inversely affect scores is clearly unfounded.

In the third research question, superintendents' perceptions in regard to their reasons for considering the opening or rejecting of charter schools in their districts were explored. More than 60.9% of respondents disagreed with the statements that supported the opening of charter schools in their districts. Disagreement was documented in the areas of: (a) fundamental changes in education are needed (63.1%); (b) business community is demanding change in education (74.3%); (c) the current system is not working for all students (74.9%); (d) charter schools do not require much additional funding (74.8%); and (e) districts are not meeting the needs of all students (74.9%). Stronger disagreement for all statements was demonstrated by more than 10%

of all respondents. Furthermore, in the statement that indicated that charter schools are an educational idea that makes sense, more than 50% of respondents strongly disagreed. Another area of strong disagreement was with the statement indicating that charter schools should be implemented because innovative programs are not available in traditional public schools. For this item, over 25% of all respondents strongly disagreed. Findings for this component of the survey are similar to the results reported by Occhino (2001), Ogden (1995), Sperling (1999), and Sutton (2002). However, the difference with the findings in this study is that the rate of disagreement for the implementation of charter schools was less than the 70% or higher rejection rate that Sutton (2002), Occhino (2001), and Sperling (1999) documented in their studies. For instance, Sutton (2002) stated that 79% of the superintendents surveyed in Virginia did not believe that charter schools were a positive solution for improving education in their state. Sperling (1999) concluded that over 72% of the superintendents surveyed in Michigan rejected charter schools. Occhino (2001) revealed that in New Jersey, 84% of superintendents did not believe that charter schools were worth the effort to make them a part of school reform in their districts. And Ogden (1995), with his seminal study in Michigan, noted that more than 66% of all respondents rejected the idea of charter schools.

In the fourth research question, levels of agreement and disagreement in regard to eight statements of how superintendents view charter schools in Texas were explored. More than 70% of respondents noted disagreement in the areas of (a) feeling positive that charter schools are a part of the future of public education (75.4%), (b) not being skeptical about charter schools' ability to provide better educational outcomes for students (76.0%), (c) wanting to be involved in charter schools (75.9%), (d) believing that charter schools in Texas promote equal education for all students (76.1%), (e) waiting to see how charter schools perform before reacting (75.8%), (f) feeling that charter schools serve the needs of all students (76.0%), and (g) being aware of the impact of charter schools in Texas (76.2%). The findings for this section of the study were similar to the results reported by Occhino (2001), Sperling (1999), and Sutton (2002), where over 80% of all superintendents noted a rejection for charter schools because of personal reasons. One area in this study where superintendents demonstrated support for charter schools was in their agreement (52%) that they want to try new academic strategies, such as those results provided by high performing charter schools.

It is a concern that an overwhelmingly large number of respondents did not personally respond well to the notion of charter schools. A contributing factor to this notion might be due to their lack of knowledge regarding charter schools and the important role that they play in public schooling. Clearly, charter schools provide a threat to the landscape of traditional public schools; however, many superintendents are not yet aware of the safeguards in place that protect the traditional public school.

Implications

According to Bloom (1999), the school leader, such as the principal and the superintendent, must operate as "education professor, teacher supervisor, budget manger, counselor, local politician, social worker, disciplinarian, visionary, assistant custodian, and bureaucrat" (p. 15). In other words, this individual must have the ability to wear multiple hats. Furthermore, the school leader

must also be well informed and be equipped with accurate data to make good decisions (Bloom, 1999; Waters & Marzano, 2007). As aptly stated by Spanneut, Tobin, and Ayers (2011),

Superintendents must understand what they need to do as leaders and how to adjust the manner in which they perform as leaders to promote the likelihood for bringing about improved school system-wide educational outcomes in all areas. If they are to survive and be successful leaders, superintendents must first be able to recognize the extent of their leadership knowledge and the limitations of their leadership abilities and skills. Then, they must know how to identify their specific areas of need and how to purposefully address them through opportunities for leadership growth and development. (para. 3)

School leaders, such as superintendents, must then take a close look at how their perceptions are formed. If superintendents' perceptions are not based on accurate data, the potential exists that those perceptions will be negative. Superintendents should examine how their perceptions are formed and on what information those perceptions are based. The purpose of this examination must be to determine possible adjustments to those perceptions based on new information learned. Another effort must be made by superintendents to become more knowledgeable of all issues affecting schools today, such as charter schools. This effort should include being well informed regarding how state and federal laws affect charter schools.

Several major implications for superintendents can be noted. Findings indicate that high percentages of superintendents are not knowledgeable of state and federal laws affecting charter schools. Not knowing what laws apply to charter schools can potentially influence school leaders and others with assumptions and perceptions that are negative. According to Senge (1995), if perceptions of a component of system are negative, then most likely the support will be very limited.

Most superintendents who participated in this study held negative views regarding charter schools, along with a lack of knowledge regarding laws that apply to these schools. Superintendents must examine their stance and the reasons for their beliefs about charter schools. Because most participants in this research study demonstrated a lack of knowledge regarding charter schools as revealed in responses to Sections I and II of the survey instrument, superintendents must examine specific areas where they demonstrate knowledge and lack of knowledge regarding charter schools. Furthermore, responses to Sections III and IV of the survey instrument must be analyzed by superintendents to determine specific areas of agreement and disagreement regarding perceptions of charter schools. Because most of the participants' responses to Sections III and IV of the survey instrument were negative, then superintendents must examine their own perceptions and reflect about their origins.

Charter schools are important because when properly operated, these schools can contribute to the improvement of the entire educational system. Furthermore, the Obama administration has shown incredible support for charter schools by setting aside millions of dollars for these schools to expand (USDE, 2010). The goal of these appropriated funds is for the successes of high-performing charter schools to be duplicated (USDE, 2010). Thus, the acquisition of knowledge

regarding charter schools can assist superintendents in considering the benefits provided by these schools. If superintendents are knowledgeable regarding charter schools, then they will be better equipped to either support or reject charter schools with valid reasons. According to Senge (1995), when individuals and organizations engage in new learning, then the organization can grow and not just survive. This adaptive learning (Senge, 1995) can then propel an organization, such a school district, to generate the capacity to succeed in the midst of challenges and difficulties.

Superintendents must also be cautious to prepare themselves and their districts for the demands of students and parents for better schools. Spanneut et al. (2011) emphasized that

Superintendents are in the key position to make systemic instructional improvement a major priority, to allocate resources to promote its progress and importance, and to direct and support what principals need to do to keep instructional leadership at the top of their agendas. To better and more ably fulfill such significant responsibilities, superintendents must purposefully choose to remain up-to-date with current conditions and to recognize the opportunities and challenges that lie ahead. Superintendents can enhance their potential for successfully doing so by investing in personal, on-going professional development based on their self-identified levels of needs that are framed within recognized leadership standards. (para. 56)

According to Senge (1995), learning to see forces that gradually impact a system requires slowing down by educational leaders so that they may reflect and take appropriate action. This situation is another reason why superintendents must not only acquire new knowledge, but also take the time to reflect so that they make sound decisions. For instance, if a superintendent chooses to ignore the fact that charter schools are slowly changing the educational system, then he or she might take action only when facing an immediate threat. Responses to sudden changes, but not to slow, gradual changes can be detrimental to any organization (Senge, 1995).

Conclusions

Almost 30 years have passed since the 1983 report, *A Nation At Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education, 1983), and today the U.S. continues to be out-performed academically by many countries (National Center for Education Statistics [NCES], 2009). Furthermore, with traditional district schools graduating no more than half of minority students at a national level (NCES, 2009), it is of no surprise that student enrollment and waiting lists for charter schools continue to increase (CER, 2010). At the same time, it is a concern that high percentages of superintendents are present who are neither knowledgeable of charter schools nor support these schools as a possible alternative to improve the educational system. As a result, practicing superintendents are making decisions to oppose charter schools with flawed perceptions that must be exposed and scrutinized. For school superintendents, the challenge is then to see charter schools with a fresh perspective, in an effort to create a better future for their districts and the entire educational system, taking into account current educational trends such as student enrollment and graduation rates.

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