Editor's Note

Xiaoping Li, Ed.D.
Central Michigan University

Welcome to our Summer 2013 Issue of *The Charter Schools Resource Journal*. It is an honor and a pleasure for me to present two articles, and a new editor of the journal to our readers.

In the first article titled *Charter School Boards: Independence or Isolation*, Drs. Cianca, Hertrick, and Robinson described the concept of charter schools, the functions of charter boards, and problems encountered by charter boards. While it is understood that charter schools are formed as a more independent choice in public education, the authors presented the argument that operating in isolation was not the original intent of the charter movement. The authors recommended that states should do more to encourage research, and to provide opportunities for board training and support while local experts and professionals should provide valuable assistance to boards in their role of governance and oversight.

In the second article titled *Impact of the Michigan Merit Curriculum in Mathematics: Are Teachers Ready to Instruct At-Risk and Special Needs Students?* Drs. Holmes and Finn, and their student researchers, Marcy and Nydia at Hope College investigated perceptions of 298 math educators on the Michigan Merit Math Curriculum and of their perceived qualifications to teach these new math requirements to at-risk and special education populations. Findings show that these teachers believed that (a) the dropout rate would remain stable, (b) classroom instruction would change, (c) new stressors in terms of money, time, and focus would emerge, and (d) classroom teachers would feel under-qualified to effectively teach the new curriculum to students in special education.

Finally yet importantly, I would like to introduce our incoming editor for *The Charter Schools Resource Journal*, Dr. David Whale, Associate Professor in the Department of Educational Leadership. Dr. Whale began his career as a high school teacher and after ten years became a K-12 administrator, also for ten years. David received his doctorate in Educational Administration from Roosevelt University in Chicago. He joined Central Michigan University as a faculty member in 1997. Let us welcome Dr. Whale to the editorship for *The Charter Schools Resource Journal*.

In closing, I would like to express my sincere appreciation to the Board for their work, expertise, and dedication in the past ten years. It has been a great pleasure to work with you and serve as Associate Editor for the first 6 years and as Editor for the past four years. I know TCSRJ will continue to be in great hands as we move forward.

With Warmest Regards,

Xiaoping Li

Charter School Boards: Independence or Isolation?

Marie Cianca, Charles Hertrick, and Michael Robinson
St. John Fisher College, Rochester, New York

Abstract

Strong, stable charter school boards are critical to charter school success. The education of over two million students is entrusted to charter school boards and education reformers have an obligation to assure that these boards are properly supported, trained and informed. The purpose of this article is to underscore the importance of strong, competent charter school boards and to highlight the need for board support and training. The article describes the concept of charter schools, the functions of charter boards, problems encountered by charter boards, and recommendations for improving effectiveness.

Keywords: charter school boards, governance, oversight

Strong, stable charter school boards are critical to charter school success. In early December 2011, the National Alliance for Public Charter Schools (NAPCS) announced there were approximately 5,600 public charter schools in the United States with an enrollment of over two million students. NAPCS also reported that, in the 2011-2012 school year, approximately 500 new public charter school opened to serve over 200,000 students. In the same year, California, Florida, Texas and Ohio led the states in number of new students in charter schools. On the other side of the equation, approximately 150 (or 2.7%) of all charter schools were closed in 2011-2012.

Generally speaking, in states with strong charter legislation and student performance oversight, charter schools succeed in improving student performance. In states with loose oversight, charter school success is much less predictable. However, the current focus of federal dollars for charter schools is on opening new charter schools, not strengthening current charters (Thomas & Wingert, 2010).

Considering that the education of over two million students is entrusted to charter school boards, there is an obligation to assure that charter boards are properly supported, trained and informed. Three years prior to the 2011 NAPCS press release, Catherine Gewertz (2008) wrote, "We're 17 years into the charter school movement and we still don't have a good descriptive analysis of those boards…without that, it is hard to get real specific prescriptions for improving effectiveness" (p. S11). In her 2005 article, Renzulli states that charter schools are not only the fastest growing educational innovation occurring today, but they are also the only choice option that can be created by groups of ordinary people.

Formation by "ordinary people" is not the typical process for the development of public schools. Most new schools are developed within school districts by credentialed and experienced educators. New schools go through a lengthy development process with stakeholder input. However, little is known on the formation of charter schools, the development of missions, operations and governance. One of the reasons for a lack of information is that autonomy is one of the key values behind the formation of charters (Renzulli, 2005). Without support, autonomy can lead to isolation. Farland (2011) further

illustrates this point by stating that charter schools create their own governance. Yet, despite the independent nature of charter boards, they are responsible for following state and federal laws, enforcing policy, demonstrating effective financial management, ensuring parent access, and avoiding conflicts of interest.

Purpose and Background

The purpose of this article is to underscore the importance of strong, competent charter school boards and to highlight the need for board support and training in governance and oversight. As the number of charter schools increases, so does the range of accountability requirements for charter boards. It is critical that charter boards are prepared and organized to guide schools in an increasingly complex and exacting environment (Sparks, 2009). The article that follows describes the concept of charter schools, the functions of charter boards, the problems encountered by charter boards, and recommendations for improving effectiveness.

The concept of charter schools began in Minnesota in 1991 to promote innovation and improvement in public schools. Charter schools were intended to embrace different philosophies and espouse goals different from traditional public schools. Today, charter schools are often free from detailed regulations and requirements that govern other public schools. As a trade-off for this freedom, charter schools can also be shut down for poor academic performance, low enrollment or mismanagement (Vanderhoff, 2008). Planning, professional development, community relations, and financial management are all pieces of the charter school patchwork that occur in isolation. This makes managing a charter's mission much more difficult (Frumkin, Manno, & Edgington, 2011). Furthermore, little research can be found on the development of charter schools within a strategic framework. Sparks (2009) states that improvements in the quality of charter boards will continue to be cobbled together and based on anecdotal experiences until more research is conducted.

The lack of a strategic approach to charter school development can present that their boards do not provide feedback or involve themselves in strategic planning activities (Campbell, 2010). The report also states that 71% of charter school leaders plan to leave in five years. This turnover rate makes charter school boards very vulnerable. Yet, charter board members report they spend little time thinking about succession planning. In a survey of charter school board members in western New York State, 11% of respondents expected to serve only for 1-2 years, and 28% expected to serve for 2-4 years (Hertrick, Cianca, & Robinson, 2011). Thus, more than one third of survey participants planned to leave the governance role within 4 years.

If the New York survey (Hertrick et al., 2011) is indicative of charter board members in other parts of the country, the turnover in governance and leadership in the near future could be a notable concern. Such gaps are an operational challenge because the responsibilities of charter boards and school leaders include enrollment, recruitment, school services, instructional progress, student and staff performance, and facility and policy issues (Robelen, 2008a). The potential governance and leadership gaps could put school continuity at risk for current and future students and families.

Features and Functions of Charter School Boards

A charter is an agreement that grants public funds to an independent group for the operation of a school. The chartering authority, in funding a different kind of education, allows exemptions from some of the regulations and restrictions of traditional public education. In return for the financing, a charter school agrees to certain education goals and benchmarks. Unlike independent schools, charters cannot charge tuition, as state funding is at the heart of the charter (O'Brien & Dervarics, 2010). And unlike independent schools, charters must admit students in a transparent lottery system, thus providing equal enrollment opportunities for all segments of the community.

Charter schools can be conceptualized as hybrid entities, constituted to capture the attractive qualities of private education while enjoying financial support from public sources. Under New York State law, charter schools are defined as "independent and autonomous public schools" and are legally organized as not-for-profit educational corporations (The Center for Education Reform, n.d.). Moreover, while subject to all laws and regulations regarding safety, health, civil rights and other fundamentals, they "otherwise have a blanket waiver from all state and local rules, regulations, and laws applicable to public or private schools…" (The Center for Education Reform, n.d.). Like independent schools, their own self-selecting boards of trustees govern charter schools (The Center for Education Reform, n.d.).

Charter boards are close in size to local school boards and are typically smaller than nonprofit boards. The size of the board is somewhat connected to the unique characteristics of the school, school needs, and board member backgrounds. Board members usually do not have high-level business experience or the prestige that nonprofit board members may have. Also, because they serve a smaller community of students, charter board members are less likely to be under scrutiny and are often less political than local school boards (Sparks, 2009). The background and experience of board members surveyed in Western NY was noteworthy. While 19% of respondents had a background in P-12 education, 25% had a background in higher education, and 24% in for-profit business. Other board members in the survey represented health and human services, the military, and other professional categories (Hertrick et al., 2011).

While charter boards may be subject to fewer regulations, and may be very concerned about parent wishes and the needs of the larger community, their first priority is to satisfy the criteria required by state chartering authorities. In order to continue as a chartered entity, charter boards must meet specific student achievement outcomes, particularly in states with strong charter laws. Charter boards are under direct pressure to meet student achievement targets, often with limited timelines (Sparks, 2009).

Problems Encountered by Charter Boards

Although charters were conceived with the intention to reform and decentralize public education, the advantages are countered with some problem areas. One problem with charter boards is that there is very little information on the tens of thousands of board members currently running charter schools in the United States (Gewertz, 2008). Board members are often selected because of an association with a school's founder, or for their involvement in the charter school movement. In addition, the features and functions of charter school boards vary, depending on uniqueness of school mission and the background and experience of

board members. In a survey of regional charter schools referred to earlier, "Charter Schools: Governance by Paradox" (Hertrick et al., 2011), thirty charter schools in the Rochester, Buffalo, and Syracuse areas shared information. In selecting how to characterize themselves, respondents promoted their longer school day (20%), longer school year (20%) and afterschool programs (10%). Additionally, several of the charters described their special and distinctive partnerships with community organizations, including a college, a health and hospital system, a museum, and a neighborhood advocacy group (Hertrick et al., 2011). Without additional research and information, knowledge on the make-up and characteristics of charter boards in the United States will continue to be limited.

A second problem encountered by charter boards is that members can have difficulty making the transition from generating initial support for the school's mission to implementing actions that forward the mission. At times, charter board members give up too much authority to the school leader because of their initial loyalty and inexperience in areas of comprehensive governance (Gewertz, 2008). Consider, for example, the precarious nature of the position of charter school principal. A survey by Campbell and Gross (2008) found the vast majority of charter school leaders had previous experience in education. However, almost 30% had only one or two years of leadership experience, mostly as a new principal. The lack of experience can be very destabilizing since, in the charter world, the principal interacts with the public, the board, the students and staff in much more comprehensive ways than the typical principal. Where a public school principal manages his or her school within a larger system of supports, a charter school principal manages instructional and operational issues without an overarching district infrastructure. Robelen (2008b) warns that charter boards should avoid a "superman" structure where one school leader handles all the leadership demands.

A third problem that affects charter school boards is the lack of information on needs for training and support across various states. Again, limited research has been conducted in this area. While most boards participate in some training, there is variance in the frequency, content and method of training (Sparks, 2009). When charter boards in Western New York were asked about training needs, the highest priority was the topic of understanding academic accountability and student results. Other training priorities identified were meeting charter school renewal requirements, addressing legal issues, developing and monitoring the budget, and awareness of ethics and confidentiality in leadership. Board members were also very interested in succession planning for trustees and for school leadership, and ninety percent of respondents ranked this area a high or moderate need (Hertrick et al, 2011).

Although not a group that was well represented in the Hertrick, et al. survey (2011), there is also a need to support charter school boards run by for-profit management companies. At times, based on their actions, for-profit management companies appear to value their semi-independence with more muscle than entitled. As an example of misinformed governance, a few years ago in Ohio, the legislature enacted a law to allow management companies to fire charter school boards and replace members with friendlier individuals (Richmond, 2010). At the time, one management company official mistakenly claimed "It is our school, our money and our risk" (Richmond, 2010, p. 40.) Of course, this is not the case. Charters operate with public money and are a public entity. They are not owned by management companies. With more support or established channels for accurate guidance, for-profit charter boards would have better sources of information and governance.

Recommendations

Given the fledgling nature of charter schools and charter school boards, it is critical that more attention be paid to training and support for charter school board members. An editorial from Bloomberg (2012) states that rising enrollments in charter schools signal the need for more oversight. Bloomberg editors point out the high level of autonomy, general inconsistency in requirements, lack of transparency and limited evidence on their overall success when compared to traditional public schools.

Recent surveys and anecdotal information reveal that board members are eager for information. Yet, providing more information to charter boards is not an easy task. Due to the voluntary nature of charter boards, and limited options available to provide training, practical solutions are needed at the local and state levels.

Recommendation 1: Collaboration between Institutions of Higher Education and Charters

The first recommendation is for states to provide incentives and structures for institutions of higher education and charter schools to collaborate on providing expertise to board members and school leaders. When asked about training needs, the highest priority for charter school board members in western New York was the topic of understanding academic accountability and student results. Furthermore, 88% ranked principles of governance, oversight and fiduciary responsibilities as high or moderate needs (Hertrick et al., 2011). Charter school boards across the country deserve to have opportunities for training that support stronger and more stable boards.

Institutions of higher education, with some monetary support, could develop resources to support newly developed and established charter schools in areas of instructional accountability and governance. States like Ohio and Connecticut have explored ways to ensure that authorizing agencies provide support to new schools. Ohio has improved the quality of its charter school authorizers by allowing universities to sponsor and support charter schools (Dillon, 2010.)

Authorizing agencies could work directly with colleges and universities to enlist help from schools of education and schools of business. Institutions of higher education have a wide range of faculty members with expertise in the areas that board members most identify as needs. In the Hertrick et al. (2011) survey, board members revealed that the school leader often serves as an important resource in matters related to school policy, instructional programming and governance. Assigning this function to the school leader can be problematic in that school leaders are often no more experienced in governance than board members. Structured training activities involving experienced leaders from education and the university level can address this deficit.

Recommendation 2: Required Training

The second recommendation is for authorizing agencies to require training for charter boards to contribute to quality governance and oversight. Authorizing agencies might arrange to certify qualified individuals or entities to offer training in areas that are needed by charter schools of a given region. For example, Brent and Finnegan (2009) stated that one of the

primary reasons for charter school sanctions is financial mismanagement. If states established training requirements or offered training on a more systematic basis, board member needs in finance could be addressed. Requirements could include a specified number of training hours for charter board members on critical topics such as budgeting and fiduciary responsibilities. Consistent with Recommendation 1 of this article, institutions of higher education can provide the certification.

Recommendation 3: More Research on Charter Boards

States need to encourage more research in the areas of charter board governance and oversight. Although the concept of charter schools began to take shape in the 1990s (Vanderhoff, 2008), research on the needs and interests of charter school board members is limited. Unlike traditional school boards, charter board members are not elected officials and they often have a much lower profile than nonprofit board members or other public school board members. More needs to be known about the individuals that are responsible for over two million students, and practices that lead to successful governance in an alternative educational model.

Summary

At a time when charter schools continue to multiply in many areas across the United States, it is time to pay more attention to their governance and level of success. There is currently very little information on charter school boards. Moreover, the boards that govern charter schools are very different from typical school boards and do not have the networking or infrastructure available to address their needs for training and support. Many charter school board members are ordinary people whose intentions are to serve their communities.

Board members also have difficulty transitioning from founding a school to running and managing a school. This creates problems when inexperienced board members rely on inexperienced school leaders who already have a myriad of responsibilities. Finally, there is a lack of information on common charter board needs for training and support across states.

The parents of children in charter schools, who often represent underserved populations, deserve to have strong boards whose members are qualified and experienced in their governance roles (Cavanaugh, 2012). While it is understood that charter schools are formed as a more independent choice in public education, the idea of operating in isolation was not the original intent of the charter movement. Local experts and professionals can provide valuable assistance to boards in their role of governance and oversight.

References

Brent, B. O., & Finnigan, K. S. (2009). Financial management of New York's charter schools: A normative, descriptive, and prescriptive analysis. *Journal of School Choice*, *3*(4), 368-396. doi:10.1080/15582150903425772.

Bloomberg (2012). U.S. needs more charter schools---with better rules.

Campbell, C., & Gross, B. (2008). *Working without a safety net: How charter school leaders can best survive on the high wire.* Seattle, Washington: National Charter School Research Project.

Campbell, C. (2010). *You're leaving? Succession and sustainability in charter schools*. National Charter School Research Project.

Cavanaugh, S. (2012). Debate revs up around closing low-achieving charter schools. *Education Week, 32*(1), 1, 22, 23.

The Center for Education Reform. (n.d.). Just the FAQS – charter schools.

Dillon, E. (2010). Designing smart charter school caps. *Journal of School Choice*, *4*(1), 74-92. doi:10.1080/1558215100362643.

Farland, S. M. (2011). Charter school oversight: The new frontier. *Leadership, 41*(2), 30-32.

Frumkin, P., Manno, B. V., & Edgington, N. (2011). For charter schools, managing mission is crucial. *Education Week*, *31*(4), 26-28.

Gewertz, C. (2008, Sept. 10). Many charter boards seen as unprepared. *Education Week*, *28*(3), S11-S13.

Hertrick, C., Cianca, M., & Robinson, M. (2011) Charter schools: Governance by paradox. Center for Community Engagement at St. John Fisher College.

National Alliance for Public Charter Schools. (2011). Number of public charter school students in U.S. surpasses two million [Press release].

O'Brien, E. M., & Devarics, C. (2010, March). Charter schools: Finding out the facts: At a glance. The Center for Public Education.

Renzulli, L. (2005). Organizational environments and the emergence of charter schools in the United States. *Sociology of Education, 78*(1), 1-26. doi: 10.1177/003804070507800101

Richmond, G. (2010, July 14). Who's in charge at charter schools? *Education Week, 29*(36).

Robelen, E. W. (2008a). The perfect person. *Education Week, 28*(3) S3-S9.

Robelen, E. W. (2008b). Differing organizational models help charters divide up the load. *Education Week, 28*(3) S5.

Sparks, A. D. (2009). Evolving charter school governance in a complex accountability environment. (Doctoral Dissertation).

Thomas, E., & Wingert, P. (2010, June 21).Understanding charter schools. *Newsweek*, 00289604, 155, Issue 25.

VanderHoff, J. (2008). Parental valuation of charter schools and student performance. *CATO Journal*, *28*(3), 479-493.

About the Authors:

Marie Cianca, Ed.D., is an Associate Professor in the Executive Leadership Program in the Ralph C. Wilson, Jr. School of Education at St. John Fisher College in Rochester, NY. Prior to her position at St. John Fisher, she served as assistant superintendent, principal and teacher in the Rochester City School District. She also worked as an associate in the New York State Education Department. Dr. Cianca is a charter school board member and can be reached at mcianca@sjfc.edu.

Charles Hertrick is a graduate of Lafayette College and holds advanced degrees from Carnegie Mellon University and the Harvard Graduate School of Education. He served for 23 years as Headmaster of Allendale Columbia School. Mr. Hertrick is an adjunct professor in the Humanities at SUNY Geneseo and is a Community Fellow at the Center for Community Engagement at St. John Fisher College, and consults to non-profits on governance, fundraising, and strategic planning. Mr. Hertrick can be reached at chertrick@gmail.com.

C. Michael Robinson, Ed.D., is a Visiting Assistant Professor in the Executive Leadership Program in the Ralph C.Wilson, Jr. School of Education at St. John Fisher College in Rochester, NY. Prior to his position at St. John Fisher, he served as assistant superintendent, principal and teacher in the Rochester City School District. Dr. Robinson is also a charter school board member and can be reached at crobinson@sjfc.edu.

Impact of the Michigan Merit Curriculum in Mathematics: Are Teachers Ready to Instruct At-Risk and Special Needs Students?

Vicki Lynn Holmes, Jane E. Finn, Marcy Blowers, and Nydia Chavarria
Hope College, Holland, Michigan

Abstract

The new Common Core State Standards for Mathematical Practice parallel the new rigorous requirements of the Michigan Merit Mathematics Curriculum; thus, this qualitative study investigated perceptions of 298 mathematics educators on the Michigan Merit Math Curriculum and of their perceived qualifications to teach these new mathematics requirements to at-risk and special education populations. To better understand the effect of these new mathematics requirements (requiring all students to complete four years of mathematics, including Algebra I, Algebra II, Geometry, and one additional senior mathematics course), two focus groups of ten mathematics educators were conducted. Findings show these teachers believe that (a) the dropout rate will remain stable; (b) classroom instruction will change; (c) new stressors in terms of money, time, and focus will emerge; and (d) classroom teachers will feel under-qualified to effectively teach the new curriculum to students in special education. Future professional development to improve content or pedagogical skill sets was requested.

Keywords: curriculum, mathematics, special education, at-risk populations

The State of Michigan School Board recommended new graduation requirements called the Michigan Merit Curriculum (MMC) for high school aged students in response to calls to increase the rigor of the public school curriculum (Michigan Department of Education, 2007, 2013b). Besides four credits in English, students attending Michigan public schools must complete three years of science and social studies, two credits in a world language and health, one credit of performing arts; and four years of mathematics consisting of Algebra I, Algebra II, Geometry and one additional mathematics course.

These new rigorous MMC requirements were due to an outcry that graduating high school seniors were unprepared for college careers, the workforce, and productive citizenry (2008, Michigan Department of Education, 2006a, 2011). Current research approximates that only one in every five Michigan students is ready to enter college (Michigan Department of Education, 2006). Additionally, results from College and Career Readiness ACT scores, reveal that less than 10% of Michigan high school seniors are ready for college, and less than 50% of Michigan's high schools have earned mathematics proficient status according to the standardized state assessment named the Michigan Educational Assessment Program (MEAP) (Michigan Department of Education, 2011).

Interestingly, high school proficiency is one of the key elements linked to college and future success. Achieve (2010) and Cohen (2008) indicate the level of courses students take in high school is one of the best predictors for success in the workplace in particular. This is especially true in mathematics. There is a strong correlation between taking high-level mathematics courses in high school and success in college and employment in high-growth jobs. Harvard

University's three-year study on factors influencing college success is predicated upon improving high school mathematics teaching. Increasing high school students' success in these courses is therefore an issue of wide-reaching relevance (Symonds, Schwartz, & Ferguson, 2011). Researchers also found that inconsistent and non-rigorous mathematics curriculums were highly correlated with the United States' poor performance both internationally and nationally (National Center for Educational Statistics, 2010; Schmidt, Cogan, Houang, & McKnight, 2011). Students are not only unprepared for college rigor, but they are also unprepared to join the workforce.

Numerous groups have urged educators to update curricula and instruction. For example, the National Council of Teachers of Mathematics (NCTM) recommends that schools update students' basics skills for upcoming jobs because this benefits our citizenry, our society, and our economy (National Council of Teachers of Mathematics, 2000). Industries pay higher wages to individuals who have the ability to think mathematically. In confirmation, the past U. S. Secretary of Education, Margaret Spellings (as cited in Shakrani, 2006) commented that 90% of the fastest-growing jobs in the new knowledge-driven economy will require postsecondary education -- successful completion is hampered by substandard high school preparation.

To meet this need, currently many states (including Michigan) have four years of challenging mathematics in place for the graduation requirement (Achieve, 2010, Cohen, 2008). The new Common Core State mathematics standard that is supported by the NCTM parallels these requirements and the MMC is an outgrowth of this need (CCSS Initiative, Appendix A, 2013; MDE, 2013a, 2013b).

The MMC requirements are intended to prepare all students (regular education and high incident special education pupils) for future job markets and to improve the skills of the workforce while also doubling the percentage of residents with postsecondary degrees (Cherry Commission, 2004). The MMC applies to every student, including the gifted and talented, at-risk. and special education student (specifically students with high incident disabilities or those students who are labeled learning disabled and emotionally disturbed). This inclusion supports the 1997 and 2004 amendments to the Individuals with Disabilities Education Act (IDEA) which states students with disabilities have access to and show progress in the general education curriculum (IDEA, 1997; IDEA, 2004). This general education curriculum is defined as curriculum followed by students who do not have disabilities.

While most educators agree with the need for mathematics rigor, these new and demanding graduation requirements are controversial. Although it is reported that rigorous high school classes prepare students for the future, how many of these students actually succeed in completing these requirements? Studies concerning outcomes of students with high academic standards are limited. A recent mathematics study of one state institution, completed by Dr. Derrick Fries of Eastern Michigan University, showed that when introducing rigor through inclusion, 27% of enrolled Algebra students failed (Fries, 2007; Legislative Analysis, 2009). Dr. Fries felt the primary cause was implementing inclusion without instructional change. Educators believe that in order for students to be successful, teachers need to excel in their instruction. To meet the challenges of the MMC rigor, mathematics teachers may need to broaden their instruction to the at-risk and special education populations--specifically those students who have

been labeled as "high incident" special education such as learning disabled and emotional disturbed--who were previously not required to take these mathematics classes.

Hence, the present study was designed to describe the impressions and observations of educators in Michigan schools concerning the instruction of the new rigorous MMC mathematics graduation requirements for students who are at-risk and those students who are identified as high incident disabled under the special education labels of learning disabilities and emotional disturbance. Specifically, we sought to explore the following line of inquiry: What is the perception of mathematics educators concerning (a) their preparedness in teaching the mathematics graduation requirements to and (b) the effects of the MMC mathematics requirements on the identified populations in terms of success/failure, dropout rate, and school district preparation.

Method

Participants and Procedures

Approximately 298 Michigan Mathematics Educators took the online peer-reviewed MMC Impact survey designed to determine their perceptions of the effects of the new rigorous MMC math curriculum on at-risk and special education students. Sixty percent of these responders were males while 40% were females. A vast majority (76%) of teachers had more than 13 years' experience, and over 5 years teaching algebra. About 48% percent of the respondents (N=143) were Algebra teachers; nine percent were a hybrid of special educators and regular algebra classroom teachers; and 43% percent were special education resource instructors (N=129). Of the 83 counties in Michigan, 53 counties were represented -- 16% from urban schools; 38% from rural; 40% from suburban; and 6% from alternative schools.

Our research questions were answered in part by these teachers' responses to the MMC Impact survey, a multiple-response and open-ended survey made up of 5 sections. The first section asked general demographic questions pertaining to the mathematics educator and his/her school (years of experience, percent of special education students in the average algebra class, etc.). Section 2 queried teachers on types (if any) of programs and pedagogy adopted to prepare special education and at-risk students for the graduation requirements. Section 3: Student Preparedness questioned the academic performance of the special education and at-risk students currently in their classes and their perceptions regarding dropout rate and future success. Section 4: Teacher Preparedness ascertained whether the teacher felt adequately prepared to meet the needs of the special education and at-risk student. Section 5: Predictions asked teachers to comment on the impact of MMC on all students.

However, in order to deepen and broaden our understanding of the research questions therein, two focus groups, each consisting of ten teachers (approximately half were regular mathematics classroom teachers; and half were special education mathematics instructors; one was both) were formed. These volunteers were comprised of certified algebra instructors who were scheduled to teach algebra in the 2011 school year. Demographically, these focus group mathematics educators worked in public schools throughout the state and were employed in urban school districts that included one alternative education program, one charter school and seven public

schools that were all part of the local education agency or LEA. Seventy percent were females; 40% were males. All had over five years' experience teaching mathematics. These teachers met for three days during an in-service at a local college during the summer of 2010. No incentives were given to these teachers for participation.

The participants were queried and interviewed using multiple methods: group conversations, one-on-one interviews, and open-ended response survey questions. Initially, because all of the focus group mathematics educators had completed the online Impact survey, we did not need to give them another complete survey. Instead, participants were given two to three prompt questions to answer each morning of the workshop. Discussions and questions centered on the following aspects of the research question: (a) the perceived effects of the new MMC math requirements on the dropout rate for at-risk and special education students; (b) the effect of implementing the new MMC requirements on teachers (stressors); (c) their school district's present and proposed classroom instructional techniques/changes; and (d) the teacher's self-assessment of qualifications to meet the needs of the special education and at-risk students.

They did a think-pair-share activity to get to know one another and discuss their response. Throughout the morning, one by one, the teachers were taken out of the room and interviewed using 3-5 pre-determined questions, but branching off as the responses dictated. The first interviews lasted approximately 5-10 minutes. In the afternoon, teachers came together as a whole and discussed issues that had come up in both the prompts, interviews, and in-group script. These discussions and the interview questions were "why" focused or "please elaborate on…" in order to clarify meaning and expand our understanding of the impact of the MMC on at-risk and special education students from the teacher's perspective. This same basic outline was followed daily; however, from the responses of the day before, sometimes we had additional one-on-one interviews after the group discussion.

Our rationale for conducting group conversations, one-on-one interviews, and open ended response survey questions was as follows: Because focus groups are especially advantageous when participants have similar backgrounds (Berg, 2004), they all worked with at-risk and special education populations in Algebra I and/or 2 and as volunteers were not reluctant to share (Creswell, 2007); therefore, group dialogue was employed. The one-on-one interviews were conducted to gather more insight and to mitigate the peer-pressure effect / bias of the group dynamic where responses may be altered to meet perceived group expectations (Patton, 1990). Finally, open response survey questions allowed further self-reflective examination of questions asked prior to sharing with the group. Responses gleaned from the survey, especially pertinent themes that began to emerge or ideas brought forth, were then discussed in-group or one-on-one.

All interview questions were semi-structured; whereby the participant's responses governed further question probes and comments. In this way, the researchers could garner insight into the rationale behind responses and deeper understanding of emergent themes. Initial questions centered on the afore-mentioned research question.

Content validity for these focus group and interview questions were tested via a team of experts who also authenticated the constructs. Four personnel from the state with knowledge of the new graduation requirements and experience as a teacher and/or administrator were given pilot

questions. Based on the feedback from these individuals, the focus questions and individual questionnaire were revised. Interviews were recorded, notes taken, and transcribed by the researchers.

Data Analysis

In addition to accurate data gathering, the analysis of the data was closely monitored in order to get credited results of major themes. Major themes are identified as those mentioned by at least 80% of the participants. For instance, in the Day1 transcription of one male Algebra teacher's individual interview and one female Algebra teacher's survey prompt, there are similarities and difference in their responses (see Table 1). In question 2, both teachers mentioned getting help from special education teachers and differentiated instruction. The young lady mentioned difficulty in planning. That idea was seconded by several of her peers, but did not reach 80% agreement, so it was never considered a major theme.

To obtain these results, multiple eyes read over and monitored the transcription of interview tapes, notes, and open survey responses to electronic format as main themes and subthemes or categories were created; the transcripts were then divided into topical units and filed (Berg 2004). This audit-assessment method helped discover if one evaluator's expectations differed from another's and assured the confirmation of developing themes. An example of this is in the above example, if not for the second pair of eyes and fruitful discussion, the latent sub theme of frustration, also evident in both voices, may not have been identified early on in the study. When differences and/or dissents arose, researchers attained consensus. The combination of traditional emergent theme file process and multi-auditing process used in this study ensured accuracy and validity. See Table 2 for major themes.

Results

Analysis of the survey results, transcripts, and group notes revealed the perceptions of Algebra I and II educators on the effects of the new rigorous MMC mathematics curriculum on the at-risk and special education (labeled as high incident disabilities such as learning disabilities and emotionally disturbed) populations. Specifically, results were categorized into how the educators perceived the MMC curriculum affected students (drop-out rates, failure to succeed in Algebra, and student preparation procedures) and how they affected mathematics educators (stressors and feeling of lack of un-preparedness to teach these at-risk and special education populations). Most notably, 100% of the teachers were not concerned with Algebra II, but with the Algebra I courses. These results are detailed below:

Perceived Effect on Students

Dropout rate and algebra failure. The focus of the concerns was not in the dropout rate or failure of the at-risk or special education populations to complete the Algebra II requirements. One hundred percent (100%) of the educators agreed that the students would fail Algebra II and 80% would fail Algebra I. Nevertheless, participants made a clear distinction between students failing under MMC ruling and the official dropout rate. Ninety percent (90%) of the participants

believe that alternative measures would be implemented to keep the dropout rate from appearing to increase in the state. Two participants summed it up well:

The dropout rate will increase dramatically, but I believe that it will be camouflaged by politics. These kids [students in special education or at-risk] may drop out before accountability starts [or graduation numbers gets reported] or they will get transferred to alternative schools or be encouraged to apply for a certificate of completion. There are ways around this stuff.

> I [as a math instructor] have had more dropouts this year than in years past. I am wondering if this is because students see the writing on the wall saying to themselves "If I can't pass math now, how will I pass other classes in the future especially when the classes get harder?" Nevertheless, I'm sure the reported dropout rate for my school will not increase.

Still other teachers reported that special attention is given for the at-risk student or students in special education from the specialists. Relationships between teacher and student are built. These relationships are strong and can cause lower dropout rates. The issue becomes whether these strong bonds would be continued in the regular Algebra classrooms. One participant aptly captured the issue:

> Our school gives significant special education staff to our Guided Studies program, which is a class for special education students or students who are having trouble with a specific class. <u>These classes are small</u> which allows the teacher to <u>build relationships</u> with these at-risk and special education students. Because of the relationships that are built, I see many of these students do not dropout. <u>They are encouraged by the special education teachers</u> and feel they have an advocate with them. <u>Will this continue</u>?

An issue that was consistently discussed was not the drop out rate per se, but what teachers were forced to do to mask the failing students. The watering down of the algebra courses was a big concern (90%). Teachers reported being forced to pass students or "dummy down" lessons.

> Just as I believe NCLB [No Child Left Behind] promoted teaching to the test, less innovation and more lying with statistics, the MMC promotes increased dropout rates while hiding our failures. According to official [state] reports, our school's dropout rate will not increase. I believe that we [as math educators] will be forced to pass these students [who are at-risk or labeled as special education].

These following results attest to the big issue of de-rigor, lowering of the algebra standards in the classroom.

Lower mathematics standards. Mathematics educators were unconcerned with students identified as at-risk and special education passing Algebra I because they reported that the curriculum has been made easier and the class content less rigorous. Eighty percent of the participants commented on the surface quality of their teaching due to MMC standard and the "testing" culture in general. Participants revealed that they were encouraged to pass students who

were not qualified or that the system encouraged a "false" passing. This educator's comment embodies the sentiment:

> We will pass them [students in Algebra] of course. They [the students who have barely passed] just won't know the material as I believe they should. Right now if students fail a test, we [as math instructors are encouraged to record 50% on this particular student's test. This way, a student can learn 10% of the material and pass with a D…We are encouraged to do that or either water-down the [content of the] course.

Other school districts allow students who have failed to retake a test during a study period or free period or to take another class. As one person reported:

> Students who fail a test or segment are permitted to retake the test during lunch hour or second class with help. Credit is essentially given for attendance.

Failure was not the major concern for these teachers, but it is noted that a secondary issue arose that rigor would be lessened as a result of the MMC and current mathematics practice to reach a "proficiency" level for all students.

Student preparation. Notwithstanding, these mathematics educators did note that that there have been improvements made through (a) the implementation of alternative course credits using remediation techniques and (b) the paired classroom where the special education instructor team taught with the general educator. School districts have made a positive effort to prepare students academically to meet the new mathematics requirements, and to master the specified content. Almost every teacher reported some type of scaffolding or school district plan to help the struggling students.

Remediation. All of the educators (100%) reported that their schools have provided adequate support for the at-risk and special education students through increased math hours. These increased hours took the form of Saturday schools, double class periods, lunch classes, afterschool classes, twice-daily math, and block scheduling. The essence of the teacher's views were captured in the comment:

> What I am seeing is that my math classes' special education students are handling the new graduation requirements with the adequate supports.

Team teaching. Another manner in which schools are trying to prepare their students for academic success under the new, more rigorous mathematics standards is through an Algebra I - special educator team-teaching approach. The roles assigned to each differ greatly between and within schools. The special educator can simply be a silent observer, there to maintain discipline, or an integral part of the content teaching. Most often (90% of the time), mathematics educators indicated that the special education teacher's role was to bridge the gap between the general teacher and the exceptional student, allowing both sides to understand and accept the other better. Through the special education teachers' input, mathematics teachers felt they understood and reached the students labeled as special education ***and*** at-risk better and more efficiently than

before the team teaching occurred. One participant's comment captured the sentiments as follows:

> I [as a math instructor] do rely on the special education teachers for their input as to what and how their students [who are labeled as special education] might learn best. We [as a math department] have been fortunate enough to have a special education teacher team teach in most of our math classes.

Most often it is the pedagogical aspect of the collaboration that helped the mathematics teacher to better get the Algebra I content across to both the at-risk and special education students. As one participant illustrated:

> She [the special education teacher] is alerting me [as the math teacher] to peculiarities like 'this kid doesn't like change so we [as teachers] need to do this' or 'this kid has trouble taking notes so maybe he [students in special education] can have a copy of your notes already typed up so that he [the student in special education] can highlight the notes.' This is helpful.

Interestingly, the support that the students received exposed the lack of perceived support that the teachers received in preparing to teach the new rigorous mathematics standards. In preparing for students and trying to teach the influx of at-risk and special education students currently enrolled in the Algebra I courses, both mathematics teachers and special education instructors/teachers expressed feelings of frustration and inadequacy.

Perceived Effect on Teachers

Stressors and frustrations for mathematics teachers. Ninety percent (90%) of the mathematics educators were stressed and frustrated from attempting to meet the curricular needs of students who were at-risk or labeled as special education students. These participants felt that the MMC requires more content to be addressed with a population that inherently requires more attention and review time to master the material. Time and money are the issues as more demands are required of teachers while none are being taken away. Many of these teachers believed that the amount of preparation educators have already put into meeting MMC standards as well as the changes made in instructional practices have been enormous. These two participants capsulate the other comments well:

> I have already given at least half of my preparation time, adapted my classes to the MMC requirements and to the needs of my special education students. In addition to this time, I have given a lot of time to differentiating the material such as creating online versions, using visual aids while changing instructional practices like creating interactive, student relevant lessons and adding a lot of formative practice before summative tests. My frustration level is high on how much time it has taken.
>
> I do not have time to go back and bring a student up to the level where he should have been to pass the next course. My [math] colleagues and I have worked constantly meeting state standards, adapting our instruction and adopting new instruction practices. We

> already offer a "help" class that meets after school three days a week and a Saturday class. To be honest, time is an issue.

Other educators have noted that they do not have time to individually teach the student who is failing due to the surplus of them. The teachers whole-heartedly supported differentiated instruction, but the degree of help needed – the depth and breadth of student help in one class was too much to handle and still meet the needs of the class as a whole. This concern and distress was repeatedly expressed with the at-risk student and was compounded with the special education student as evidenced by the distinction teachers made on the severity of the needs of student in special education. Dealing realistically and effectively with appropriate expectations was cause for alarm:

> I was totally unprepared to work with the students with more severe learning disabilities. … My biggest fear is that I am never quite sure what might be appropriate expectations for these students.

Many discussions centered on what the students labeled as special education really needed in order to be successful in life. Was the curriculum unrealistic? What is fair rigor? One participant aptly commented:

> Most of my resource students [students labeled as special education] will never need Algebra II. They [students in special education} need functional math such as balancing a checkbook, not completing the squares; signing their name to an appropriate document that they can read… not sine/cosine. How am I to help the classroom teacher reach my students when their math levels are between 3rd and 5th grade? What is a "fair" expectation of proficiency under these types of students in these circumstances?

On top of what has not been mastered, the new curriculum has many new content areas. These teachers feel they are barely scratching the surface in their teaching and are rushing through the curriculum to make sure that all the content is covered. The pedagogical approaches that they want to do – experimentation, inquiry, hands on projects, problem based learning, are being sacrificed because of time constraints. This teacher's comments fittingly represented the others:

> My classroom teaching has suffered because I'm always rushing through the curriculum--whether the students have understood the material or not. I don't have time to do the hands-on manipulative activities that used to shore up and cement [my students'] learning; nor can I do the "fun" stuff. I barely get through the required material--and that I do not do was well as I want to. It is frustrating!

Focus. An issue that repeatedly came up in the interviews was the disservice these teachers feel that they are doing to the regular education students and their gifted and talented by the overwhelming focus on the at-risk and special education students. To quote just one teacher:

> I almost feel like we are leaving our brightest students at a disadvantage because I am so concerned about getting even the lowest of students to pass my math class.

Lack of support. These teachers expressed concerns that the assistance they require to effectively teach at-risk and special education students was compromised because of monetary constraints (80%), especially in the areas of acquiring needed supplies (80%), and participating in professional teacher development (100%). One educator reported:

> I'm open to change in my teaching. I have to be. With the myriad of restraints on my time and having to complete the state requirements, I do not have the time to teach as I should. Much as I want to, which I do – I have too many students. On top of that we [her school] have budgetary constraints. If I want to search for new material or a different curriculum or get training or purchase software-- I cannot do so. My hands are tied. I get exasperated and frustrated, but with whom? My students? My principal? Myself? Politicians? I can only do what I can do.

Professional development. The biggest stress and issue of all was in the lack of professional development (PD) which is directly attributable to the teachers perceived lack of feeling qualified to meet the needs of the at-risk and special education student's needs. Participants reported that they felt qualified to teach mathematics, but unprepared to effectively meet the full range of these types of students' needs. Educators felt that they need additional training to meet the needs of the students who are at-risk or identified as special education. Not one of the teachers reported that their schools or school districts offered the specific type of PD needed.

Teaching students in special education. Because almost all mathematics classroom teachers felt that they were qualified in their content area to teach Algebra 1 and 2 content in general to all students (90%) yet 80% felt "unprepared" or "overwhelmed" with the task of bringing the struggling students to proficiency standards, the PD needed to be geared towards that area of need. The Algebra teachers wanted to know how to get these special population students proficient. It is important to note that the teachers were not requesting PDs per se, but targeted PDs. Two participants captured the sentiments with these remarks:

> I do not know what training I needed. Three years ago my high school that I worked for provided professional development training in formative and summative assessments techniques in differentiation, and blended instruction using computers/internet. This training is not enough to handle the influx of the wide range of ability levels in my class; these methods were designed for the norm, with slight variations, not the extreme. I welcome additional training.

> I would attend training on how to reach these students [in special education or who are at-risk]. But I do not want to sit through a generic session. I don't have the time. I need some specific instructional practice or trade secrets to assist the low-skilled student who has no home support and high absenteeism. Take home packets do not help.

Ninety percent (90%) of the special educators remarked that they were "overwhelmed" and "unprepared" with content, but were confident of their pedagogy and ability to "reach" the at-risk and special education student. These educators requested content professional development. Hence, to increase their own effectiveness, all teachers welcomed professional development and

special education team- teaching opportunities. These mathematics teachers lamented on their lack of expertise in how to reach the at-risk and special educations students. The classroom teacher reported the value the special educator's pedagogical knowledge and practical tips on how to reach the students with special needs. One hundred percent (100%) of the participants said that they would welcome relevant teacher training.

Discussion

Focus groups, interviews, and surveys with mathematics educators were conducted to gain insight into (a) their preparedness in teaching the mathematics graduation requirements, and (b) the effects of the MMC mathematics requirements on those students who are identified as at-risk and high incident disabled under the special education labels of learning disabilities and emotional disturbance.

Our research confirmed Fries study (2007) that predicted struggling students would fail in Algebra I and 2 and that student success under the new rigorous MMC and by extension Common Core state standards depends upon more than simple mandated inclusion. These teacher educators overwhelmingly requested additional targeted training to better equip them to teach the at-risk and special education populations assigned to them – especially those identified as high incident disabled. School systems realized that these students needed scaffolding and additional remediation preparation, but few put programs or professional developments in place for the teachers.

In fact, one of the positive outcomes of this research study is the focus on improving classroom instruction for students. These remediation techniques take the form of Saturday mathematics classes, block scheduling, double mathematics class periods, and after school classes. Research has shown that students can gain a deeper understanding of curriculum when they actively engage in other programs outside the classroom. For example, Goldberg and Hahn (2008) noted that extra classes or workshops help the students grasp the mathematics information better than a stand-alone mathematics class. In addition, summer programs and Saturday classes have shown to help struggling students avoid failure (Christie, 2003). These types of curriculum modifications and additions have been identified as critical for students with disabilities to make progress in the general education setting (Fisher & Nancy, 2001; Wehmeyer, Lattin, & Agran, 2001). Yet, it was noted that quality education for these populations rested with the content classroom instructors; thus the added frustration and stress on the mathematics educators.

Overall, the mathematics classroom teachers specifically desired pedagogical approaches; while the special educationalists sought to deepen their mathematics content. The instructors in this study also praised the team-teaching concept because having the special education teacher in the classroom with these mathematics educators helped bridge the gap between the special education and at-risk students and the general population. Research shows that teaming a class can act as a catalyst for academic enrichment opportunities within the school day and helps many students to experience success in mathematics as well as other subjects (Fontana, 2005; Kokolis, 2011).

It is important to note that even after admitting frustration and the stress with feelings unprepared to meet students' needs, both groups of mathematics educators sought self-improvement for the

benefit of the student. Furthermore, not one of the 20 teachers in the focus groups nor 298 via comments on the mathematics surveys mentioned not wanting an at-risk or special education student in their classroom. They reported that they felt unsuccessful by not being able to be of academic service to these types of students or that the Algebra I class would be an academic disservice to the students.

While the new MMC requirements were, in part, a response to increasing "rigor" in the mathematics curriculum, the issue of decreased rigor surfaced twice --once when dealing with mathematics educators' stress and the other with the dropout rate. The teachers perceived stress and frustration over their lack of time to adequately meet the needs of the students is critical as it impacts the quality of their instruction. The pedagogical impact of not being able to do hands-on, inquiry-based learning in mathematics due to the perception of not having enough class instructional time was alarming. Rushing through the curriculum, not having time to truly give help to students who need it, and sacrificing good teaching practices (pedagogy) are not intended consequences of the MMC. That at least 80% of the teachers interviewed or surveyed agree that Algebra I class instruction suffers because of time is telling. More investigation must be conducted to examine this unintended decrease in rigorous outcome.

While the dropout rate was not a concern in this study, the decrease in rigor that the topic exposed was a topic of discussion. Educators felt that the current "test taking" climate promotes the "passing" of students and grade inflation that decreases rigor in the classroom. The overwhelming perception of the mathematics educators was that the new MMC requirements foster the same type of behavior. The critical point is not that there is or is not an association between the two. The significant point is that a viable method has been established in the practices of our mathematics educators that "dummying down" in order to appear proficient in an area is an acceptable practice. This was the underlying reason as to why although teachers believed the at-risk and special education populations would fail Algebra and Algebra II, the failure rates would not translate to the dropout rate; and it's the reason why students who are not qualified to "pass" would be passed anyway. Why this practice exists and what to do about it is outside the scope of this paper; however, more research needs to be done to determine if the MMC standards – and by extension the new common core state standards – would promote such behavior.

In contrast to these results, many researchers believe that by raising the graduation requirements a greater number of students who are at-risk or in special education will leave high school without a diploma (Hocker, 2004). However, as predicted by these participants, other states have been shown to tweak the student data to show improvements in data for graduation rates (Scrag, 2000).

Finally, the issue of how to define rigor to certain populations and whether or not a one size fits all definition proper and appropriate is an ongoing debate that reared its head when teachers discussed how much they felt that they are at a disadvantage teaching students with significant learning disabilities in their mathematics classroom. Most teachers believed that they should try to the best of their ability to help all students learn and to be successful. However, controversy occurs on whether all students should have the same type of educational track or diploma. Research says there is no "one size fits all" solution to education, yet the teachers agreed that the

new mathematics MMC requirements seem to align with the controversial, but increasingly prevailing success yardstick of the standardized test (Education Insiders News, 2010, Darling-Hammond, 2007). These participants expressed the need to be able to see the relativeness of higher mathematics and higher job skills to the individual student. Higher mathematics may change from student to student and may range from teaching percentages and sales tax to differential equations.

Limitations of the Study

This study incorporated qualitative research to study what Michigan mathematics educators' perceptions are of the new Michigan Merit Curriculum and of teachers' qualifications to teach the new Michigan Merit Curriculum mathematics requirements to at-risk and special education populations. Despite some important findings, some limitations deserve mention.

First, the generalizability of the findings is limited because of the volunteer nature of the participant sample. Further, social desirability is a concern when using interviews and focus groups in research. That is, some participants may respond to questions based on what they perceived is expected of them or what they deem to be the socially or politically correct response (Patton, 1990); the one-on-one interviews and open response surveys were designed to mitigate this factor, but the bias may be present.

Future Research

This study provides new information with regard to the perceptions of mathematics instructors on the impact of the Michigan Merit Curriculum and if these educators feel qualified to teach high incident special education children labeled as learning disabled and emotionally disturbed, as well as at-risk students. As the MMC is already evolving and the Common Core State Standards for Mathematical Practice that are in part based on the "rigor" conceptualized therein and parallel the MMC, further research should be conducted on the unintended consequences and perceptions brought forth in this study. The design and development of targeted professional developments, scrutiny of pedagogical changes, supports for teachers, and minimizing stressors are all factors that need to be further addressed. Future research is needed to investigate the perceptions of various other types of content teachers concerning the new Michigan Merit Curriculum. Comparison of attitudes and reasons could provide important information relative to what educators' perceptions of what they see in the classroom. Since the Common Core standards unite the states, a similar study comparing teacher perceptions across states would bring additional insight into helping to meet the needs of our struggling populations.

References

Achieve. (August 2010). 2010 *Graduation requirements meetings.*

Berg, B. L. (2004). *Qualitative research methods for social sciences*. Boston: Pearson Education. Cherry Commission (2004). *Creating a 21st Century Michigan Workforce*.

Christie, K. (2003). Making use of summer time. *Phi Delta Kappan, 84*(7), 485-487.

Cohen, M. (2008). *Out of Many, One: Toward rigorous common core standards from the ground up.*

Common Core State Standards for Mathematics (n.d.). *Common Core State Standards for Mathematics: Appendix A – Designing High School Mathematics Courses Based on the Common Core State Standards*.

Creswell, J. (2007*). Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: Sage.

Darling-Hammond, L. (2005). The right to learn: Policy and practice for powerful teaching and learning. *Educational Researcher, 35*(7), 13-24.

Darling-Hammond, L. (2007, May 7). Evaluating 'No Child Left Behind.'

Detroit Free Press (2011). Many Michigan high school grads not ready for college. f

Education Insiders News. (2010). More and better testing: The future of measuring student success?

Fawcett, G. (2004). Leading vision. *Kappa Delta Pi Record, 44*, 112-115.

Fink, N. (2011). The high cost of low morale: How to address low morale in the workplace through servant leadership. *The Leading Edge*, *4*(1).

Fisher, D., & Nancy, F. (2001). Access to the core curriculum. Critical ingredients for student success. *Remedial and Special Education, 22*, 127-140.

Fontana, K. (2005). The effects of co-teaching of the achievement of eighth grade students with learning disabilities. *The Journal of At-Risk Issues, 11*(2) 17-23.

Fries, D. (2007). The impact of the new Michigan merit curriculum on at-risk and special education students.

Hocker, C. (2004). A failing grade for No Child Left Behind. *Black Enterprise, 35*(1), 26-36.

Hofmeister, A. (1993). Elitism and reform in school mathematics. *Remedial and Special Education, 4*(6), 8-13.

Goldberg, D., & Hahn, S. (2008). The whole truth and nothing but the truth: Workshops for mathematics mastery. *Mathematics and Computer Education, 31*(3), 83-88.

Individuals with Disabilities Education Act Amendments of 1997, 20 U.S.C. **δ** 1400 *et seq.*

Individuals with Disabilities Education Act Amendments of 2004, 20 U.S.C. **δ** 1400 *et seq.*

Kokolis, L. L. (2011). Teaming for Better School Climate and Improved Achievement.

Lee, S., Wehmeyer, M., Soukup, J., & Palmer, S. (2010). Impact of curriculum modifications on access to the general education curriculum for students with disabilities. *Exceptional Children,76*(2), 213-233.

Legislative Analysis (2009). *Revise Michigan merit curriculum mathematics requirements*. Retrieved from http://www.legislature.mi.gov/documents/2009/2010/billanalysis/House/htm/2009-HLA-4410-3.htm

Michigan Department of Education. (2006a). *Preparing Michigan students for work and college success.*

Michigan Department of Education. (2006b). *Improving outcomes for high school students.* Retrieved from http://www.michigan.go/mde/0,1607,7-140-38924---,00.html

Michigan Department of Education. (2007). *Michigan merit curriculum*.

Michigan Department of Education (2011). *College and career readiness of 2010 graduates.*

Michigan Department of Education (2013a). *Common core state academic standards & support for CCSS.*

Michigan Department of Education (2013b). *State board reaffirms its support for merit curriculum and common core.*

Michigan Department of Labor and Economic Growth (2004). Reshaping Michigan's workforce.

Michigan Independent Research Source. (2011). Poll: Students need direction to succeed. Bridges for Kids.

Miles, K. (2001). Putting money where it matters. *Educational Leadership, 59,* 53-57.

Miller, S., & Mercer, D. (1998). Educational aspects of mathematics disabilities. In D. P. Rivera (Ed.), *Mathematics education for students with learning disabilities: Theory to practice* (pp. 81-96). Austin, TX: PRO-ED.

National Center for Educational Statistics, (2010). TIMSS results. Retrieved from http://nces.ed.gov/timss/table07_1.asp

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: Author.

National Commission on Teaching and America's Future. (2006). *High-quality teacher preparation programs*.

Nelson, G. D., & Landel, C. C. (2007). Lessons about using teacher expertise, learned from reforms in science, can improve students' learning in every subject. *Educational Leadership, 65*(4), 72-75.

Patton, M. (1990). *Qualitative evaluation and research methods.* Newbury Park, CA: Sage Publications.

Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning.* Alexandria, VA: Association for Supervision and Curriculum Development.

Schmidt, W., Cogan, L, Houang, R., & McKnight, C. (2011). Content coverage differences across districts/states: A persisting challenge for U.S. Education Policy. *American Journal of Education 117*(3), 32-37.

Schrag, P. (2000). To good to be true. *American Prospect, 11*(4), 46-49.

Shakarani, S., (2006). The Michigan merit curriculum. *New Education.*

Sonnert, G., & Watson, C. (2011). *Personal correspondence*.

Sparks, S. (2010). Scholars urge creation of early-warning systems. *Education weekly, 30*(10), 17.

Symonds, W., Schwartz, R., & Ferguson, R. (2011). Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century.

Watkins, T. (2011). Michigan's one-size-fits-all educational system is out of date. Oakland Press.

Wehmeyer, M., Lattin, D., & Agran, M. (2001). Achieving access to the general curriculum for students with mental retardation. A curriculum decision-making model. *Education and Training in Mental Retardation and Developmental Disabilities, 36,* 327-342.

Wehmeyer, M., Lattin, D., Lapp-Rincker, G., & Agran, M. (2003). Access to the general curriculum for middle school students with mental retardation: An observational study. *Remedial and Special Education, 24,* 262-272.

Table 1

Major Theme Example

Day 1: Male Algebra Teacher's Individual Interview

Individual Interview: Day 1. HC
Researcher: Haugen Transcriber / Holmes Signed-Off

What are your thought feelings on the following:

1. the perceived affects of the MMC math requirements on the dropout rate (at risk, special ed, English language learners;

I have had more drop outs this year than in years past –

Why is that?

Perhaps because students see the writing on the wall quicker [pauses] if I can't pass math now, how will I in the future. [pauses] I don't know. In addition, when kids fail, they may be doubled up on a math class the next year and lose an 'elective'.

And this is a reasons students drop?

Who wants a double dose of agony? Especially when they have to forfeit what they really want to do. In some cases, we know a student will not go into a career that deals with higher level math if they struggle in a 'remedial' class.

Ahhh you're giving me a long term effect.

2. the affect on your classroom and classroom instruction (your preparation, time, change in instructional practices);

There were no major changes - you do what you can for those willing to learn. I will bend over backward for a student that wants to do well (unfortunately, some don't have the confidence to succeed).

That's interesting. Wanting to do well and not having the confidence. What happens if they want to do well, but they don't have the confidence vs. a student who doesn't want to do well.

You know the ones who don't even try. Don't do their homework. Talk and disrupt in class. But for the others, I stay after class, work Saturday school, come in early, tutor. [trailed off] I began working with the special education teacher who has given me some good ideas about differentiation and even practical issues like using larger font or giving fewer problems on a page. I've seen a change in those willing to put the forth effort. But frankly we its an uphill struggle. Most of these students are so far behind. The writing is on the wall. There's not enough scaffolding in the world to make them legitimately pass Algebra 2, must less Algebra 1. If we gave an old Algebra 1 final exam to half of my class they would fail. Well no they wouldn't because we can't fail them. They retake the tests until they pass or quit.

Yes, I had heard about that new test practice from some other teachers. You have it at your school I see. Well that segues nicely to the last question.

3. the school's preparation efforts; and

The school just has kids repeat the class. I have seen some success with this for some of my students. However, I have also seen where the kid still struggles (usually due to a lack of basic skills and/or motivation).

Thank you. You can rejoin the group, but don't tell talk about these questions. Sometimes, I'll ask different ones. I want to gather a little extra info.

Day 1: Female Algebra Teacher's Survey Prompt Response

Day 1: Written Prompt

1. the perceived affects of the MMC math requirements on the dropout rate (at risk, special ed, English language learners;

I was actually stunned to see that one of their goals was to decrease the dropout rate. I would like to hear this argument, because I have found that our special ed and at risk population gets so discouraged with their inability to pass some of the Algebra material that they want to drop out. Why continue if you know your disability is in math and you will be unable to pass the Algebra II? I do think it has helped get all students into Geometry and Algebra. ~~My only issue is~~

Day 1 Prompt
1. I was actually stunned to see that one of their goals was to decrease the dropout rate. I would like to hear this argument, because I have found that our special ed and at risk population gets so discouraged with their inability to pass some of the Algebra material that they want to drop out. Why continue if you know your disability is in math and you will be unable to pass Algebra 2? I do think it has helped get all students into Geometry and Algebra. My only issue is

2. the affect on your classroom and classroom instruction (your preparation, time, change in instructional practices);

It has made it more difficult to plan, as a teacher you definitely have to be more aware of differentiation and I do rely on the special ed teachers for their input as to what and how their students might learn best. We have been fortunate enough to have a special ed teacher coteach in most of our classes. I think I do have a tendency to teach "down" to the student's ability. I almost feel like we are leaving our brightest students at a disadvantage because I am so concerned about getting even the lowest of students to pass, that we often times do not get to the "recommended" expectations in the MMC. Overall, I feel like the whole group knows more math, but our brightest kids know less.

3. the school's preparation efforts; and

We did participate in the OAISD's power expectation workshops, so I think as teachers we were pretty set, but we were totally unprepared for what to do with the students who could not pass. (Part of that had to do with the varying interpretations of the state document as to what was acceptable-everyone you talked to had a different interpretation of what was OK for graduation) We are just this week making personal curriculum for our special ed students who were unable to pass Algebra II B.

Table 2

Major Themes

Major Themes	Focus Group 1	Focus Group 2	Average
Perceived Effects on At-Risk & Special Education Students – Drop out & Academic Success /Failure			
Fail Algebra I	9 [90%]	7 [70%]	80%
Fail Algebra II	10 [100%]	10 [100%]	100%
MMC would affect dropout rate	8 [80%]	10 [100%]	90%
Alternative Measures to accommodate students	9 [90%]	10 [100%	95%
• Special Educators Help	10 [100%]	8 [80%]	90%
• Lower Standards / less rigor	10 [100%]	10 [100%]	100%
• Building Level Programs	9 [90%]	10 [100%]	95%
• Remediation (Sat school, double classes, etc.)	10 [100%]	10 [100%]	100%
Perceived Effects on Teachers – Stressors and Frustrations			
Stressors	8 [80]	10 [100%]	80%
Time constraints (additional preparation)			
Additional preparation	10 [100%]	10 [100%]	100%
Changes in instructional practices	8 [80%]	9 [90%]	85%
Curriculum Pacing	7 [70%]	9[90%]	90%
Not meeting needs of all students (gifted and talented)	9 [90%]	9 [90%]	90%
Lack of Support (supplies and money)	8 [80%]	8 [80%]	80%
Professional Developments Requested	10 [100%	10 [100%]	100%
Perceived Effects on Teachers – Teacher Preparedness			
Classroom Teachers – Content Preparation [n=10]	9 [90%]		90%
Classroom Teacher – unprepared or overwhelmed for task [n=10]	8 [80%]		80%
Special Educators – Content Preparation [n=10]	9 [90%]		90%

Note: One Special Educator was also a dedicated Algebra classroom teacher.

About the Authors:

Dr. Vicki-Lynn Holmes is an Assistant Professor of Education & Mathematics at Hope College. She can be reached at holmesv@hope.edu

Dr. Jane Finn is an Associate Professor of Special Education at Hope College. She can be reached at finn@hope.edu

Marcy Blower is a Student Researcher at Hope College. She can be reached at blower@hope.edu

Nydia Chavarria is a Student Researcher at Hope College. She can be reached at chavarria@hope.edu