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Types of Parental Involvement and Their Effect on Student Mathematics in Secondary Education: Attitudes, Self-Efficacy, and Achievement

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Types of Parental Involvement and Their Effect on Student Mathematics in Secondary Education: Attitudes, Self-Efficacy, and Achievement

by

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Chapter 1: Introduction:

In my starred paper, I want to look into how different types of parental involvement can affect achievement in math for secondary students. Since there are many ways to parent, this can become very complicated very quickly. I want to focus on parental attitudes, monitoring, and home support and how this involvement relates to student attitudes, self-efficacy, and achievement in math. Specifically, I am interested in secondary math students because I teach students at that level in a Minnesota high school. I will also research the difference in parental involvement among different cultures and how that affects student achievements in math.

I am interested in this because I believe that parental attitudes toward math differ dramatically from their attitudes toward other subjects. In talking to parents, it is very common to hear them say, “I don’t know what to do to help my child because I was never any good at math.” It would be unheard of to hear a parent say something similar about reading: “I don’t know how to help my child read because I was never any good at reading.” This is concerning because when parents believe that they are personally unable to learn math, it implies to the student that it is acceptable to be a low achiever in math. When talking to parents, I want to be able to share with them researched types of parental involvement they can implement to help their child achieve higher test scores in math.

If a parent can use effective methods of involvement which opens a means of communication with their child, this will impact my teaching in a positive manner. When parents know what they can do to help their child, they will feel empowered and assured that everyone is trying to help students be successful in learning math. Even though some parents feel like they should not be involved in their child’s learning on the high school level, I feel that

it is important for parents to get involved when their child is struggling. In math, especially, the content builds constantly, and getting behind can be a severe mental roadblock.

Research Question

The purpose of this study was to understand the correlation between types of parental involvement and student attitude/self-efficacy/achievement in math. The research question is: What types of relationships exist between parental involvement styles and math achievement in secondary students?

Focus of the Paper

The purpose of this study was to examine the relationships between types of parental involvement and attitudes toward math, self-efficacy in math, and math achievement. I have researched articles using the EBSCO resource offered to me as a St. Cloud State University student. In my search for articles, I used the following descriptors: “secondary education,” “parental involvement,” and “math achievement.” When choosing resources, I selected articles with findings related to my research question as applied to a similar group of secondary students. There were limitations to each study that were important to note because not every study I found directly related to my topic.

Rationale

The significance of this study is to find ways to improve student achievement in math. My goal is to give parents some insight into what type of involvement could help their child understand math better. When there are correlations in research that exist, they should be analyzed so that positive changes can be made. When students are confident in their math

abilities resulting in higher achievement, they will have more opportunities for jobs that can make a positive impact on society.

Research has shown that students who receive and perceive greater social support from teachers, parents, and friends for math and science have better attitudes and self-efficacy toward math (Rice, Barth, Guadagno, Smith, & McCallum, 2013). In Slovenia, students' self-efficacy in math was a positive predictor of math achievement (Levpušcek, Zupancic, & Socun, 2013). So, if there is a relationship between parental involvement and student attitudes and self-efficacy in math, as well as a relationship between student attitudes and self-efficacy in math and math achievement in students, then logically, there could be a correlation between parental involvement and math achievement in students. Interestingly, there is more research that supports the fact that parental involvement has significant effects on student performance in math during elementary years. However, research on students during the secondary years is mixed.

These mixed conclusions could be because parental involvement is difficult to categorize. McNeal (2014) stated that the "lack of clarity on which elements of parent involvement affect which outcomes, is especially troublesome for policy-makers and educational practitioners" (p. 565). Parental involvement can have many different aspects; I will be focusing on parent-student involvement and parent-school involvement. I hypothesize that parent-student involvement will have more of an impact on math achievement than parent-school involvement. I think this is true because when there is parent-school contact, there is already a learning issue happening which requires a game of catch-up. It is much more difficult to play this catch-up game in math than in other subjects because the topics are sequential. Depending on when the

parent-school contact is instigated, it will be more difficult to learn the concepts out of order.

Also, many students have negative associations with math, and feel that they are already so far behind that there is no point in even trying to catch up because they probably will not succeed.

Terminology

Types of Parental Involvement

- Parent-student discussion: any situation that involves parents communicating with the student about school related topics. Discussion about school will convey the message that school is important to the parent and should be important to the student as well.
- Parent-student monitoring: the process of knowing and engaging in the student's life which involves knowing where they are at certain times, whether they have completed homework, rewarding good behaviors, consequences for negative behaviors, limiting certain activities, and doing all of these consistently.
- Parent-school contact: degree to which parents are communicating with teachers by phone, email, or visiting classrooms (such as meetings or during parent-teacher conferences).
- Parent-school support: direct action by parents in the learning process of the student, such as providing tutoring for the student, taking the student to school for before or after school help, and directly helping their own student learn.
- Parental involvement: can include any of the above are types of parental involvement. Involves parental attitudes and parental acts of doing something to impact their student's achievement in math by investing their "time, attention, and resources in

their children with the expectation of a return—namely that their child will perform better in school” (McNeal, 2014, p. 565)

Student Attitudes and Self-Efficacy

- Student attitudes: can be good/bad previous experiences with math, mood when they think of math, and belief in importance of math in real life.
- Student self-efficacy: confidence in their math ability, belief that they can learn math, test-taking anxiety for math, and math trauma experiences.

Student Math Achievement

- Academic performance: when standards-based grading is used, then the grade will be representative of what the student can demonstrate that he/she has learned. However, in most studies, standardized testing is the measure used to assess academic performance.

Chapter 2: Review of the Literature

In this chapter, action research studies are presented that relate to the research question: What types of relationships exist between parental involvement styles and math achievement in secondary students? These studies show mixed results, but most positively conclude that parental involvement does affect math achievement in different ways. I focused on studies that involved secondary students in middle and high school because that is the population my research question addresses. Since I do not have my own action research, these studies bring together data from the United States and some other countries that can lead to effective results that can be brought into current schools and classrooms. Administrators, teachers, and parents can all benefit from this information and help our current students achieve higher in math.

Factors that Affect Student Attitudes, Self-Efficacy, and Achievement in Math

There is research that focuses on how parental involvement affects student attitudes in math and student achievement in math; however, there are many other factors that can affect student achievement in math. The research shows that the four main factors that influence student achievement in math are: student background variables, classroom differences, teacher factors, and school factors (Lamb & Fullarton, 2001). Lamb and Fullarton researched how the United States and Australia compare in the relationships between factors at the student, classroom and school levels and student achievement in math. There were 7,087 eighth grade students from 183 U.S. schools and 6,916 eighth grade students from 158 Australian schools that were given comprehensive math and science tests developed by Trends in an International Mathematics and Science Study (TIMSS) to investigate achievement. TIMSS also developed

questionnaires to assess emphasis and placement in curriculum topics. The limitation to this study is that it did not investigate specific parental involvement types, but was broader in the studied factors.

A study by Levpušček, Zupancic, & Socun (2013) researched student individual factors and social factors (one being parental involvement) being predictive of academic achievement. Questionnaires on personality and parental academic involvement along with achievement measured the students' final grades and NET scores in math for methodology. In these questionnaire results of 416 eighth graders, parental academic support is significantly (negatively) linked to student achievement in math. According to this study, the strongest indicator in math achievement is most strongly linked to intelligence level. This makes sense because math is about logical thinking and solving problems, so students who are intelligent will have an easier time coming to the correct conclusions. In addition, usually when students get the problems correct, it boosts their self-efficacy and confidence in math. However, when students do not come to the correct conclusions easily, their confidence decreases and many get frustrated. The limitations in this study involve the definitions of parental support which could explain the negative correlation between parental support and math achievement.

In 2014, Pinxten et al. studied and stated that there is a positive relationship between self-perceived math competence beliefs and math achievement. It would be great if all students really believed that they could learn math and achieve highly. Unfortunately, this is not the case. Student motivation and different learning styles for students are definite factors that should be acknowledged. There are certainly many other unlisted factors that can affect student achievement in math. There are also many other factors that can influence student attitudes and

self-efficacy in math, including social factors and previous experiences in learning math. It may be impossible to discuss all of the different aspects that influence student attitudes and self-efficacy in math, but these are the main points.

Types of Parental Involvement and Student Attitudes and Self-Efficacy

There are studies involving parental involvement and the association with student attitudes and self-efficacy. The difficulty is categorizing parental involvement because there are so many types and styles. Each study has its own definition of parental involvement which impacts the outcomes of the studies. Interestingly, as perceptions of students' abilities increase between parent and teacher, parent involvement and teacher facilitation decrease (Patel & Stevens, 2010). Currently, there is literature that suggests that parents need to be taught how to support their children at home (Mistretta, 2013). There needs to be proactive interaction between parents and schools to improve student attitudes and self-efficacy (which will hopefully improve student math performance). Parents should be taught how to implement discussions, monitoring, school contacts and supports (the different types of parental involvement).

A study by Fan and Williams (2010) found that when parent-school contact is distinguished as student-school problems and benign school issues, the outcomes are different and interesting. There are fairly strong negative correlations between parent-school contact with student-school problems and all student motivational outcomes. On the other hand, there are positive correlations between parent-school contact with benign school issues and all student motivational outcomes. This is interesting because it was the only study that had a clarification between types of parent-school contact, with results that I would have predicted. These results make sense because when students have problems at school, the events that occur and

conversations that happen with parents can lower student confidence. Also, when parents have discussions at home with students about the benign issues (such as future educational plans) this can increase student confidence and self-efficacy. This study researches how various dimensions of parental involvement predict the self-efficacy of students in math and English. Data from the Educational Longitudinal Study of 2002 was applied with stratum, cluster, weight and the Taylor-series approximation technique in the analysis. A 2-stage selection process for 26 10th-grade students was used within each school. The overall conclusion from this article was that communication in school-parent contact significantly affected associations between school-parent contact and self-efficacy in students. Unfortunately, this study did not go a step farther and try to find a relationship between the parental involvement and student achievement.

A school in Minnesota has put great effort into improving parent-student discussions and parent-school supports by implementing a specific math program. According to the article titled *Enlisting Parental Help to Teach Math Skills is in the Cards in 2005*, parents enlisted the help of the district by asking for resources to help them support their students in math. The Anoka Hennepin District sent home laminated cards to the homes of their students with math tips and skills from state, federal, and individual teacher resources. These tips show the parents that they do not have to be a teacher to show their children that math is embedded in their world. Even though there is no specific data supporting the success of the program, it is stated that the program was so successful that they intend to do the same with literacy tip cards next. A program like this should improve student attitudes toward math by encouraging more parent-student discussions about math. The specific content of the cards may improve parent-school support by providing parents with useful resources.

The article titled “Factors in K-12 Education that Influence the Success of Racial and Ethnic Minority Students” (2011) in the STEM circuit, discusses factors that influence racial and ethnic minorities to succeed in STEM majors. In interviews, 11 black college students attributed their pursuit of STEM majors to their parents having high expectations, emphasizing the importance of having a good education, and helping them with study skills. This shows that parent-student discussions have huge impacts on student attitudes and self-efficacy. These parents may also have enforced parent-school support interventions as well, in order to help teach their children good study skills. So, in many areas of research, parent-student discussion has been shown to be a huge factor in affecting student attitudes and self-efficacy in math.

Types of Parental Involvement and Student Achievement in Math

The results from studies in this category are, again, related to the way parental involvement is defined. Parental expectations could be connected to parental pressure which could have different results, depending on whether it is positive or negative pressure. Research shows that a significant positive predictor of student math achievement is how much parents restrict out-of-school activities (Muller, 1998). The limitation of this article is that the participants were not secondary students, but elementary students. So, this article does not directly relate to my research question. However, this is an interesting finding because it falls under the category of parent-student monitoring and could be a useful correlation when discussing student math achievement with parents.

In another study, parental expectations are the strongest predictor of student math performance in European American and Latino American seventh and eighth grade students and were the second strongest predictor in African American seventh and eighth grade students,

second only to the mother's attitudes toward math (Der-Karabetian, 2004). A finding like this makes sense because teachers are taught that high expectations are important to improve student achievement, so parental expectations should have a similar effect. This study researches whether family process factors will be different predictors of mathematics performance in Latino Americans, European Americans, and African Americans. The participants in this study are 2,078 seventh and eighth grade students in four of the six middle schools of a southern California school district. The family process factors and parental attitudes are measured by student questionnaires, and math achievement is measured using the National Percentile Rank for total math on the SAT-9 standardized test. Results indicate that, for European American and Latino American students, parental expectation is by far the strongest predictor for math achievement. For African American students, it is the mother's attitude that was most definitive. A limitation to the study is that these students were not reassessed after the initial study. It would be beneficial to see whether these relationships continued on to when these students attended high school.

Another article reports a similar finding with sixth grade students in North Carolina. Parental expectations are found to have a small, but significantly positive association with math and reading scores 3 years later (Bowen, Hopson, Rose, & Glennie, 2012). This article considered whether parents' expectations impact student outcomes over time in the context of other risk and protective factors, such as parental monitoring. In urban and suburban school districts, 2,088 students in sixth grade were studied using data collected from the School Success Profile survey. Performance was measured with end-of-grade and end-of-course test results in reading and math. Parental expectations are a clear positive predictor of academic outcomes

even after controlling for other areas of parental support. This means that expectations alone relate to math academic achievement in students. Limitations of this article involve seeing whether these results continue in high school. Since there was more than one article that had similar findings, it seems that there is a strong correlation between parental expectation and student math performance. Parental expectations could also fall under the category of parent-student discussions because the parents are discussing their expectations for success with the student.

At the pre-secondary age level, a study examines Title 1 parental involvement on math achievement and finds that there is a significant effect due to parental involvement on math achievement. Socioeconomic status (SES) does not play a factor in the amount of parental involvement (Shaver & Walls, 1998). Even though this article does not involve secondary students, this is an encouraging finding because it shows that SES does not have to be associated with the amount of parental involvement. So, parents from different family income levels can learn to be involved which can improve student math achievement. Another study illustrates a similar message. Better implementation of family math related practices (and community involvement) predicted parents supporting school programs more strongly, and this was associated with better percentage of math proficiency in student test scores (Sheldon, Epstein, & Galindo, 2010). This study researches the relationship between the school's partnership activities to student performance on math achievement tests. Students from 41 elementary, middle, and high schools in urban, suburban, and rural areas report data on implementation and effectiveness of 15 family and community involvement practices. School-level student performance is measured on state standardized math achievement tests. This study also finds

that parental support is included in the partnership climate at a school which is positively related to school-level math achievement. The limitations of this study were that they did not state many specifics about where the study was done, nor did the article indicate the specific ages of the students in the study. Age information is important for teachers and parents to consider because parental involvement appears different depending on the age of the students. Teachers and parents need to take into consideration the appropriate type of involvement for the age of the student when deciding what type of intervention will be most effective.

Another study discusses teacher's perceptions of parental involvement that have positive association with student math achievement (Gordon, & Louis, 2009). In schools where teachers perceive greater involvement by parents and in schools where teachers indicate that they have a school environment where they practice shared leadership, student achievement is higher. This study looks at how a principal's leadership style and openness to community involvement affect student achievement. Data from 157 principals and 4,491 teachers from 180 schools are studied using surveys involving perceptions of parent and community involvement. Stratified random sampling procedures are used at all organizational levels in the methodology. Achievement data for math and English is based on performance on state accountability measures. The limitations of this study were that the area and types of schools were not specified, so it is unclear what types of students were assessed. Yet, all of these articles highlight the importance of parent-school contact to facilitate student learning and improvement of math achievement.

It is always important to look at what is going on in other countries because they have different cultures with other types and definitions of parental involvement. Even though the groups may not be comparable because of parental involvement, it is still interesting to see the

associations between parental involvement styles and student math achievement in other places in the world. A study comparing student math achievement of first and fifth graders in the U.S. and China finds that the lower achievement of students in the U.S. was attributed to giving math improper attention, parents having lower standards, and lower interest in teaching math by teachers (Stevenson et al., 1990). So, even though this study involved elementary age students, as versus secondary students, it still shows the important of parents and teachers having high standards for their students in math supplemented by using discussions, monitoring, communication, and support.

In Indonesia, a study found a positive and significant relation between student attitude and math achievement, student motivation and math achievement, and student perception concerning the role of parents and math achievement (Siskandar, 2013). In Korea, parental involvement includes another aspect, private tutoring, which showed a significantly positive correlation with student math scores (Park, Byun, & Kim, 2011). Private tutoring is categorized under parent-school support. This study researches how different types of parental involvement (private tutoring, home-based activities, school-related activities, and other programs/ volunteering) relate to student achievement. The methods of this study used 2-stage stratified sampling design with 6,908 seventh graders in selected schools in Korea in the first year and, then, 6,568 of those in the second year. The Kohlman Evaluation of Living Skills (KELS) administered achievement tests in Korean, English, and math. Also, KELS used questionnaires that parents used to measure parental involvement. These studies all show interesting correlations between parental involvement and student math achievement. The results can be analyzed by taking into consideration that they are from other countries with different cultures

and demographics, but the conclusions may still be useful in the U.S. Many parents in the U.S. choose to use a private tutor for their children similar to parents in Indonesia.

An article by Muller (1998) stated that statistics show that parental involvement differs with boys versus girls. Depending on male or female student, parents reach out to schools differently (parent-school contact). When parental expectations and parental involvement are controlled, the boys had significantly higher scores than the girls. These are interesting findings because it is natural that parents will have different expectations for boys and girls. Parental involvement also differs between siblings, depending on male vs. female siblings. It would also be interesting to research whether parental involvement differs from the families' first child to the last child. The limitation to this study is that the students were elementary and not secondary students, not fully related to my research interest in secondary students.

Indirectly, parent-student discussion was shown to have an advantage ($SD=.2121$) in math achievement in a study (McNeal, 2014). This indirect relationship means that the parent-student discussion is not directly associated with improved math achievement, but is correlated with improved educational expectations, absenteeism, homework, and truancy. These factors were also correlated to the improvement in the student's math achievement. This article researches whether parent-child discussion, parent-child monitoring, educational support strategies, and Parent Teacher Organization involvement affect student achievement, in general. The participants are the first wave eighth grade students and the second wave tenth grade students in data from the National Educational Longitudinal Study. Questionnaires from students, parents, teachers, and principals are used and achievement tests in reading, math and science are used to assess student performance. The limitations of this study involved details,

such as not specifying exactly what achievement tests were used and in which area of the country this study was conducted.

An important theme has come across from the research; namely, that parent-student discussion is a significant important factor in affecting student attitudes, self-efficacy, and achievement in secondary math. Parent discussions with students should stress the importance of school and learning. In particular, it ought not to seem acceptable to be “bad” at math. Students can tell what is important to their parents, whether it is comprehensive learning as a whole, or, “just getting a passing or good grade.” Positive parent-student discussion is integrally related to student math achievement. Parents must discuss their expectations for success with their children. Parental support of high math achievement is crucial in current math classrooms. Unfortunately, some studies have negatively correlated parental involvement with student math achievement, but this could be related to the different definitions of parental involvement within the studies.

Table 1

Key Articles

Author/s	Title	Research Question/s	Methods	Participants	Findings
Bowen, Hopson, Rose, & Glennie (2012)	Students' perceived parental school behavior expectations and their academic performance: A longitudinal analysis.	Do parents' expectations impact students' outcomes over time in the context of other risk and protective factors?	Study used data collected using the School Success Profile (SSP) survey. Performance is measured with end-of-grade and end-of-course test results in reading and math.	2,088 students in sixth grade in the fall 2004. About half of students were in urban district with other half in suburban in North Carolina.	Parental expectations for behavior as students was a positive predictor of academic outcomes in reading and math approximately 3 years later even after controlling for parental support.

Table 1 (continued)

Author/s	Title	Research Question/s	Methods	Participants	Findings
Der-Karabetian (2004)	Perceived family process factors and mathematics performance among Latino, African and European American middle school students.	Will family process factors be different predictors of mathematics performance in Latino Americans, African Americans, and European American middle school students?	Family process factors and parental attitudes were measured as perceived by students using questionnaires. Math achievement was measured using the National Percentile Rank for total math on the SAT-9 standardized test.	2,078 seventh and eighth grade students in four of the six middle schools of a southern California school district who were enrolled in regular math classes.	For European American and for Latino American students, parental expectation was by far the strongest predictor of SAT-9 mathematics scores. For African American students, the mother's attitude was the strongest predictor.
Fan & Williams (2010)	The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation.	How do various dimensions of parental involvement predict adolescents' academic self-efficacy in math and English?	Used data from the Educational Longitudinal Study of 2002 and applied stratum, cluster, and weight along with the Taylor-series approximation technique in the analysis.	Used 2 stage selection process for 26 10 th grade students within each school.	Communication in school-parent contact made a significant difference in associations between school-partner contact and adolescents' academic self-efficacy.
Gordon & Louis (2009)	Linking parent and community involvement with student achievement : Comparing principal and teacher perceptions of stakeholder influence.	How does principal's leadership style and openness to community involvement affect student achievement? How are participatory and shared school leadership structures related to student learning?	Stratified random sampling procedures were used at all organizational levels. Principal and teacher surveys involved perceptions of parent and community involvement in schools. Achievement data for math and English was based on performance on state accountability measures.	Data from 157 Principals from 180 middle and high schools from nine states. Data from 4,491 teachers from these 180 schools.	In schools where teachers perceive greater involvement by parents and in schools where teachers indicate that they have a school environment where they practice shared leadership, student achievement is higher.

Table 1 (continued)

Author/s	Title	Research Question/s	Methods	Participants	Findings
Lamb & Fullarton (2001)	Classroom and school factors affecting mathematics achievement: a comparative study of the U.S. and Australia using TIMSS	How do the United States and Australia compare in the relationships between student achievement in math and factors at the student, classroom, and school levels?	Comprehensive math and science tests were developed by TIMSS to investigate achievement among students. Questionnaires were developed to assess placement and emphasis on topics in curriculum.	7,087 eighth grade students from 183 U.S. schools and 6,916 eighth grade students from 158 Australian schools. Math and science curriculum developers completed questionnaires.	The four main factors that influence student achievement in math are: student background variables, classroom differences, teacher factors, and school factors.
Levpušček, Zupancic, & Socan (2013)	Predicting achievement in mathematics in adolescent students: The role of individual and social factors.	To determine whether selected individual factors and social factors (one being parental involvement) were predictive of academic outcomes in mathematics.	Questionnaires on personality and parental academic involvement were used. Achievement was measured with students' final grades and NET scores in mathematics.	416 eighth graders (216 girls, 200 boys) from 13 randomly selected public schools (eight urban, five rural) in different regions of the Slovenia.	Parental academic support was significantly and negatively linked to student achievement in mathematics.
McNeal (2014)	Parental involvement, academic achievement and the role of student attitudes and behaviors as mediators.	Do parent-child discussion, parent-child monitoring, educational support strategies, and Parent Teacher Organization involvement affect student achievement?	Used data from the National Educational Longitudinal Study which includes data from students, parents, teachers, and principals using questionnaires on parental involvement. Achievement tests in reading, math, and science used to assess student performance.	First wave eighth grade student and second wave 10 th grade students in public school.	Parent-child involvement has a greater effect on student attitudes, behaviors, and achievement than does parent-school involvement. Parent-child discussion has the strongest effect on student attitudes, behaviors, and achievement.

Table 1 (continued)

Author/s	Title	Research Question/s	Methods	Participants	Findings
Park, Byun, & Kim (2011)	Parental involvement and students' cognitive outcomes in Korea: Focusing on private tutoring.	How do different types of parental involvement (private tutoring, home-based activities, school-related activities, other programs/volunteering) relate to student achievement?	Used two-stage stratified sampling design. KELS administered achievement tests in Korean, English, and math. KELS used parental questionnaires that measured parental involvement.	6,908 seventh graders were randomly sampled in selected schools in Korea in first year and then 6,568 of the 6,908 in second year.	Significant effect of parental involvement in private tutoring has positive impact on students' math and English achievement.
Sheldon, Epstein, & Galindo (2010)	Not just numbers: Creating a partnership climate to improve math proficiency in schools.	What is relationship between school's partnership activities to student performance on math achievement tests.	Schools reported on implementation and effectiveness of 15 family and community involvement practices. School-level student performance measured on state's standardized math achievement tests.	41 schools from elementary, middle, and high school in urban, suburban, and rural areas reported data.	School-level math achievement is positively related to the partnership climate at a school where school supports families and families support school. This partnership climate involved educator perceptions of parental support.

Chapter 3: Conclusion

In conclusion, I think that the biggest contributor to secondary school student attitudes, self-efficacy, and achievement in math is parent-student discussion. Throughout the research, examples of parent-student discussion kept appearing and showed that when parents reinforce the importance of math to students, it makes a difference. I can really use this information in my classroom when I talk to parents and give them strategies they can use to help their children learn math. When they tell me that they do not know what to do to help their children learn math because they, themselves, were never good at it, I can tell them that they just need to keep telling their children that it is very important that they learn math for their future. Discussions can take many forms focusing on accountability, future planning, etc. I am really excited to begin advising parents of this tactic and how it can first improve the student's attitude and self-efficacy with math. Then, when the students have a positive attitude and believe they can learn math, they will achieve success by mastering secondary math concepts.

Parent-student monitoring is possibly something that needs to be taught to parents by schools. Or, at least, schools should try to create a better relationship between parents and schools that aim at more parental involvement in the school environment. Optimally, this would be a state or district initiative that involves all students and parents by promoting parental involvement. I think some schools/teachers might try to do this at the elementary level, but I have not seen anything done at the secondary level. Since I do not personally have children, it is difficult for me to tell parents how to consistently reward positive behaviors and give consequences for negative behaviors. After training my 10-month-old Labrador puppy, it seems pretty obvious the importance of being consistent to improve attitudes and behaviors, but I know

that it can be more difficult with an actual child. Some parents probably need to learn about the types of monitoring that will foster the attributes they want their child to have, especially with teenagers that are so susceptible to learning from the media and other influences other than their parents.

Future Research

Contact, communication, and supports between parents and schools are highlighted as important by the research, especially when the student is already struggling. Different parents reach out in different ways, maybe even relative to whether they have a boy or a girl. So, I think that if there was a state or district-wide parent-school contact program, it may help. I like the idea that the Anoka Hennepin School District encourages parents to discuss with the students that math is in their everyday life. Maybe I can work on implementing something like that with the parents of my students in the future. The best form of communication I have currently with all of my parents is the online grading system that we have. So, parents can check on the grades of their child at any time and contact me when they have any questions or concerns about what is going on with their child's learning. It is important for the parents to be able to communicate to the teacher or school to determine how their child is doing in school.

Recent articles have been doing a better job of defining different types of parental involvement, and there will probably be more important research on this topic in the future. Current articles define parental involvement in similar ways, which is promising. Since parental involvement, and the amount of parental contact with schools is more likely when the students have behavior issues, specific definitions of similar types of parental involvement is important. Most of the research I found was in the past 5 years, so I think that there will be more to come. I

will continue to keep up with the research and maybe even conduct my own studies in my classroom.

Current Practice

I will talk to parents and students to try to convince them of the importance of learning math to their real lives, but when students hear from their parents that “they were never good at math,” they feel that it is alright not to do well in math. We really need parents to press upon their children the importance of learning math because we want them to be successful and learn math concepts proficiently. In my current classes, I will talk to parents and teachers about the importance of parental discussion with students about the importance of math and having high expectations for math achievement. Since my studies have shown that parent-student discussion is the most prominent factor in secondary student achievement in math, hopefully the students in my classes will all achieve higher math proficiency in the future.

Summary

My goal for this paper was to be able to provide parents with information and resources on what they can do to help their child succeed in math. I have learned that achievement in math is related to parental attitudes which lead to student self-efficacy. Parents can influence positive student attitudes the most. Even when parents are not directly involved in the learning process for their child, they can still have a positive impact by discussing the importance of math learning. In my opinion, when parents stress the importance of learning math to their children, it will positively impact the student’s future success in math. When students really believe that learning math will directly benefit them in their real lives, they will have better attitudes toward

learning. Their self-efficacy will improve when they keep trying, and then math achievement will improve because they are more confident in themselves.

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