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Finding Math Success District Wide: How Teaching Styles, Classroom Management, and a Positive Approach Can Help All Students

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Finding Math Success District Wide:
How Teaching Styles, Classroom Management, and a Positive Approach can
Help All Students
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LS 400: Liberal Studies Senior Capstone

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Synthesis

The career we want, we prepare for in college. We learn what we need to learn and do the best we can to end up better. I have learned many things both in the classrooms and outside of them. I want to be a teacher, but becoming a teacher was not always the dream. I used lessons learned in biology to pursue a teaching career.

I went to a community college that was a 15-minute drive from home. I was initially a biology major. I was able to skip all introductory courses and got right into the fun part. I enjoyed cell biology, and learned a lot in botany. I spent many hours and a few sleepless nights studying for biology classes. However, the knowledge I gained broadened a view of science and an understanding of how frequently everything changes. I was at that community college for three years, and then I transferred to Cal Poly, San Luis Obispo (SLO). I took the classes I had to but something wasn't right. I know now that I had depression at the time and my anxiety was at a new high level that I had not learned to manage.

I've had anxiety since I can remember. It's something that has caused trouble but each time, I adapt and move forward. The depression aspect of my diagnosis was a bit of a shock, but once I was on medication, I was able to see the large effect depression had been having in my life. Cal Poly taught me that it was okay to not feel okay, and that help was always there for the asking.

I decided to go back to community college. I was terrified of starting over. I wanted to just finish getting my biology degree, because it felt like everyone else was moving on but me. However, I wanted my career to be something I loved. Yes, I enjoyed being in all the classes

required of me as a biology major. I enjoyed learning, but could not see a future outside of simply sitting in a classroom and learning.

I learned that starting over isn't a bad word. There is nothing wrong with going back to square one. We are all on our own timeline. I could not compare myself to those around me. So, I continued searching for my passion, and I met others doing the same. We talked about their education so far, what had caused them to take a different route than their peers. I found people who did not go to college right after high school because they didn't think they were smart enough. I found people who didn't finish college because they felt underprepared. Others just felt that school wasn't for them. The more I listened the more I realized that my peers had been stunted because of their education in K-12 while others shined because of it. I found people who did not have the same support and help I did both in school and at home. I saw their potential and struggled to believe that sometimes parents and teachers hadn't.

I briefly became a business major but found no joy in it. After talking with my peers, I decided to go into psychology. I've always been intrigued by the human mind, and those classes will help me understand that a student is more than just what they show me and there are reasons behind their behaviors.

I was volunteering for a summer camp for grades preK-8th grade during my time in community college. I had so much fun helping out and being with the kids. I decided to volunteer for a camp for high schoolers and though they were troublesome, I also had a lot of fun getting to work with them and getting to know them. I wished that there was a way I could work at these camps and make a living out of it, but even the person in charge struggled to make ends

meet and worked another job. Those kids showed me the patience I was unaware I had. They came from rough backgrounds and kept coming back because the camp was a welcomed change.

I continued my pursuit of psychology and kept working with the kids and teens of my community. I talked with a lot of the teens I worked with and I could see how amazing they were, but they never believed me. No one had ever believed in these kids before. They didn't feel seen at school and at home they were responsible for their younger siblings and their parents were always working. They saw themselves working at the local market once they finished high school. I listened and offered advice when asked, but I wished there was more I could do. I grew up in the same town and I knew the bias we had to deal with in school because of where we were from. Even though my hometown is very small and safe, there was a perceived notion that it was filled with gang members and drug users. I had a teacher treat me differently after she found out where I was from. She always assumed I was lying and thought I was cheating and copying homework assignments. It was one teacher, but that was enough to discourage me from taking AP and honors English classes and stuck to the normal ones where teachers didn't really care if you did the reading. Sadly, most of those teens from the summer camp had come across similar problems.

I was considering switching my major again. I liked learning about the brain and everything that psychology covered, but there was still something missing. I had to take an early childhood development class and the class gave me a better understanding of what a child is going through. They were smarter than we gave them credit for. They were developing and growing and what someone did in their lives could affect them for years. One of the assignments was that I had to observe children in different stages. And though I love babies and toddlers,

after observing a child who was a little over two years old, I knew I did not want to spend more time with that age group than I needed to. Another age group I had to watch were school-aged children, I observed an eight-year-old and was astounded by how smart he was and how he viewed the world. I saw that if you worked with his view of the world, he could learn and do more. He was surrounded by amazing parents and people that loved and cared for him. He was advanced for a child his age.

I thought of some of the kids from the summer camp, who had parents who loved them but were working two jobs to provide for their families. The love was there, but they needed a bit more. I did what I could in the summer camp but at times it didn't feel like much. The summer camp lasted just a few weeks. Those kids who attended the camp, needed people on their side who wanted to see them succeed. And then it clicked. I could be that person, as a teacher. I was upset at the lack of support some of these kids had. A few of the camp kids had been lucky to have teachers who supported them and I realized that they were the same teachers who supported me when I was in school. There were people who believed in us. I wanted to be one of those people. I wanted to help and support kids. Thanks to the summer camp, my passion to help children grew and I saw what my future could be.

I love science and I want to see more minorities and women in the sciences, in STEM (science, technology, engineering, math) majors. I thought I would be a teacher who showed the beauty and power of science. But as I kept going, I saw that this would not work. In my math 308 and 309 classes, I saw that there were students who were struggling to understand some of the concepts. If the future teachers had trouble, I imagined it'd be just or more difficult for our future students. And I realized that before I could show students how great science is, I had to

help them really understand math, and not fear it. You cannot grasp subjects like physics, microbiology, and computer science without math. Math is hard and scary at times but the world revolves around it. All sciences rely on math. I had professors who would argue that chemistry was more important than physics, but then another professor would argue that physics was more important. The argument was futile, because the subject that was most important was math. I realized that students were not getting a full understanding of math in their K-12 education. Even if someone does not want to obtain a STEM major, everyone should learn math to understand the world. When I was taking business classes I saw people who had dreams of opening their own store. I've come across people with all sorts of different dreams, and math is needed for all of them.

Now that I've decided to get my multiple-subject teaching credential, I've realized that my focus cannot all be on math. Thanks to classes like LING 392 and ED 612, I am aware of the difficulties English can be to students who don't know the language. I want to help students who may not know English or come from English speaking homes and feel comfortable with the language. Because of LING 392 and ED 612, I realized that I could be an elementary teacher. I had always thought I would be in the older classes (fourth-eighth grade), but now after everything I learned, I know I could help students in any grade, especially the younger ones.

I want to teach students and show them that math isn't scary or something we should avoid. I want to help students reach their full potential in every subject and go after their dreams. I want them to know that people are on their side. That yes, sometimes life is hard and unfair but they are not alone and can be successful. As a liberal studies major, I have learned so much and I

am excited to apply them in the future. Every student is different but they can all learn and succeed. I am excited for what I still have to learn and cannot wait to have my own classroom.

Prospectus

Capstone Project Advisor: Linda Bynoe

Title: Replicating Math Success District Wide

My interest in this topic developed when I was younger. My mother was a teacher in Mexico and when she came here, she learned the language and eventually became a teacher. I grew up hearing how people doubted her for speaking with an accent, but time and time again her students excelled in their classes and in their testing. My mother has been at a dual emergent charter school and has consistently gotten her students to do well in school and in all the subjects she teaches. Would it be possible to replicate her success or is her teaching style, like her, one of a kind?

After an informal interview was done, it became apparent that this teacher, Mrs. Meraz, had figured something out. She was constantly getting high test scores, and not just that but her students genuinely enjoyed being in her class year after year. Her teaching style is more authoritative than anything, but she did not get her students to succeed through fear as one might assume. Mrs. Meraz has found a method to help her students, something that some teachers struggle to achieve. So then, what was it that made her different? There are test scores dating back to 2008, showing Mrs. Meraz consistent success. Is her method of class management the reason why she's so successful? Is her love for math what gets her students to score higher in math testing?

Other educators will be looked at and interviewed to determine if perhaps there are any commonalities between them. Teachers who struggle with classroom management will also be observed and interviewed to see how it has affected both the students and teacher. A teacher who won an educator of the year award will be researched, an interview has been requested at the time, but there is no response as of now.

More research is currently being done on other teaching styles and their benefits. Also, different ways of teaching math are being observed. There are some positive and negative research being done about the common core. What is working from it (in math) and what isn't? Is common core to blame or how it's being taught?

The primary question for my research is: How can a teacher's success in teaching math be replicated throughout a school district? Related questions are: Does a teacher's classroom management affect elementary students' abilities to learn math? Does a teacher's passion for math help promote elementary students' ability to learn math? What is the conventional way to teach math in an elementary school? How is common core being used in classrooms? What is Mrs. Meraz' method for teaching elementary students math?

To answer these questions, I will be interviewing Mrs. Meraz and gathering information on the test scores of her students. I will be recording Mrs. Meraz and what she does on a regular day. I will gather information on the benefits of certain teaching styles, as well as, information on classroom management. I will also be gathering information on methods in teaching students math and getting them to succeed in it. I plan to go to a school locally (in MPUSD) and interview some of the teachers and principal. I will gather statistical information on the schools Mrs. Meraz has been at as well as that of the school I look into at MPUSD. Another method in which the

questions will be answered is that current state policies on math will be reviewed, as well as the methods in which Liberal Studies students at CSUMB are taught to teach math. Research will also be done in the different styles of teaching and how they affect students. I will deliver the first draft of my research paper by April 1, 2020.

The MLOs that will be addressed are one, two, and four. MLO one (Developing Educator) states: Students think, write, and speak critically about the general knowledge, skills, dispositions, and responsibilities of a California public educator in classroom, school, community, State, and National contexts. Students acquire introductory pedagogical skills and apply perspectives of the Educational Foundations to their developing professional practices. MLO 2 (Diversity and multicultural Scholar) states: Students evaluate their own and others' experiences as influenced by social identities, socialization practices, and societal institutions from both historical and contemporary perspectives. Students critically examine the value of diversity and multiculturalism. Students inform their educational practices and perspectives by applying concepts and theories of diversity and multiculturalism. MLO 4 (Social Justice Collaborator) states: Students combine disciplinary knowledge, community experience, and reflective practice to become ethically and socially responsible educators working toward a just and sustainable world. Students identify and pursue paths for social change. Students collaborate with stakeholders to advocate for access, equity, and justice in public education and other societal institutions.

The final product that I produce will be a paper that is 15 pages long written about Mrs. Meraz and her success, as well as, the methods she's used to get that success. It'll include the benefit of authoritative teaching over other styles of teaching. It'll also have a comparison in how

Mrs. Meraz teaches math versus those found in other classrooms. It will also include other teachers and data on all of their test scores in math. I will be examining if Mrs. Meraz' methods can be replicated in other classrooms. I will also look at what is expected from the common core when it comes to math and how it's being taught.

The final product should be of interest to teachers, principals, school districts, and parents. I would like to adapt my paper for publication in a magazine or school newsletter. I would like to see this material included in the teacher-credentialing program at CSUMB. I would also like for current teachers to have access to the information I will have gathered.

After this prospectus was initially written, some changes were applied throughout the semester. Now, at the end with the final capstone below, here are some of the changes made. The title was changed to *Finding Math Success District Wide: A Path Created by a Second Grade Teacher*. Unfortunately, due to COVID-19 other interviews were not able to be performed, and surveys were not able to be answered. The final product ended up being 45 pages long; however, without the prospectus, synthesis, thank you's, appendix A, and appendix B, the final product is 16 pages long.

Here is a list of references consulted to date:

Baker, J. Clark, T. Crowl, A. Carlson, J. (2009). The Influence of Authoritative Teaching on Children's School Adjustment. Are Children with Behavioral Problems Differentially Affected? *School of Psychology*, 30 (4); 374-382. doi: 10.1177/0143034309106945

>This article discusses the positive affect authoritative teaching can have on all students,

but specifically with those who have behavioral issues. This article also mentions the thin line between authoritative and authoritarian teaching and if done incorrectly, instead of helping students, their behavior will get worse.

Boaler, J. (2006). Promoting Respectful Learning. *Educational Leadership*, 63(5), 74-78.

>This article discusses a method in which math could be taught and the type of environment a teacher should strive to create.

Boaler, J. Anderson, R. (2017). Considering the Rights of Learners in Classrooms. The importance of Mistakes and Growth Assessment Practices. *Democracy and Education*, 26 (2), Article 7. Available at: <https://democracyeducationjournal.org/home/vol26/iss2/7>

>This article discusses a method to teach math. The article talks about the benefit of mistakes and the effects it has on the brain.

Farmer, T. W., Lines, M. M., & Hamm, J. V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences. *Journal of Applied Developmental Psychology*, 32(5), 247-256. doi:10.1016/j.appdev.2011.04.006

>This article discusses the contributions that teachers could have on a student's growth and their peer relationships. It includes summarized empirical work that supports the idea that teachers can guide and develop their classroom as if it was a society.

Gao N. & Lafortune J. (2019) Common Core State Standards in California: Evaluating Local Implementation and Student Outcomes. *Public Policy Institute of California*. 1-25.

>This is a primary source. It includes the way common core is being used and how the students' outcomes are affected. It discusses and shows how progress is uneven and how the districts' choices affect this. It is also discussed that instructional practices tend to lag

behind and that there are some improvements in districts that have adopted the standards.

Hill, L. Lee, A. Gao, N. Lee, C. Hayes, J. Warren, P. & Lafortune, J. (2020, January).

California's Future: K-12. *Public Policy Institute of California*.

<https://www.ppic.org/wp-content/uploads/californias-future-k-12-education-january-2020.pdf>

>This is a primary source. It discusses the challenge of improving outcomes for high-need students and how student performance data show a long road ahead. K-12 funding is discussed, how it is still a central issue and what has led it to be such a problem. Steps that are currently being taken and planned to be taken to help solve this problem are stated.

Hughes, J. (2002). Authoritative Teaching: Tipping the Balance in Favor of School Versus Peer

Effects. *Journal of School Psychology*, 40(6), 485-492. doi:10.1016/s0022-4405(02)00125-5

>This article talks about the benefits of authoritative teaching. It discusses what the other styles of teaching are and how they derived from parenting styles.

Kellam, S. G., Rebok, G. W., Ialongo, N., & Mayer, L. S. (1994). The Course and Malleability of

Aggressive Behavior from Early First Grade into Middle School: Results of a

Developmental Epidemiologically-based Preventive Trial. *Journal of Child Psychology and Psychiatry*, 35(2), 259-281. doi:10.1111/j.1469-7610.1994.tb01161.x

>This article is a primary source. It includes research done in classrooms that had students with behavioral issues and the affect teachers and their classroom management and style of teaching had on the students.

Kumler, J. (2019, April 02). Classroom Royalty - A Conversation with Eric Hale. Retrieved from

<https://www.investedtx.org/blog/2019/3/29/classroom-royalty-a-conversation-with-eric-hale>

>This article is about Eric Hale and what it is like in his classroom and is a primary source. Eric Hale won a best teacher award and works in a low income district. He did not start off wanting to be a teacher but found his way to the profession. He runs his classroom in a certain way and creates relationships with his students. Mr. Hale finds a way to incorporate music, something he enjoys, into class in ways that he believes will benefit students. He is also pushing to get more financial help in his school to benefit his students.

Lafortune J. & Mehlotra R. (2020) Governor Newsom Proposes New Investments in Math and Science Teachers. *Public Policy Institute of California*.

>This article breaks down the new budget and how some of that money is going towards recruiting math and science teachers.

Rutter, M. & Maughan, B. (2002). School Effectiveness Findings 1979-2002. *Journal of School Psychology*, 40(6). 451-475. Pii S0022-4405(02)00124-3

>This article discusses how bettering students is not just about the classroom but the school itself. The article talks about how a welcoming environment is important in and out of the classroom. The article discusses the long study they did and how their findings pointed to the benefit of certain teaching styles and classroom management.

Shores, R. Gunter, P. & Jack S. (1993, February). Classroom Management Strategies: Are they Setting events for Coercion? *Behavioral Disorders*, 18 (2). 92-102.

>This article discusses the fine line between establishing classroom management and focusing

too much on control of the classroom. The article discusses the negative relationships that can be established between teacher and student.

An interview with Mrs. Meraz has been performed and is being transcribed.

>This interview is one of my primary sources.

STAR Test Results (n.d) Retrieved from <https://star.cde.ca.gov/>

>The site was used to get the test scores for Mrs. Meraz's class from the years 2008, 2009, 2011, 2012, and 2013. It also includes test scores of the district and county in which Mrs. Meraz was in those years.

Thank You

I would like to take this time to thank everyone who has helped me get to this point and to finish my capstone. First and most importantly, I would like to thank my parents. My parents have been immensely supportive throughout my entire educational career. My parents have been in my corner and believed in me even when I didn't. I am who I am because of them. I've gotten as far as I have because of them.

I would like to take this moment to specifically thank Mrs. Meraz, who is my mother and a second-grade teacher. This capstone would not exist if it weren't for her and her hard work. Mrs. Meraz's dedication to her students and her work is inspiring and I one day hope to have an impact in my students' lives like she has. I know I have not been the easiest child to raise, so thank you for putting up with all my nonsense. Thank you, mom, for making me go to college and get my degree, it's taken a very long time but I've made it. Thank you for always being there for me.

I would also like to thank Mr. Meraz, my father and coach. Mr. Meraz helped me find the main questions for this capstone. Mr. Meraz was a soccer coach over 20 years ago and is still in contact with his team. He left a lasting impact in his players and I realized that there were teachers who were doing the same. Through those discussions I realized that being a good teacher is more than creating lesson plans and going through the motions. Thank you dad, for installing a will to never give up. Thank you for helping me come back after all my injuries, especially after I ruptured my Achilles heel. Thank you for taking time off work to drive me to CSUMB for school and then take me to the doctor. Thank you for always being there for me.

I also wanted to thank my sisters. Tania and Giselle have both helped me overcome so much. They have both given me a helping hand and helped me through some of the dark times caused by my depression and anxiety. Thank you, Tania, for giving me the tough love I needed. Thank you Giselle for helping me enjoy the little things when I felt like breaking down. Thank you both because you have each made me become the person I am.

Thank you to Peter. I am forever grateful for having you as a friend. Your encouragement and support has helped me in more ways than you know. I am so glad that you can be yourself with me and I get the chance to see who you really are. When I don't believe in myself, you are always there believing in me and pushing me to keep going. You have helped me look back at everything I have struggled and turn it into an experience I can grow from.

Thank you to my capstone advisor Dr. Linda Bynoe. You helped turn this big project into something I felt that I could accomplish. You have helped develop this capstone. Had it not been for your help, my mother's interview would have been left in my drafts and her methodology would not be known.

Thank you to the person who has always been on my side, my grandmother. Your immense love and support are something I will always be thankful for. Your laughter and joy have helped me see the good in life and the good in me.

Thank you to my LS 400 classmates. I appreciate all the help you've given me. It was nice to have someone going through the same thing I was. Thank you also to the friends I've made at CSUMB. You helped make my time at the school a great one.

Abstract

This Capstone researched the methods a teacher could use in their classroom to increase math understanding and establish an encouraging learning environment. A second-grade teacher, Mrs. Meraz, was interviewed. She was known as a successful teacher for many aspects of students' education. Some of those methods included using authoritative teaching, proper classroom management, and changing students' perspectives about math, and the value of struggles students have while learning. The research stated positive outcomes in using authoritative teaching over other styles of teaching. The research showed that classroom management was vital in creating a positive learning environment. Several annual test scores indicate that Mrs. Meraz teaching methods were effective.

Introduction and Background

Initially a passion for science had led me in the direction of becoming a high school science teacher. Some of the issues that we are facing today can be hard to understand without a solid foundation in science. I wanted to help build that foundation, but as I continued to pursue this goal, I came to the realization that students would struggle with science in high school if they didn't develop an understanding of science in middle school. I thought teaching 6-8th graders would be ideal. However, after having to spend a semester in a second-grade class for service-learning hours, I found myself drawn to the younger grades. Students in elementary looked at the world in awe and were excited about everything and anything.

As I prepared to become an elementary school teacher, I remembered my time as a biology major. I loved nearly all the classes I had to take except physics. Physics had been a struggle and took a lot of my time and energy. But what I remembered was that in classes like physics and organic chemistry, that those who struggled was because they did not have the basics down. I applied this idea to high school students, middle school students, and elementary students. How could I expect them to enjoy science without them knowing the basics? I realized that the basics all derived from math. Any class in science, required math. So, if I wanted my students to grasp scientific concepts, they would first have to understand mathematical ones.

While taking undergraduate classes, it was evident that some future students were not completely comfortable with math. These future teachers did not feel very confident in their understanding of math but were pushing themselves to get better so that they could be better teachers for their students. After seeing this and the service-learning hours spent at California

State University, Monterey Bay (CSUMB), it became apparent that most students were not fans of math. Math is an important subject because regardless of what you do, math is always directly or indirectly involved. I wondered, how could math be made less scary and simultaneously raise test scores for elementary students?

The main question of this capstone came to be after several conversations with a teacher. Her students always did well in math and often were excited when it was time for a math lesson. Initially, it was suspected that the teacher's students did well in math because she enjoyed math. Therefore, those Liberal Studies students that didn't like math, were destined to teach it poorly. But that didn't seem like a good enough answer. There had to be something else that this teacher was doing to get the success she was getting from her students. This led to an interview with the teacher and it became apparent that her affinity for math had nothing to do with the success of her students.

Wondering how this teacher was able to get so much success in math from her students, led to the main question of this capstone. How can a teacher's success in teaching math be replicated throughout a school district? This teacher is Mrs. Meraz, who is currently teaching second grade. Her standardized testing scores can be found in Appendix 2 from her previous classes when second grade test scores were recorded. The interview performed can be found in Appendix 1. The interview initially began with the focus on math, but as the interview progressed the main idea for this capstone shifted.

Secondary questions began to develop. What caused this success? Was classroom management and the style of teaching connected to student success? The solutions to these questions were answered through research and the findings have been laid out in the following

paragraphs. It is believed that in order to have student success in math, training, a specific teaching style, and classroom management were crucial to achieving that goal.

Literature Review

There is more to teaching than just showing up with a lesson plan from August through June. It is not an easy job, and the future of students depends on it. There is a new wave of need for math and science teachers. According to Lafortune and Mehlotra (2020), the 2020-2021 budget has a never before seen level of K-12 funding, with a \$3.8 billion increase from last year, where \$900 million are for K-12 teacher recruitment. There is a push for more teachers, but there is more to the job than just money. However, becoming a teacher and being a good teacher are two different things. In order to be able to help students improve in testing in math, something needs to be done to help students who already have a lot against them, like being economically disadvantaged.

Students that are considered to be economically disadvantaged (high-need), are struggling the most in classes. Though students considered to be high-need are in fact improving, they are doing so at a slow rate and there are still a lot more improvements that need to be done (Hill et. al., 2019). Some contributing factors outlined by Hill et. al. (2019), are that many districts face a decline in enrollment, rising cost, small district budgets, and lack of funding. There is a lot already going into trying to help bridge the gap that high-need students face. Some of the methods Hill et. al. (2019) suggested are, expanding preschool and early childhood education, addressing issues in special education, balancing local control and state oversight, improving academic success for all English Learners, using data to improve student's success, and building a system to support the implementation of new state policies.

There is more being done for high-need students statewide in hopes of getting them to improve their testing on all Common Core Standards.

There is also something being done at the district level to help students improve in their testing. According to the Public Policy Institute of California (PPIC), though most teachers and administrators have received training, there is still more training needed. The training that they are getting is on implementing the Common Core Standards in classrooms and in schools. In order for a teacher to be able to have success in teaching math, they need to have an understanding of the Common Core Standards being taught. For teachers to be able to do this, they need to be trained. According to Gao and Lafortune (2019), more than 14 hours of professional development has a positive effect on student achievement. A minimum of 80 hours is required to change a teachers' instructional behaviors. However, an additional 80 hours of training is required to change the classroom environment. Meaning, that training for teachers is always needed, especially if teachers are expected to show results. Based on Table 1, most teachers are not getting more than 32 hours of training and a large amount do not get more than eight.

Table 1: Hours of training for teachers and administrators, 2018-19

	None	1-8 Hours	9-32 Hours	>32 hours	NA
Elementary Teachers	0%	26%	58%	4%	12%
Math Teachers	4%	20%	61%	7%	7%
Math Coaches	7%	13%	42%	15%	23%
ELA Teachers	3%	21%	65%	3%	8%
Other Teacher	8%	27%	55%	0%	9%
Special Education Teacher	9%	40%	48%	0%	2%
Administrators	5%	47%	42%	6%	1%

Table 1: “The Numbers are weighted by inverse probability response. [The] sample is restricted to (1) respondents who are familiar with their districts’ implementation and (2) districts that were in the implementation phase at the time of the survey. [The] sample is too small (~60) for any meaningful breakdowns” (Gao & Lafortune, 2019)

Source PPIC Common Core Implementation Survey, 2019.

The amount of training that teachers are getting is up to the districts which in turn leads to those districts not implementing the common core standards (Gao & Lafortune, 2019). However, the implementation of the Common Core is not just up to the districts but the teachers. Teachers will eventually get to the point of being able to implement the required standards, and increase testing scores. But in order for this to be the case, there needs to be training and the proper number of hours

need to be achieved. Once the resources are there for a teacher to become better for their students, something else must be taken into consideration.

There are a lot of different policies that can be created and increases to budgets can be made, and both are very important, but that isn't all that matters. An important question was brought up by (Rutter & Maughan, 2002), does who students go to school with matter more than what the school does? Meaning peers tend to have more influence over an individual than the school itself. Therefore, in order to prevent a negative effect caused by peers, a teacher must step in to offset that effect. A special type of teacher will be able to prevent negative peer effects, and still have students understand math and do well in testing. According to Hughes (2002), the classroom effects on a student are stronger than those by the school. In order for the classroom to have that greater effect, the teacher has to step-up. Hughes (2002) claims that there is a specific learning style that is required. In order to determine which teaching style was more effective, Hughes (2002) took a look at parenting styles because teaching styles went in hand with parenting styles. There are four main types of parenting styles, which are authoritarian, authoritative, permissive, and neglectful (Hughes, 2002). Each parenting style ranges from low warmth to high warmth and low control to high control, where warmth is considered to be a caring and lovable involvement, and control is being the authority in the house and having rules that are always enforced. Authoritarian parenting involves high control and low warmth. Authoritative parenting involves high control and high warmth. Permissive parenting involves low control and high warmth. And neglectful parenting involves low control and low warmth. Hughes (2002) states that a relationship between a child and their parents that are involved and close helps prevent the reach of negative habits brought on by peers. Therefore, Hughes (2002) states that students who have a relationship with their teacher and positive involvement, may lead the students

being less vulnerable to negative peer influence. This positive involvement relationship is connected to authoritative parenting, where there is high control and high warmth. Hughes (2002) found that there were “.... longitudinal studies demonstrating that the quality of the teacher-student relationship accounts for changes in student outcomes after controlling for students’ initial levels of academic and behavioral adjustment....” This would mean that students who are at risk of academic failure would greatly benefit from a supportive teacher-student relationship (Hughes, 2002). But it would not only apply to students who were at risk of failing, but all students. Subjects like math wouldn’t be so difficult for students to overcome with the help of a supportive teacher-student relationship. Hughes (2002) found that there was evidence that showed that motivational factors accounted for the quality of the relationship between students and teachers and the students’ outcomes, but it does not end with motivational factors; it also has to do with the monitoring of students’ behaviors. Research done by Farmer T. et. al. (2011), also supported the idea that teachers act as an “invisible hand” in students’ peer relationships and also can affect the students’ interpersonal growth. A teacher’s teaching style can greatly influence a student’s academic success but can also positively impact on a student’s life outside of the classroom. When it comes to the classroom, several studies suggest that the students’ academic engagement, social abilities, and emotional adaptations are correlated with the warmth and emotional sensitivity that teachers show (Farmer et. al., 2011). As a whole, it matters how a teacher controls their classroom, but individual relationships also matter. According to Farmer et. al. (2011), students that have lower levels of support from a teacher along with higher levels of stress within the relationship, also have lower levels of socioemotional adjustment and higher levels of involvement in bullying either as a bully or victim. Just as a teacher can positively influence their students, they can also negatively affect them. This is something teachers should be aware of and prepared for. Teachers will

come across students that they may struggle with but how they handle the situation and react to it, will alter the relationship.

However, there is a line between authoritative and authoritarian. Interactions between students and teachers can go from positive to negative quickly. Shores et. al. (1993) states that there could be reciprocal and coercive interactions where reciprocal interactions are positive and mutually reinforcing social exchanges and coercive interactions are when disinterested or harsh behavior is shown. Being able to manage a classroom goes beyond just having control. It is helpful to use authoritative teaching but there is more to it. A study done by Baker et. al. (2009) showed that constructive classrooms are characterized by warm and caring relationships among peers and their teacher, a supportive and responsive structure, demands for maturity, and classroom management practices that are supportive in the development of students' independence and self-regulation. It was also shown that a student's behavioral problems in the classroom were correlated with poor classroom adjustment, but authoritative teaching was associated with positive school adaptation for all students (Baker et. al., 2009).

Outside of teaching styles and classroom management, how students learn also matters. Mistakes are essential to the learning process and students should not be stunted in their growth from fear of failure. A study done by neuroscientists showed the important impact mistakes and confusion have on the brain (Boaler & Anderson, 2017). Mistakes in math led students to believe they could not be successful in math. A trap many of my peers have previously fallen into. How can teachers get students to score better in standardized testing if the students believe they are not good at math? Boaler and Anders (2017) found that there was more brain growth when people made a mistake than when they got an answer right. Therefore, a teacher should encourage students to try, even if they might fail.

Scientists have found the positive impact of learning in an environment that encourages struggle and mistakes for positive brain activity in younger students (Boaler & Anders 2017). Another fear that plagues students is having a different answer than their peers. However, respect for different viewpoints is promoted when students begin to consider different mathematical ideas when problem solving (Boaler, 2006). Research done by Boaler (2006) showed that “....students learned to value the contribution of different methods, perspectives, and partially correct or even incorrect ideas, they also came to value different people’s insights.” The same research showed that when practicing math, the students learned that they were able to solve complex problems by persisting and collaborating. The idea of persisting isn’t just applicable in math, but in all subjects. The nationally recognized educator, Eric Hale believes that believing in oneself and working towards being the best is an important message all students should hear and remember (Kumler, 2019). In the interview done by Kumler (2019), Mr. Hale says that one cannot expect to have expectations without connections, and he builds connections and also has high expectations for his students.

Methods and Procedures

Several different topics were researched through the California State University, Monterey Bay (CSUMB) library. The online library known as the Education Resources Information Center (ERIC). Through the resources several different articles were found by searching for terms like: training, teaching styles, class management, and teaching math. From those articles, 11 were used. From those 11, five of them were peer reviewed and considered to be primary resources.

An interview was performed with Mrs. Meraz, a second-grade teacher. Her full interview can be found in Appendix 1. The interview was performed face-to-face and permission to record was acquired. Questions were planned prior to the interview, but the interviewer asked the questions but mostly had Mrs. Meraz talk freely and have control over the discussion. The questions evolved as the discussion continued based on the interviewee's response to answers given from previous questions. The interview was recorded on the phone, transcribed through an application, and then edited and added to Appendix 1. The interview was performed in person at the home of Mrs. Meraz.

The test scores for Mrs. Meraz's classes were found through the STAR test results website. The website has been listed on the resources page. The schools will not be named but the test scores gathered can be found on Table 2 in Appendix 2.

Some research was done over Twitter. The research done was for Mr. Hale, who had won a best educator award and is a nationally recognized educator. An attempt was made to have an interview but a response was never received. The interviewer believes the wrong email may have been used. Instead another interview was searched for and listened to. That interview can be found in the resources page. The interview was done by David G. Burnet who often does interviews for the website InvestedTX. The questions revolved around Mr. Hale's classroom management and his relationship with his students. Therefore, some of his answers were used for the purpose of this capstone. Since contact with Mr. Hale was not achieved, there were not any follow-up questions answered, or clarifications provided.

Results and Discussion

Initially, Mrs. Meraz was interviewed because of the success she has had with teaching her students math. Every year she has taught in the USA, her students did better on an average than the school, district, county, and state (when standardized testing was used). Those test scores can be found in Table 2 which is located in Appendix 2.

Mrs. Meraz was interviewed and as the interview continued it became apparent that Mrs. Meraz's success in math was not because she minored in math both in the USA and in Mexico. Mrs. Meraz's success was because of everything she was doing. She had a specific type of teaching style, managed her classroom in a specific way, was constantly going to training sessions provided by the school and district, and like Kumler (2019) pointed out Mr. Hale had developed connections with his students. This was clear in the interview that Kumler did of Mr. Hale, a nationally recognized educator.

Mrs. Meraz did not always want to be a teacher, but once she became one, she found out she was passionate about helping out her students. She has gotten to know each and every student she has come across. She has been teaching 13 years in the USA and she has cared for each and every student that has stepped foot into her classroom. Mrs. Meraz has high expectations for her students and connects with them. However, she sets expectations from them right away and has high control over her classroom. Mrs. Meraz displays the characteristics of an authoritative teacher as stated by Hughes (2002). Unfortunately, a visit to her classroom was not able to happen at the time. But from previous informal observations, it became apparent that her students had immense respect for her. This was shown by the constant flow of students from

previous years coming to greet her in the mornings before classes started. Her current students all had fun stories to share and some would bring gifts, such as flowers and pictures. When class started, they would all sit in their desks and wait for directions, they knew the classroom rules and procedures. Mrs. Meraz has always maintained high expectations for her students. In her current class, as well as, her previous classes, most students strived to reach those e

Mrs. Meraz believes that the one main rule is the Golden Rule, which is to treat others how you want to be treated. She talks to her students about having respect for their peers and not making fun of anyone. Creating an environment like that has helped students feel comfortable in talking about tough topics even though they may be wrong. She encourages them to try even if they may be wrong. She is constantly adapting her lesson plans and often has multiple plans for each day. Some students are more advanced than others and she wants them to keep growing. Depending on the level of a student's understanding, Mrs. Meraz will make adjustments to homework assignments. During previous classroom visits, it was noted that Mrs. Meraz was often coming up with new ways to challenge her high-level students.

After the interview and going over the articles found, it was determined that Mrs. Meraz has found a method that would benefit her students the most and teachable to other teachers. Mrs. Meraz was doing something right, and it was questioned if her success could be replicated in her school district.

Mrs. Meraz is aware that students struggle but she does not lower her expectations. She tells her students that they are all capable of greatness, that they are all smart, and they can pursue their passions. She often tells her second graders that they can go to college and find a

career they love and enjoy. Mrs. Meraz goes beyond the math lessons and the reading assignments. She talks to the parents and is constantly keeping in touch with the students.

Mrs. Meraz's methods can in fact be applied to school and district wide. Some teachers may use different teaching styles and may lack control in the classroom. Due to the research done and the success of Mrs. Meraz; authoritative teaching would be one that would help a teacher connect with her students but still go through all the lessons they need (Hughes 2002). The research also showed that classroom management is very important and in order to best help your students a teacher must have control. With control, a teacher can take a discussion in whatever direction is needed. Mrs. Meraz has often had deeper conversations with her students when she thinks it is necessary. Mrs. Meraz does not just want her students to get smarter but to be better people.

Math is very important, and Mrs. Meraz loves the subject. Mrs. Meraz is constantly reading new methods and open to teaching math in new ways. She is aware of the importance math has, but she does more than just teach math. She creates relationships with her students and reaches out to even stubborn ones. Mrs. Meraz is aware that every student is an individual and goes through things she may not be aware of. She is constantly cheering for her students and makes sure they know she is on their side. She helps parents advocate for her students and is often searching for different resources a student may need.

In the current climate of Spring 2020, with COVID-19 limiting teachers, Mrs. Meraz is trying her best to keep in constant contact with her students. She is calling parents and asking what they may need. She has reached out to several parents and given them information so that

they could have access to the internet. Mrs. Meraz believes her job isn't limited to handing out homework packets. Other teachers in her school can and should be doing the same thing.

Conclusion

It is believed that the district in which Mrs. Meraz works, can apply nearly, if not all, the methods Mrs. Meraz used to gain student success. The research points to the fact that there will be an increase in testing and all-around student success through the theories discussed. Those theories being that providing funding (Goa & Lafortune 2019), using authoritative teaching (Hughes 2002), having good classroom management (Farmer et. al., 2011), and creating an environment where trying even if a mistake is made is encouraged (Boaler 2006). As shown in Appendix 1, Mrs. Meraz may not be a perfect teacher or have perfect methods, but she is using all of the above-mentioned methods and is constantly finding new ways to improve and help her students. Therefore, Mrs. Meraz's success is something that can be replicated in other classrooms in the school she teaches, as well as district wide.

If someone is studying to become a teacher, it is recommended that they look into authoritative teaching methods as well as focusing on classroom management, but most importantly, that student should want to help their students overall. Testing is important especially for funding, which helps in training; however, that should not be the main focus. Teachers and administrators alike should never forget that their students are children that are growing and learning. Mrs. Meraz was always glad to see her students' test scores going up but she has never taught for the test. Mrs. Meraz's main focus is on student growth. She wants her students to become smarter and better.

After the research, unfortunately, nothing has been done to push the findings. However, more research will be done into the methods found to work. It has been suggested several times to Mrs. Meraz that she consider finding different outlets to get her methods out to other teachers. The researcher intends to provide copies of this project to the Principal or school board for consideration. An attempt will be made to get this information to the school principal and the district administrators so that they become aware of what exactly has been working for one of their teachers and what other teachers could be adding to their teaching methods.

If someone were considering becoming a teacher, they should not go in for the vacation, nor should they think that they were done learning once they gain their teaching credential. If a teacher truly wants to help their students, they will always be looking out for new methods and research being put out. Most importantly, someone should become a teacher to want to help children. If someone is already a teacher, they should consider looking into the research done and adapting some of the methods mentioned. There is more than one right answer but teachers should seriously consider doing some of the things Mrs. Meraz has done. Any current teacher should be constantly evolving their methods to help their students as best they can.

Administrators should also look into the research done. As it was pointed out by Gao and Lafortone (2020), teachers need more training. Even if the suggested hours found by the Public Policy Institute of California (PPIC) for training were met, administrators should still be getting training both for themselves and teachers. The research done showed that teachers should be always trying to improve and find new methods, one way they can do this is through training. Administrators should also be looking at different training seminars they can send their teachers

to. If some of the methods do not work for a teacher, through training they could find what could or alter what Mrs. Meraz has done as they see fit.

It is recommended that any current teachers consider adapting some of the methods outlined in this capstone, which have worked extremely well for Mrs. Meraz. For any future teachers, it is recommended that they attempt to adapt the methods stated. As a future teacher myself, I sometimes worry about my first classroom, but if future teachers begin to work on honing in on the methods displayed here, they would be more prepared for their first classroom. It is also recommended that administrators try to get more training for their teachers and themselves.

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Appendix 1

Melissa: testing, testing. 1, 2, 3. Hello, I'm here with Maestra Meraz, please take a seat or not. No, she's not right next to the wheel. Alright. I'm actually gonna be taking notes as well. Is that okay?

Mrs. Meraz: Okay.

Melissa: Is it okay that I'm recording you?

Mrs. Meraz: Okay.

Melissa: Are you aware that this conversation may be used for future stuff?

Mrs. Meraz: Okay.

Melissa: All right. When did your interest in math start?

Mrs. Meraz: Since I was little. First second grade.

Melissa: I'm gonna pause it. (Paused recording) Okay, so you said you liked math since you were little.

Mrs. Meraz: Yes.

Melissa: And you wanted to be a chemical engineer?

Mrs. Meraz: Yes.

Melissa: Was that more... Was that more of a love for math, the engineering aspect or like science Chemistry, chemistry

Mrs. Meraz: I love. I think math and chemistry were very related. For me, I don't know. But it has a lot of equations, a lot of to put some chemical together, we need to measure the substances. To know how you can do something, you need to do some math to get there.

Melissa: Okay when you decided to become a teacher, you minored in math or you had like a concentration in math in Mexico?

Mrs. Meraz: No. I just studied as an elementary teacher, and then seven more years, well, seven more summers that was around three months..... two months and a half for seven years. I study as a math teacher. I got the degree as a math teacher and I could teach all the way to college or a little bit more than High School in Mexico. The equivalent will be a little bit more than high school.

Melissa: Okay. And in the students that went to your class, did they do better in math, they stay the same, or get worse.

Mrs. Meraz:

They did all the time better than what they were doing before. In one little town that I was working, the teachers used to say to the parents that the students couldn't learn because they shower and hot water, that was the thermal water. And that's why they were dumb and could not learn. But when I was there, we got first place on a competition in the zone that will beat the district in math.

Melissa: Wow. So, would you say this town was a low-income town?

Mrs. Meraz: Yes, all the towns I worked in Mexico where low income towns. Well, the last year, I had two jobs, one with the low income and one with the high-income class was a private school. I worked there for half, the last half.

Melissa: And you were doing math?

Mrs. Meraz: At the private school, I was a general teacher, elementary teacher in third grade.

Melissa: Was there a difference in your students that went to the private school versus the ones at the public?

Mrs. Meraz: The difference was the behavior because once I was in the high... in the private school, they tell me, if you don't give me a good grade, I'm going to tell my parents. If you don't do this.... so, teachers usually do what that students asked for. Because if not, they would tell the parents.

Melissa: So, there were some behavioral issues because they were spoiled or had a fairly easy life at that point?

Mrs. Meraz: Yes.

Melissa: But as far as education goes, did any-

Mrs. Meraz: It was hard for them to learn because they had behavioral issues.

Melissa: But when you went in as far as where you started teaching them, were they the same or.....

Mrs. Meraz: they behaved much better and they could learn very easily.

Melissa: Okay.

Mrs. Meraz: Well, they have some low students there too.

Melissa: But-but the majority.....

Mrs. Meraz: the majority were very easy for them to learn. And the..... the private school was run by nuns. So, when I finished the year, the next year, they want me there as a full-time teacher because they were very happy with my, my class, my classroom management and all the students' progress. But I was going to get married and I know that was coming here, to the United States. So, I told them that wouldn't be fair for the students to leave them in the middle of the year, because I knew that in the summer we'll come to here.

Melissa: Okay. And as far as in Mexico how would you describe your teaching style

Mrs. Meraz: I tried to reach all my students. I think my style is that I love my students, and I try to help everybody, not just the ones that can-do things or have money or whatever. But I think all my students deserve the best of me in band... but to get the

best of me, I need to get the best of them. So, when I was studying in Mexico as an elementary teacher, I studied for four years, just about education. That's the *normal* [high school in Mexico]. I didn't go to the university, but it was a *normal rural*. It was four years straight for psychological, pedagogical, math, science.

Melissa: so, it was-

Mrs. Meraz: To learn all this stuff about- well, to try to learn most of the stuff that we were going to teach and a little bit high level in-in we were just studying different methods of teaching and we were-we studied previous methods- the method that we were using at that time, what worked for each of the other methods, what didn't work. And also, I think the most important-well, some of the important things that I think I learned were psychological and pedagogical. And because then we can learn the stages of-of development or the stages of behavioral, everything that we need like a global education. Was the work for four years. In those four years, the last year- the whole year we were at the school teaching. Just went to the school- is just- that whole year we lived in the community that we were teaching.

Melissa: So, this was like kind of after high school so instead of going to like college?

Mrs. Meraz: After-after junior high.

Melissa: Okay

Mrs. Meraz: I was 15 years old when I started this program.

Melissa: Okay.

Mrs. Meraz: So, it's like one more year of junior high, because there were three years of junior high there and then for the high school, I went to the *normal*.

Melissa: Versus like going to college or general high school or whatever.

Mrs. Meraz: Yeah. Instead of going to the, to the other *preparatoria* that is High School, I went directly to the *normal* where they teach us all the things about teaching.

Melissa: Teaching, about schools and stuff.

Mrs. Meraz: Yeah.

Melissa: So then would you say that a lot of how-your teaching methods come from that? Or would you say that it was more personal as far as how you taught your students?

Mrs. Meraz: I think both I think both because I can- I can with everything that studied, I know when, where, with who, and what do I need to use with each student of my students because-

Melissa: you're more paired

Mrs. Meraz: Yeah, I don't teach all my students the same way because I can-I can be very hard with some students, I think they need it, but I need to be very soft to get the best of them. I need to adjust my learnings-my teaching style to their lives more than their learning style. To their life because some of them have very hard lives.

Melissa: So as far as your ability to be empathetic and kind of figure out each student individually, you say you owe that to the program you were in?

Mrs. Meraz: Yes.

Melissa: Okay.

Mrs. Meraz: Yes.

Melissa: And so then, other teachers in the program would-did they have similar relationships with their students? Or do you feel it wasn't so many that actually applied it?

Mrs. Meraz: And do you know what? Lately, I realized that we have the same style because in the group that we have in *WhatsApp* [messenger application], they put like a lot of comments or stories of their-of their-some of them- most of them are retired right now-And when they were they got a lot of a good comments like: they were the best teacher ever. I love the way you were teaching

Melissa: So, like a lot of the relationships you have with previous students they have as well. **Mrs. Meraz:** Yes, it was our teachers that taught us-

Melissa: to be kind, to reach out.

Mrs. Meraz: To reach out to all-most of our students.

Melissa: So that's when you would go to a town where other teachers would tell them like: "Oh, your kids are dumb because of the water." You reach-you realized like, no, it's more of like a personal thing.

Mrs. Meraz: Yeah. No, it was like-no-

Melissa: Like it's-I mean-

Mrs. Meraz: The teacher who said the water they were-they were not very smart.

Melissa: They shouldn't have been a teacher.

Mrs. Meraz: Yeah. Hmm.

Melissa: But that was like someone from a different program.

Mrs. Meraz: Yeah, there are some private schools or other schools, *normal*. People go to study and they pay to pass the classes.

Melissa: Okay.

Mrs. Meraz: They failed a class and they just paid to pass the class. They pay to continue. But in my school, when I was teaching, if somebody failed one class,

Melissa: They were out.

Mrs. Meraz: There were.

Melissa: Okay, so it was a very intensive program.

Mrs. Meraz: We started with 54 in a class, and we finished 30 something.

Melissa: So, then the people who were there were like, it was like, you were submersed in these-, these ideas of-

Mrs. Meraz: We were also

Melissa: So, you learned more of like the pedagogy. Like, that's where you learned a lot of like your style and how you reach out to students.

Mrs. Meraz: Yes.

Melissa: Okay. All right. And so obviously, that carried on to how you teach here.

Mrs. Meraz: Yes. Oh-

Melissa: Did you-Oh, sorry. Go ahead.

Mrs. Meraz: The school that I studied was from the morning to the afternoon. We study the whole day. We sleep at the school, wake up, go to class, then go to eat breakfast, go to class, go to eat lunch, go to class, go to eat dinner. And then if you want to do something else like any club, you can do it. I was doing ballet Folklorico the whole four years there

Melissa: Oh, so essentially your free time would be like your uhm-oh my gosh, what's the word? Like extra classes?

Mrs. Meraz: Yeah

Melissa: Like fun classes

Mrs. Meraz: Yes Yeah, yeah. Extracurricular classes.

Melissa: Yeah. there it is. Extracurricular. I could not think of the word

Mrs. Meraz: Yeah. After Ballet Folklorico, it was summertime, we could go to swim at the pool. But we cannot go to any place without permission. The school closed, I don't remember-seven? It depends of the time. It was- when it starts getting dark the school was closed. Some students do things to go out. But I was there because my house was five hours far from the school so I couldn't go to my house. Anyway, but or do any other place without permission. They ask for permission if you want to go to a place but that's another story-but in Mexico, in the school I went, they prepared us to be a PE teacher, art teacher, uhm any. All sports, I learned all the basics about all the sports because I have to teach, or I have to do everything.

Melissa: So then, so then you took that when you came here to teach, were there any times when you were studying to be a teacher here, where you got kind of like, opposite stuff as to what you were taught in Mexico? Like as far as-

Mrs. Meraz: No.

Melissa: Classroom management?

Mrs. Meraz: No, most of the teachers-well, all the teachers, I cannot say most, but all of the teachers that were teaching us for the educational program-for the.... they were very happy. They all the time, put me as an example of "Look, use your teacher voice as Dolores is using it." Or when they were giving us some class for classroom management. My partners were like, "Oh my god, you scare me. I cannot do anything in front of you."

Melissa: And so then as far as that, you learn that style in Mexico or is that just kind of what you guys were told-

Mrs. Meraz: They, they, I think they try to teach-well, they teach the new students-student teachers here, and I just-it just reminds me of what a teacher is supposed to do or supposed to be. And but I use what I learned in Mexico, to do what they asked me to do, but sometimes-not sometimes, every single time they-when we were teaching in a group-at the beginning, we start teaching a group here [Cal Poly, San Luis Obispo Credential Program] and then we divide the class who is going to do the introduction and then every step. Then after that we went to a room and talk about the class and all my friends or partners or peers they are all the time give me good comments liked "Oh, I like the way that you didn't just get to their and teach, you ask all the students to listen and you would walk behind them and say okay no you're not supposed to be doing that you're supposed to be listening right now. And they were all the time giving me good positive reinforcement. But I think it's because they were new teachers. They were very young. And I was old. And

Melissa: And you already had a basis of

Mrs. Meraz: Yeah.

Melissa: You had a style already.

Mrs. Meraz: I had 11 years ahead of them in education and in life more than 11. I was like, doubling their ages.

Melissa: So, you never felt like they were opposing as far as what you were doing.

Mrs. Meraz: No.

Melissa: Okay. And so then going as to Mexico or here, like going to the classroom when you were teaching you were moving around, you were never like sitting down-

Mrs. Meraz: In a place?

Melissa: Yeah. Like when you're in a classroom like let's say you're going over addition-

Mrs. Meraz: Oh no, I never use my desk to sit down. No, I don't need it. I just sit during breaks. Or if they- right now, we have some not programs, but some-well yeah. They need to be by a computer like Dreambox, it's a math program that they are asking us to use, because the school is paying for that. And I think it's a very good program for them because they are learning at their speed and they don't have to be in the same spot. So when I'm teaching my high students I feel they are bored when I'm teaching and I'm trying to reach everybody but I- I tell them okay you need to listen because you're going to learn something else. And they listen- they are very patient- well, I tell them that they have to do it. So, they have to listen, and they are learning. They want to participate even if it's basic things that they are going to learn, they are listening. **Melissa:** So then as far as your high students, do they tend to be high because of like, at home, they get a lot of extra help or are the higher students like just.....

Mrs. Meraz: I think other students that are all the time listening, they don't need extra. You are teaching, they are learning.

Melissa: But as far as when they come into your classroom like-

Mrs. Meraz: They we're not that high, but yeah, that there's some three, four, five maybe, students that are high. But even they were high they didn't know the things that I'm teaching right now.

Melissa: Yeah, that's understandable. But my question is more of, do they have help at home?

Mrs. Meraz: Oh. Well, usually the students that are high are from parents that will have time to have to talk to help.

Melissa: They don't have two jobs.

Mrs. Meraz: Yeah. They have time to be with me.

Melissa: Or actual, like working hours where they can see them in the morning, drop them off, see them at night. And then the lower ones, lower students tend to be the opposite.

Mrs. Meraz: Yeah, they-they drop them at 7:30, 7: 35. And then they go to after school programs because parents cannot pick them up after school, and then they get home around six, seven.

Melissa: Okay. But, okay. So then, when you teach math, is it different than how you teach other topics or just how you teach everything is like similar style?

Mrs. Meraz: Um, I think it is the same style, but since I love math, I try to think how-because also, all the time that your class is not going the way it's supposed to go, the way that you planned it. So, you need to be able to try to go another route or go a little bit ahead or, or go back a little bit and to continue

Melissa: To be flexible with your lesson.

Mrs. Meraz: Yeah.

Melissa: So, do you have like, sub kind of things like- okay, "if they get this really quickly, I'm going to do this but if not-" or is it kind of looser?

Mrs. Meraz: No. By now I know all the second-grade standards. They-everything is a base.

If I know that they are going fast I can-I can give them more because I know-well maybe because I love math. I know sometimes I teach them things that they aren't supposed to learn at that time but that the lesson goes that way. So, I got like a multiplication, we don't have multiplication. Right now, we don't have to teach multiplication, we just have to introduce the like- that the idea of if I'm adding five, two plus two plus two plus two plus two. What is the answer? And I'm like, okay, that's multiplication. Or the other day was like, we were adding 20 plus 20 plus 20 plus 20. Okay. And I explained that's multiplication, and I explained why. And let them know what-what-why is multiplication, what is the meaning of multiplication? I should say. Not just memorize the times table. So, it's not just memorizing but knowing. It's good to memorize it. I love it, to memorize them. But I want for them to know why.

Melissa: Why they're-Yeah. What it means what? When you have like 13 times four, what does that mean versus four times 13?

Mrs. Meraz: Mhmm

Melissa: Okay. Um, so then you had said before, um, as far as like testing and where they are in their levels, they tend to go up in your class, that tends to be the trend.

Mrs. Meraz: Yeah, that-One time I went to teach, well went to participate in training. And we were another- one of the- one of the first grade teachers and I went to teach about-we went to not to teach but to- to talk about the- the how we were teaching and what we were teaching. Describe our school because we are using some strategies that now-if the person who gave us the training, he said that will be the future of math.

Melissa: Okay.

Mrs. Meraz: And then now we're saying we are seeing in that common core, the context for learning that they need instead of doing the addition like, vertical? Yes. So, we need to do it in parts, like I've been doing.

Melissa: Like the grouping you've been doing.

Mrs. Meraz: Yeah. So, it is what they tell us. So, we weren't using it since I started in... [school name] in 2010. We were using that, the common core.

Melissa: But only the Common Core like that exists just now. Like recently.

Mrs. Meraz: Yeah.

Melissa: Well, it's something you guys have been doing for a while.

Mrs. Meraz: When we were teaching I- my partner said, "Oh, and she's a math- she loves math. When the students get to her class, most of them get at their grade level in math or above. So, she is a very great teacher" And I was like: "Oh, am I?" So, I know I love math, but I didn't know that they were thinking about that and thinking that about me. And also, the psychologists from the special ed program that we used to have before, from the other school, they used to help us. She told me that all the time. When uhm, we make a referral of one of the students that needed help with math, especially with math. She said: Oh she's-she'd say that she's all the time asking, "Oh, which grade? Second? Is Meraz the teacher? And if they say yes, she says okay, we're going to do it, but I know that they are not going to qualify right now. But after they finish second grade with *Maestra* [teacher in Spanish] Meraz, they're going to qualify. So, let's try this, start with the testing. And then next year they will be here in the program. She said, "Oh, that's nice, because I know how you work with them. I know that you're trying to get the best from them."

Melissa: So then how would you-Why are you- Why do you think you have such success? Like what- What is it that makes you different?

Mrs. Meraz: It's because when I got the students from first grade, they are scared to participate because they-they don't want-they are scared to have the wrong answer. And then at the beginning of the year, students used to laugh when somebody got the wrong answer. Some of the high students or even the low students, laugh at the answer because they get it wrong. But no, nobody can laugh in my class. And I started saying, okay, the golden rule. If you don't- Don't do to others, you don't like that somebody

does it to you or something like that. So, I tell them, and students that did not get it. I said, "Okay. So, did you get the right answer? No." So, or even my high students when they get the wrong answers, I say "see, nobody's perfect. I'm not perfect." So, at some point, they get it that- and also, I tell them, okay. I prefer that you say, I don't know. And then I can see who needs help. Instead of raising your hand and then say: "Oh, she's not going to ask me. I'm going to put my hand up. And she's- she's going to- she's going to think that- she's going to think that I'm that I know the answer. But I tell them "Okay. No, you need to be aware if you know the answer, give it to me, or don't raise your hand. I'm not going to get mad if you don't know the answer. But I'm going to get a little bit upset if you have

Melissa: if you're lying basically.

Mrs. Meraz: Yeah, if you have your hand up, and I was "Okay. don't need to worry about the student because he, or she knows the answer." And no, I want to help you, and you need to be very honest with me because I said,, "One day, did I get mad at you because you didn't give me the correct answer? No. Okay." And then a month later nobody laughs. So, everybody wants to participate. And I know and I tell them that when you give me the wrong answer, you're going to learn because you're going to find out whether you have the-the part, learn what part is wrong, and then you're going to know why it's wrong, instead of trying to fake that "Oh, I know that." So, yeah, I think it's made them aware- make them aware of themselves that what they can do and what they can do. And I call them okay, if you need help you just need to tell me or just tell me I don't know, and I will help you.

Melissa: So, okay. So, you create an environment

Mrs. Meraz: Yes, a positive environment where-a positive and friendly environment.

Melissa: because I have seen your class- some of your classes, and I have noticed that you hold your students to a high standard.

Mrs. Meraz: Yes. Yeah. Oh-what's the word. Rigor-

Melissa: Rigorous?

Mrs. Meraz: Rigor? I- I like to have high standards for- is it- is it rigor?

Melissa: You can say it in Spanish if you're not sure.

Mrs. Meraz: You know what, I don't think-I just learned that word. Then I was thinking that rigor was rigorous but isn't rigorous.

Melissa: Okay rigor, a sudden feeling of cold was shivering accompanied by a raise of temperature

Mrs. Meraz: No

Melissa: Rigorous, extremely thorough, exhaustive or accurate.

Mrs. Meraz: No

Melissa: Rigor, the quality of being extremely thorough. Mmmkay. Teaching with rigor

Mrs. Meraz: To put high standards regularly

Melissa: So, do you think that's different in your classroom and another classroom?

Mrs. Meraz: Yes. Also, the psychologist we have now, the school psychologists. He went to my classroom not a lot of times but more than once, maybe five times already. And he said that he wished that he could talk to all the teachers in our school and talk about my style, talk about what I do in my class, how I'm teaching how the class is behaving. All the things that I do to get better scores, and better school. He said, "I love your style and I love the way you treat your students. I love the way that you let them know okay, I'm the teacher, you're the students. I'm not your friend, I'm your teacher. And then I was like "Really?" And he said yeah.

Melissa: Mm hmm. Because there is- there are some teachers who like to be friendly.

Mrs. Meraz: Yes.

Melissa: Who kind of start off the classroom with like, this is like a good safe place. But what do you think is the difference?

Mrs. Meraz: No, the difference is that because I'm, um, my students, they're not scared. At the beginning before they start second rate, some of them. If they don't have their brothers or sisters, they're scared to go to my class. They cry when they know that they are going to be with me, but then later I tell them: why you were you scared? And they say: "I don't know." But it's because- I don't know but maybe they- I just don't know what they saw.

Melissa: Yeah well, I mean and then they- I'm sure they've been told in their classrooms like if you don't behave, you're going to go with Mrs. Meraz

Mrs. Meraz: Yes. Since kinder they have been sending me students and they are crying because they are going to my classroom, but they behave there. I have some kindergarten students, that were- they were in my classroom because they were jumping- they were distracting the whole class, and they sent them to me, and they are sitting down working. I said okay, you're coming here to work not to do anything else but work. And uhm- I have some students that are in high school right now, my first generation at... [school name] are in 11th grade and some of them still go to visit me. The other day a ninth grader was there. So... I'm sorry, I don't know what you were asking.

Melissa: No, it's alright. Um, have you come across other teachers who run the classroom like you?

Mrs. Meraz: They told me that- parents told me because parents talk about us, and they said that... [teacher's name] When she was- One year I was with 32 students in second grade, and because we were short on- on teachers, and the principal said that I can do it by myself. And in third grade they have 15 and 15 each teacher. And I had 32 but then I finished with 28, 29 because some students leave because they move, or parents have issues with the office personnel. So, they- they went out to the school, but I think I finished with 29. In that year they send one person to help me and, and that person at the end of the year, she was educated here she got her BA I don't know in what, but in reality she didn't know what to do with her life and she went to Guatemala and to Mexico and to different places. In the previous year, she was helping the first grade teacher and then the next year- the next year they sent her- they sent her to me and at the end of the year and the end of the year, she told me: "you know

what. I know what I want to do.” I said: “What do you want to do?” And she said, “I want to be a teacher like you.” I said Really. “Yes. But like you, Not just like...”

Melissa: like any teacher.

Mrs. Meraz: Uh huh. She said I want to be a teacher like you. And then later parents were telling me: “do you know what, Maestra [Last Name of teacher] is almost like you”

Melissa: And is she teaching at [school name].

Mrs. Meraz: She was teaching there but now she is helping to develop a program of dual immersion and dual language.

Melissa: Oh, that one that they're gonna open. So, she's helping out for like setting up the school.

Mrs. Meraz: Yeah.

Melissa: Okay. Um, did- was there a similar trend where her students would go up?

Mrs. Meraz: I don't know. No. Do you know what she loves science-

Melissa: Well, not just in math, but like in any subject that was there an increase?

Mrs. Meraz: No, I think just behavioral because- because we were looking at the results and she gets mad because she didn't get the result as high as she was thinking that she can get them. But I think just with the behavioral climate. She was like my style.

Melissa: Mmmkay, but [she] did not replicate the success in testing. Okay. You're fine Sloane [said to dog crying in the background]. Okay. Then- is there another teacher who students like do well in testing at [school name]

Mrs. Meraz: I think.....

Melissa: In any subject.

Mrs. Meraz: I don't know exactly, but I think one of the third-grade teachers she has the rigor to teach the students. But parents tell me that she doesn't have the relationship with parents as I have.

Melissa: Mmmkay. So, you're the most well rounded one. Mmmkay.

Mrs. Meraz: Parents used to tell me that if I leave the school it won't be the same.

Melissa: Any of the other school you've been at, has there been another teacher that had a similar style as you did and success?

Mrs. Meraz: In one school, I was just there.

Melissa: For like a half a year?

Mrs. Meraz: Maybe a little bit more than half a year but the first half was- Well, for one quarter I was a student teacher. And then I think that the last quarter I- when I was teaching but because.....

Melissa: That was when [the classroom teacher] was pregnant. You took over for her class.

Mrs. Meraz: In reality I didn't have a relationship- just with my partner. But- in [the first real teaching job] I think [a teacher there] has a good- good- she was very knowledgeable and- well she got her master's in administration and she was- she was very good.

Melissa: Okay.

Mrs. Meraz: In [the first school I taught] I helped [them] to get out of improvement. And after the second year they lay off 50something teachers. And then they called me back- the principal called me back because he said that I help a lot at the school. And when I was at [the school she works out now] since it's a charter, in the previous principal, she could fire at any moment any teacher, I was scared. What if she let me go in any moment? So, in one- I remember one time there was a lady who was trying to help the school to get the best because that's when they hired me. They had laid off like around maybe eight teachers, I think a maybe seven or eight teachers. And they hired all those new teachers in- because they want to get- get the school out of improvement because it was one of the lowest. And then at that time I was teaching second grade and I'm still teaching second grade, but at that time, the testing- that the- Federal testing- state testing was starting in second grade. So, I told that person that I- what was my fear. And I told her that my fear was to get fired at any moment. And she told me Do you know what Dolores? Don't think about that. Don't let that take up your sleep?

Melissa: Your time, yeah.

Mrs. Meraz: Because you're going to be the last one to get fired from the school. You know why? Because you are the one who gets more points for this school in the testing. So, you're going to be the last one. And I said, “Oh really?” And she said yeah.

Melissa: So, have you come across any other teacher who has a similar teaching style as you and success?

Mrs. Meraz: There, I think, one teacher that also loves math. She's one of the- one of our fifth grader teachers. But I, what I think what they're missing is to have the rigor, not to be friends with the students and then I think that is what happened to her. She wants to be friends. And the student that doesn't want to do something, okay don't do it. The students want to do something, okay, let's do it instead of trying to follow the rules to- trying to follow- to show them how to respect also- I showed them how to respect everybody at school everybody. And she's like, she wants to honor the students. But I think to teach the students- it's a way to teach the students to be respectful and follow the rules and not do whatever. “Oh, you don't want to do this, that's okay. Don't do it.” I think that's the one of the things that she's missing because she was teaching first grade. And in first grade, the students didn't- they were not to high when they got to me, they were low.

Melissa: So, then it's not just- because I've come across teachers who are scared of math who don't like teaching it-

Mrs. Meraz: Yes. I have some. My partner right now, and the one before, they- they're scared.

Melissa: And obviously that's gonna affect their students. That's a given. But my thing was also, if I was thinking if a teacher understands math and isn't scared of it, then they would be able to teach it.

Mrs. Meraz: Yes.

Melissa: Better.

Mrs. Meraz: Yes.

Melissa: But there still has to be more to it than just not being scared of math basically.

Mrs. Meraz: Yes. And I think what happened with the students, when they get to me, they are scared of math because their previous teachers are scared of math. They get scared about math. But then, after two months, I said, Okay, we're going to have this a math test. And they say: "Yes. Yes." They are excited to have tests.

Melissa: Ready to show that they know.

Mrs. Meraz: Of course.

Melissa: I feel like at that age, it's really easy to kind of for them to be confident if they're given the tools to be confident. Okay. And with that, other teachers, she likes math, but the success isn't there.

Mrs. Meraz: No.

Melissa: Because she's missing that other part. Okay.

Mrs. Meraz: I think- because she's a good teacher. She loves math.

Melissa: So then do you think it would be possible if someone as a teacher doesn't like math, but they have the same style as you do, even if they don't like it, that they could potentially have success with their students?

Mrs. Meraz: Yeah, I think so. I think so. But-

Melissa: like with your partner right now, would you say she manages her classroom, well has a similar relationship as you do or-

Mrs. Meraz: I don't think that she can manage her classroom well.

Melissa: Okay.

Mrs. Meraz: Because- and I know because they have at the beginning of this year, some teacher- the teacher enrichment, or developing days for the- for the new- newest teachers, but they're not really new. They have- they have three, four years teaching there. And I think it's because they are missing something. And my partner was in that group. And she was like: "Why am I in this group? I have three, four years here" And also when they are observing us at the beginning, the principal doesn't go anymore, but at the beginning, he went to my class maybe once or twice, and then he stopped. And then my partner said why he's coming to watch my classroom? And also, now we have another person that is helping with that- with- she's trying to help us, and she doesn't go to my classroom very often. She just opens the doors, then goes out. And my partner said that she stayed for long. Then she said that, if she needs help you ask her, she can help her, and she never asked her.

Melissa: So, a lot of her problems are with classroom management? Well some of the problems.

Mrs. Meraz: Yeah, I think classroom management and knowledge- and knowledge. She's not- she doesn't-

Melissa: Do you think it has to do with her, like, through the education or she just doesn't put that extra effort?

Mrs. Meraz: I think she doesn't put the extra effort. She put- when she puts the extra effort, I can see that she gets good things. But she doesn't like to put the extra effort.

Melissa: Because it's not just you know, whatever.

Mrs. Meraz: When people start talking, I feel like they start talking about me. I feel like she wants to be better than me

Melissa: That pushes her.

Mrs. Meraz: Yeah, that pushes her.

Melissa: But then she can like, whatever, and gets over it.

Mrs. Meraz: Yeah.

Melissa: Okay. Because, I mean, that makes sense. I'm competitive by nature, you know. And if someone's like: "Oh, you know, you did this well." And I'm like, "I gotta- I gotta do better. I gotta do well." So, I understand that. But um, what I kind of am hearing is that if you want to be a good teacher and get success from your students, obviously classroom management is very important. But there has to be something else that you're putting in as well. It can't just be like, "Well, here's my lesson plan."

Mrs. Meraz: Uh huh.

Melissa: No one talk. Everyone listens. There has to be more of that you are doing.

Mrs. Meraz: Yeah.

Melissa: Okay. And do you think if some teachers hear this, you know, if they're like, "Okay, this is what's working for her." Can this- that be replicated, what you're doing with your classrooms?

Mrs. Meraz: If they want, it will be- something like-

Melissa: let's say, like for me, let's say I decided to model my classrooms based off of some of the stuff you do. Do you think I would, or others- other future teachers would have success? Maybe not the first year because, you know, they obviously would be new, but they would have success if they have control over the classroom, build that kind of respect, and not be afraid of like, whatever topic it might be English, might be math, because I know you had said previously that you don't like teaching English, right? Because-

Mrs. Meraz: I don't like it, but I did it. And I will do it. And I don't like it because I have an accent and- but when I did it, some of the students when I tell them- when they- if you- I tell them "okay if you want to correct me, you can but do it nicely because I'm telling you is not my first language but- but I know more than you know- more than you and that's why I graduated as a teacher." So, um and I think the- the thing that scares me the most, is to write in English more than talking or teaching, and teaching anything but writing in English. I think it's the- that the- And I was listening to the principal, the- last Thursday. He said that was what scared him also. That as an adult- as adult ELS- English Learners yeah. I was thinking it was just me because- maybe, maybe not. But he said: "No. I was scared. I was- I wasn't- Oh no, I need help on this, and I need help with this."

[Dog barks]

Melissa: She's barking at her toy.

Mrs. Meraz: What was going to tell you? Oh, when I showed a teacher from here, my score- the scores that I got at [the current school], he immediately, immediately, immediately told me, "hey, let's do some workshops for teachers, and then you can tell them what you're doing to be successful and they can learn"

Melissa: That's kind of what you had told me previously, that you guys had discussed that. And that really stuck to me. Because I often think about my road to education, and what I saw and what made me successful, versus other kids that grew up here. And I know a lot of it, if not most of it, was because of the help I had at home. And so obviously, as a teacher, you have no control over [the help at home students get].

Mrs. Meraz: No.

Melissa: You can only- you know- you can figure out who's getting the help. And like you said, that's going to change some of your relationships with individual students. But as far as when it comes to what I wanted my capstone to be, that's something that I really remember. That if- that someone wanted to get what you're doing out to everyone. And that really stood out to me because the- I love biology. I love Science. But I understood that if we want minorities, more women in the sciences, if we want to see people who look like us succeeding, then there has to be that basis. And that basis comes from math. So then my next question was, what went wrong with my- with our teaching, not just me, but like, I mean, nothing went wrong, as far as my elementary- but why weren't these kids I grew up with in college. Why did it stop? And obviously I know a lot of it is the home life. They- they don't have that- like how someone was telling you how did you get all three of your daughters to go to college? We obviously had that push. But I think also it has to do with school. Like you, you you've been telling me that you tell your students, in second grade like go to college, do something, you know. And- but I think you also give your students confidence, which is something we said is- is key especially with a younger kid.

Mrs. Meraz: Confidence. Confidence. Confidence.

Melissa: because I think in junior high, it's harder because you know they're gonna be- the self-esteem comes more into play and everything, but I think in the elementary, it's really easy to make a child feel good. They don't have those extra pressures usually, that come with like, being at a certain thing or whatever.

Mrs. Meraz: Yeah.

Melissa: Um, but that's something that really stood out to me that you had said that someone wanted. So as far as why he wanted to, it was just because he saw your success and wanted other people to do it. Or was it because he also does well with math?

Mrs. Meraz: Wait what?

Melissa: [The teacher who wanted to work with you]

Mrs. Meraz: Oh, no, he, well, I was helping his class. When- when- when I was studying at community college I was helping in his class. And what he did all the time when he had a sub. "Okay. Grab-" He gave me a list. "Grab these 6, 7, 8 students, take them to the-the"

Melissa: the media center

Mrs. Meraz: "Media Center and teach them whatever you want to teach them, teach them because with the sub, they are not going to do anything. They are going to be doing nothing. So, I want these students to keep working." Or sometimes he would tell me: "Okay, I was working on this, work with this." And he knows because he saw me, how I was helping the students. So he knows a little bit about me by doing that but having that- that- not the confidence, but the- the- the *confianza* [trust] convinced me that I will do something good with them- when they were with me. So, I'm- when I showed him the results, because I was trying to get a job here [hometown]. I brought them the results from [the school] when I was teaching there. He saw the results. He remembered what I was doing. And he said: "Let's do this. Let's do this. Because you are doing very good things because you're getting those results."

Melissa: So, he was just excited as far as-

Mrs. Meraz: Yeah, but I didn't have the time.

Melissa: I understand that.

Mrs. Meraz: He said- he said: "Okay, let's get the time. And we can do this, and we can teach new teachers or different teachers, how to get these results. And let's do it. Let's do it." I never had the time

Melissa: No, I understand that. And especially at that time we were, I mean, now we're older but- a lot of- a lot of your road- your teaching road has been raising all three of us.

Mrs. Meraz: Exactly.

Melissa: Okay, so I know we're out of time but thank you for sitting down with me and letting me pick your brain.

[End of recording]

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Appendix 2

Table 2: Standardized Testing Scores

Year	Class Scores	District Scores	County Scores	State Scores
2007-08	74%	68%	67%	61%
2008-09	74%	68%	70%	64%
2010-11	66%	57%	61%	66%
2011-12	85%	58%	58%	64%
2012-13	66%	62%	59%	65%

Table 2: A graph displaying the test scores (percent of students testing at proficient or advanced) in Mrs. Meraz's third grade class (2007-2009) and second grade class (2010-2013) compared to the district, county, and state of the same grade during five different school years. The results were gathered from the STAR testing website.