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Confidence in Communication: Can My Whole Class Achieve This?

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Confidence in Communication: Can My Whole Class Include This Combination?

Abstract

In this action research study of my classroom of Algebra 2 students, I investigated the confidence levels and communication skills of these students. I discovered that students who have higher confidence levels are comfortable in their classroom situations. The students with increased levels of confidence also have more open communication with those they respect. As a result of this research, I plan to continue with the implementation of communication skills. I will also look to next school year as a place to start executing a plan to be more available and involved in the active learning process of my students.

I. Introduction

The topic of inquiry for my project is the communication and confidence levels in all of the students in my classroom, including my special education students. I have an Algebra 2 class with three special education students who are all classified as having reading comprehension disabilities. These three students were also in classes with me last year, so I am aware of some of their previous math history. I wanted to know how I could best help these students succeed in this mathematics class. Two current themes that many students struggle with are communication and confidence; having an academic disability can make these two issues even harder to achieve.

Many of my students, including my special education students, have a hard time asking questions during lecture and class discussion times. Some students do not ask questions because they cannot communicate with me what it is that they are struggling with in the lesson or test. I need to work with the students to help them with questioning techniques. I would like all of the students in my classroom, especially my special education students, to be able to communicate their questions with other students, as well as myself. I would also like for all of my students to have a higher level of confidence when solving problems during daily lessons and when they are taking tests that contain word problems, equations, graphs, etc.

I would like the expectations for all students to be on a more level playing field. These expectations need to come from the teacher as well as the students themselves. I would like all students to have the self-confidence that would allow them to meet higher expectations they could set for themselves. I want students who are given special education labels to be able to set and meet goals similar to those other students have set.

II. Problem Statement

The more I understand about how special education students can increase their communication abilities and confidence levels, the easier it is to help them, as well as the rest of my students with their communication needs. My own communication skills are improving in order to implement new and different means of communication with my class. Increased confidence levels in all students may lead to higher test scores not only in mathematics, but in other classes as well. Introducing new methods of verbal and written communication allows students to gain a better understanding of the materials that the class is discussing. More student-teacher and student-student interactions assist those who need to improve their communication skills in math class.

Students, parents, and teachers are all happier when the students' grades are increasing due to elevated levels of confidence and a clear understanding of math. Students' school lives are affected by the changes in their confidence and communication skills. State test scores are also affected by a change in communicating questions and answers, therefore affecting the school district as well as individual students and classrooms.

My research is very important to math teachers as well as other classroom teachers. Teachers who have students who struggle with self-confidence benefit from knowing some confidence boosters that help in their classrooms. Also knowing about different communication skills that help students to increase their levels of education can assist teachers who have students with difficulties communicating.

III. Literature Review

The purpose of my project is to increase the levels of communication and confidence in all of the students in my classroom, including my special education students. I found five different themes across the research literature related to my project: confidence, motivation, questioning, communicating, and learning disabilities. Communication and confidence are two of the main topics in my research, with motivation being tied to confidence and questioning being linked to communicating. Finding articles related to students with learning disabilities was a bonus that I hoped to be able to use with data collected in my project.

Confidence

Students' mathematical confidence levels vary based on classroom processes, the sex of the student, abilities of students, and interaction with the teacher. Toliver (1993), a veteran teacher in the New York City schools, teaches mathematics and communication arts. Toliver worked with Jaime Escalante and the Foundation for Advancements in Science and Education (FASE) to share their own successful methods of teaching. Toliver shares ideas from her own experience that student confidence is increased as the out of class time spent with teachers is increased.

Klassen (2002) has a Ph. D. from Simon Fraser University, Burnaby, BC, Canada. Klassen researched the perceived self-efficacy of students with learning disabilities in an educational context. The students in the 22 studies analyzed by Klassen were from 2nd grade to college aged. A majority of the studies had 30 or fewer students and six of the studies had over 90 students. Many of the studies were measuring students' efficacy writing essays and a few of the studies were looking at mathematics. One of the studies included having the students fill out

a questionnaire on the attitude towards writing and self-efficacy. The results from the reviews of these 22 studies imply that students appear have overly inflated their levels of self-efficacy.

Hart (1989) of the University of Georgia studied data gathered under the direction of Fennema. The data gathered came from a study of classroom process conducted at the University of Wisconsin-Madison. Ninety-three students in seventh-grade math classes were observed for approximately a month. The sex of each student was considered and then research was conducted to determine where the students of each sex excelled. The question of males versus females and which performs better in the mathematics classroom may prove to be a valid issue in my classroom. Do the males or females have more confidence in my classroom?

Toliver (1993), Klassen (2002), and Hart (1989) found similar ideas about confidence levels of students in mathematics. Many different variables play a role in the confidence levels and how students perceive their own confidence. One theme that ties the research of these authors together is that the teacher plays a large role in the confidence levels of students. When students have a positive experience or positive feedback from a teacher, they have higher levels of confidence. Along the same lines, negative experiences and negative feedback from teachers resulted in lower levels of confidence for the students. Klassen did find that when it came to writing, students with learning disabilities were more likely to be overconfident of their abilities. It is unclear however, if these overestimations were related to positive feedback.

Toliver (1993) seemed to have very useful research for a classroom teacher looking to increase the levels of confidence in mathematics students. The fact that Toliver was able to share her successful methods of motivating students is great. Hart (1989) and Klassen (2002) had interesting information in their articles about confidence, but they focused more on different sets of variables and were not as easy to relate. The span of years between the three articles was 13

years. The first article by Hart focused more on the idea of differences between the sexes, which was a frequent topic in the late 1980's. Klassen, on the other end of the time spectrum, was focusing his study of confidence on students with learning disabilities. In the early 2000's research on students with learning disabilities was a hot subject of discussion.

My classroom does not have the diversity or the same situations that Tolliver faced in her classroom. The age of the students in these studies also differs from the age of my students. More information on how confidence is linked to communicating would be very helpful with my research.

Motivation

Motivation is something that can be had as well as something that can be given. Students can be self-motivated and be able to keep themselves on the right track putting one foot in front of the other. Motivation can also be given. As a teacher, I can help give students the support they need to continue when they may be struggling mentally with their studies. To me, motivation is seen best in a positive atmosphere where students can explore ideas and are not afraid to make mistakes knowing that they can learn from their mistakes as well as the mistakes of others.

Eccles, Wigfield, Midgley, Reuman, Mac Iver, and Feldlaufer (1993) worked on research regarding a comprehensive longitudinal study examining the influence of school and classroom environmental factors such as teacher discipline and control practices, teacher-student relations, opportunities for student decision making, teachers' sense of efficacy, and between-classroom ability grouping on student motivation. Their study included the results from 2,500 sixth and seventh grade students over the course of two years. Questionnaires were given out to students twice during each of these two years. Their study showed that the middle school teachers control students more and leave the students with fewer decision-making opportunities. The face-time

that students have with each teacher is also significantly less. At the middle school level, more classrooms use ability-grouping to separate students. Many of the changes that come with the transition from elementary to middle school are related to the decline in student motivation after they get to the middle school.

Murdock and Miller (2003) studied 206 eighth-grade students' achievement motivation and their perceptions of teacher caring, after accounting for influences of parents and peers and controlling for prior motivation. This study by Murdock and Miller found that students who had better relationships with their teachers were more motivated in school. They also found that parents played a large role in the motivation of students with their expectations, encouragement, and school involvement.

Toliver (1993) wrote about her personal experiences and how students could be motivated if they had teachers who cared and were willing to spend extra time outside of school to work with students. Toliver would use dramatic actions to get the attention of students. The drama would help to create and then keep the students interest of a certain subject. Toliver learned through the years that she needed to let the students know that she cared. Some of Toliver's students lived in shelters and did not have the parental involvement that would have helped to foster motivation to do well in school. Toliver would listen to these students and give her time to them, creating relationships with the students and increasing their degree of motivation.

In the three studies above it is interesting to see that two of them were published the same year in 1993 with the third article coming ten years later. The two articles from 1993 are rather different in that Toliver (1993) had informal research and data from her classroom experiences with trying to increase student motivation and Eccles et al. (1993) had many variables that they

were researching with different controls in place to see the differences among students. They also used questionnaires for approximately 2,500 students. They found the transition from 6th grade in elementary to 7th grade in middle school to be one of the most frequent times for a decrease in the motivation of students. All three of the articles discuss the importance of student-teacher relations. These relations tend to decline when students make the transition from elementary to middle school and this is also when student motivation declines. Toliver (1993) and Murdock and Miller (2003) both discuss the student-parent relations and how this correlates with motivation in students.

My own research will be similar to that of Toliver (1993). I am considering my experiences in my own classroom when I think about different ways that I can motivate my students. Having had all of these students last year as well also helps with these decisions and the more time I have to build the student-teacher relationships that Toliver and Murdock and Miller (2003) talk about, the easier it is to motivate these students. I can create a sub-group in my class with the students who have learning disabilities. I am hoping to be able to look at their progress levels compared to the progress levels of the students without learning disabilities. I am considering motivation as a theme in my research so that increased motivation can enhance the communication and questioning skills of my students.

These three articles on motivation gave me insight about how to approach my research. I need to show students that I do care and be available for them “after hours”. Increasing degrees of motivation helps students increase their levels that were discussed in the other themes: communication, questioning, and confidence.

Questioning

The topic of questioning focuses on the aspect of students asking questions and teachers posing questions to the students. Commeyras (1995), an assistant professor of education at the University of Georgia, researched ways of involving students in discussions that promote critical thinking and student responsibility. Her focus was both on questioning from the students as well as from the teacher. Teachers need to know when and how to ask questions in order to get students involved with discourse in the classroom. This questioning opens up students to ask their own questions.

Schmidt (1989), assistant professor of Special Education at East Carolina University, studied the questioning of students. Schmidt's study involved one hundred and twenty students with learning disabilities in grades six through nine. These students came from both rural and urban schools in the eastern part of North Carolina. A variety of assessment devices were used due to the vast difference in abilities between these one hundred and twenty students. The assessment was a one-time assessment for each of these students. The purpose of Schmidt's study was:

> To compare the effect of questioning mode and placement of questions on learning disabled students' comprehension in an effort to determine the effectiveness of these variables in promoting comprehension of written material and ultimately, identifying relevant classroom practices and learning strategies for students with learning disabilities. (p. 192)

Schmidt found that students were better able to recall information when they had been questioned by a teacher rather than when they were to solely read information from a textbook.

Commeyras (1995) found that many students shy away from questioning teachers in most classrooms because of the tradition of teacher-led instruction. Commeyras states that:

> Children are naturally rich with questions, but when teachers take primary responsibility for questioning, student questioning becomes something to be taught. An inquiry

> approach to education privileges students' natural questions, and their questions become the center of teaching and learning experiences. (p. 105)

Students need to be taught how to question and also be given the opportunities to question. The traditional classroom does not create a user-friendly situation for student questioning.

Commeyras' (1995) findings will be useful in my research project as I will have the knowledge going into the project that I need to not only teach my students how to clearly ask questions, but also allow them the opportunity to discuss and ask the questions that they already have in their minds. Allowing student's time to work in small groups with and without the teacher creates a time when students may feel more comfortable asking questions. Many students find the large groups intimidating. I can also lead by example so that students know what kinds of questions are useful to ask.

Communicating

The theme of communicating can be related to the previous theme of questioning. Additional aspects of communicating that I found discussed in the articles were teacher-student open communication along with communicating answers to mathematics problems in written form. Students with positive motivation from teachers are also more likely to communicate with their teachers. If the classroom environment is positive then students may open up to each other more and have better communication.

Wells (1995), with the Department of Mathematics, Case Western Reserve University, Cleveland, Ohio, did research on communicating mathematics using ideas from computer science. Wells collected his data based on discussions and suggestions from various mathematicians, scientists, teachers, and computer engineers. This focus was on the communication of answers to mathematical problems in writing. The ideas from the computer

sciences of simplifying descriptions and constructions led me to think about the introduction of set theory at an earlier age.

Toliver (1993) focuses on a different aspect of communication. Toliver found that more communication lines open between teachers and students was a positive experience for her. Toliver also used student journals as a form of communication between her and her students. She said:

> I have noted a wide range of responses, and have discovered that many of my students have difficulty expressing themselves in writing. What better way, in my view, to give them practice in expressing themselves on paper than to have them write about their troubles and thoughts in mathematics class? (p. 41)

Use of the journals was another way to improve the communication skills of the students. Toliver found that the students wrote on many different topics from why the teacher acted the way she did to writing about a math problem that had been assigned.

Improving communication is high priority in my classroom. Exploration of different forms of communication that work well for each student is a goal that I would like to achieve. Utilizing some of Toliver's ideas and following her actions makes a classroom an environment that a student feels comfortable communicating in.

Learning Disabilities

There are three students in the class I will be studying who have learning disabilities. These three students all have the same learning disability in which they struggle with reading comprehension. I believe that this learning disability affects these particular students in their mathematics courses. In other courses, I have students with different reading disabilities who excel in mathematics, but the three students in my Algebra 2 class all test the same and have the same troubles when it comes to mathematics. I believe that a mathematics teacher needs to be aware of the different learning disabilities that his or her students may have, even if they are not

math related. Many students may not be able to read through a word problem or be able to rationalize their way through a complex problem if they have certain types of learning disabilities.

Researching students with learning disabilities was a similarity in the articles by Schmidt (1989) and Klassen (2002). Schmidt's research looked into methods of questioning effects on the comprehension of students with learning disabilities where Klassen looked at the self-efficacy beliefs of students with learning disabilities. Schmidt (1989) studied 120 students with learning disabilities in grades 6-9 from fifteen different schools in three different school districts. These schools represented both rural and urban settings. This study was done on oral versus adjunct questions. The oral recitation was questioning posed by a teacher where the adjunct questioning was posed as a written question accompanying a reading passage. The oral recitation was more effective than the adjunct question for increasing reading comprehension in students with learning disabilities. The types of disabilities were not specified in this study.

I would like to look at different questioning techniques for the teacher as well as the students. Looking into the question placement or the oral versus adjunct questioning techniques is something that I could consider. My main focus with questioning is to check student communication and comprehension while working on student questioning skills.

One key point that these two articles have in common is the idea that students with learning disabilities can still prosper and have a positive experience in the classroom. Teachers can place questions in ways that will help students with learning disabilities to retain pertinent information that they will be tested on. Students with positive experiences and positive reinforcement from teachers will have better self-confidence. Seeing research that shows how

students with learning disabilities can still learn and be confident in themselves is encouraging to teachers who have students with learning disabilities and low self-esteem.

Conclusion

The five themes that I was able to find in the articles for my literature review closely follow the themes in my research project. Finding themes such as motivation and questioning were to my advantage as I can use the information from those articles to support the related materials I found on confidence and communicating. Many of the articles stated that teachers need to be caring and give students positive experiences and positive reinforcement for quality communication and confidence to be seen.

IV. Purpose Statement

The purpose of my project is to increase the levels of communication and confidence in all of the students in my classroom, including my special education students. I would like to know what teaching methods or tools help students to gain an increase in their communication skills and their confidence levels. I am examining the following variables:

- The quality of student questions during class discussions
- The quality of student reasoning (written) to solve word problems (measured by a rubric)
- The quantity of problems completed on each lesson and test (homework and test results)
- The quality of questioning techniques from the students

I will collect data related to these variables as I seek to answer these research questions:

- What will happen to students' questioning during class discussions after they learn different forms of communication skills?
- What will students' written work look like after new forms of communication are introduced?
- What will my teaching look like after I introduce new communication skills and confidence boosters?

V. Method

I performed interviews, conducted surveys, kept a teacher journal, and gathered student assignments and tests for my data collection. The first items that I collected were the pre-surveys which were filled out on February 4, 2008 (see Appendix A). I tallied all of the ratings that were on the survey and compiled them all onto one sheet. I then typed up all of the responses to each question so that I would be able to see how similar or different the responses were. I had a colleague of mine who teaches special education hand out the Youth Assent Forms along with the Parental Informed Consent Forms. I received forms back from eight of my ten students.

I performed four interviews starting on April 3, 2008. I interviewed Chloe (all names are pseudonyms) and Shirley on April 3rd and then I interviewed Mary and Lissel on April 21st. I had completed only two interviews before my April 15th deadline. I felt that I needed more than just two interviews so that is why I decided to conduct a total of four interviews using a set of interview questions that I created and then adapted prior to my research (see Appendix B).

I struggled with the decision of when to conduct the interviews, but the fact that the students were gone so frequently for basketball games, wrestling tournaments, Future Farmers of America and Future Business Leaders of America Conventions, track meets, and music contests made finding time for interviews rather difficult. Looking back, I might have had better results if I had been able to interview students at the beginning of the research and then interview the same students again towards the end of the research. The surveys were set up this way having a pre- and post-survey, but the interviews gather more in-depth information.

I have never written a teacher journal prior to my experiences with Math in the Middle. I tried to write weekly journals on Thursdays, but many weeks I ended up writing them on Fridays instead. I would reflect on what had happened during the week with my students that had an

effect on my research. I was able to notice many topics that would be interesting to research in the future.

I also collected student assignments on a weekly basis. The homework and tests were organized by assignment as well as by date. Many times I had one or two assignments that were turned in late due to the students being absent. Because of this I had to go back and re-gather homework when students finally turned it in.

The last data collection item was the post-survey. These were collected in a similar fashion to the pre-surveys and analyzed in the same way. After the data was analyzed the pre-survey and the post-survey were compared to see the differences or similarities. The questions on the post-survey were the same as the questions on the pre-survey. Here again was another decision that I debated for quite some time wondering what would best support my findings. The post-survey was also done later than April 15 due again to the fact that the students were never all in class at the same time. The post-survey was completed on April 24, 2008.

VI. Findings

An average day in my classroom during this action research project would not include all ten of the students who are enrolled in this class. I would start the class by asking students if they had any questions on the assignments from the previous class period. Any student who had a question would write their problem up on the board and the rest of the class would help guide them through the problem. A short class discussion would usually follow each problem that was put up on the board.

The class would then look at the topic for the next lesson, discussing similarities to and differences from the previous lesson. Different problems would be worked on the whiteboard and the students would get these problems into their organized notes. Any additional information

regarding these problems that would help the student utilize these notes at a later time was also put with the problems.

After large group discussion students would split up into smaller groups and work at their tables on the new assignment. The students would discuss problems with their whole table and with the peers who were sitting closest to them. The students did quite a bit of asking and answering questions for each other. I would float back and forth between the tables to see how work was progressing and to add comments or questions to the many discussions that were being held.

Some of the students were able to finish assignments during the allotted class time. If they did not get finished they were to finish the assignment at home. Since this was the last class period of the day and many of the students would be absent for various reasons, I had quite a few students who would stay past the bell that released students from school. These students would work to finish their current assignment or work to catch up on previous assignments.

In the time after school similar small group discussions were held. Many discussions were held between one student and the teacher as well. These discussions helped students to form a more complete understanding of the topics that had been covered in recent lessons. As the teacher, I could see the light come on for some of the students who had completely missed a concept and then grasp it during a discussion in a smaller group setting.

Lessons were then prepared for the next class period based on how the current lesson went and how many students were going to be in attendance the next day. I tried to make myself more and more available to the students as the research went on, especially after noticing how receptive the students were to coming in after school to get help if they had the time and if the teacher was available. I adapted a few seating arrangements and lesson plans based on what I

saw from day to day in order to make the lessons and discussions the most beneficial to as many students as I could reach.

My first research question focuses on what will happen to students' questioning during class discussions after they learn different forms of communication skills. I have implemented the use and organization of note taking. After the students take notes during class time and discussion they are then allowed to utilize these notes on homework assignments and chapter tests. I have also worked with the small groups of students to help them utilize each other's mathematical assets. The students form a basis of good questioning techniques that they see used by the teacher during class discussions. I have found that students questioning will increase when they are comfortable in a situation. Students will open up to other teachers or students after they can respect the teachers or students. This can be seen in the following evidence.

> Chloe said that she has a hard time opening up to some of her peers. She stated,
>
> I have a really bad problem of letting people help me because I don't like it. If they are not really a teacher then I don't want them to help me. I am comfortable with a group and with a group and a teacher, but I usually don't ask peers…I don't feel like they would know exactly, there is always that possibility that they don't know what they are doing (Student Interview, April 3rd, 2008).

When asked about what I could do to plan for my math classes next year concerning one-on-one time with a peer, Chloe mentioned, "If you can get two peers that have respect for each other to work together then it would be better. I don't think sticking random people together would work very well." Chloe does not feel comfortable asking questions of people who she does not respect.

The following statement was on my survey: I feel comfortable asking questions to my classmates in a one-on-one setting, two students agreed, and six students strongly agreed. A

similar statement was also on the survey: I feel comfortable asking questions to my teacher in a one-on-one setting, three students agreed and five students strongly agreed. I believe that this comfort comes from a sum of factors. This is the second year that I have had each of these students in class, so they are familiar with me as a teacher. Another factor is that I have come to understand that the students need to have a teacher who shows them that she really cares about their education. This is an idea that I noted early in a one of my journal entries:

> Sitting at home I realize that I need to use modeling to shows students how to communicate. I also need to show students that I do care about their education so that they may have better confidence. One of the Articles that I read last semester was about a teacher who made herself available to the students and let the students know that she cared about them and their education. I am going to try to follow her lead and let the students know that I am around for them if they need help. I am hoping that this will open up communication between the students and me. In my teacher journal I mentioned how I had noticed Shirley opening up this year. (Personal Journal, February 14th, 2008)

One more factor is that this class is fairly small and the students are arranged in tables. The size of the school helps to create an environment where the students know each other well. The students knowing each other well can have both positives and negatives. The students will know who they work well with and who they cannot work well with.

> Many of the students seem to feel better when working in small groups. The groups that they are in usually consist of their friends. A couple of the students do not have any real close friends in this class, but they seem to find someone that they can rely on when they need help. (Personal Journal, February 21st, 2008)

The students in my classroom were able to choose their own seating arrangement the first day of school. It makes sense that a student would not sit by other students who make them feel uncomfortable.

Most students find situations where they are comfortable to get their questions answered. All students are different. Some students prefer to ask questions in a group setting, or even listen to questions being asked in a group setting that way they do not have to be the one actually asking the question. Students are usually comfortable with their friends and most students find it comfortable to ask the teacher questions.

The second question in my research focuses on what students' written work will look like after new forms of communication are introduced. These new forms of communication are discussing problems in small groups, large groups, taking notes to help a student clarify their understanding, and being able to ask questions in various settings. I have found that students complete problems and the work that they know and feel that they understand. Likewise, students do not complete problems and the work that they do not understand. After asking more clarification questions, students complete more questions on homework and tests. The evidence that follows supports these ideas.

On the pre-survey students were asked about their confidence levels of completing their homework with no help, one student marked lowest, one student marked low, four students marked high, and two students marked highest. The numbers go up when the students were asked about their confidence levels of completing their homework with some help, one student marked low, three students marked high, and four students marked highest.

The pre-survey responses to the questions about finishing tests were similar to the responses above. When asked about finishing the test and asking no questions: one student

marked lowest, two students marked low, and five students marked high. When asked about finishing the test and asking a few questions, two students marked high, and six students marked highest.

I have introduced note-taking to the students so that they may become more organized and better able to communicate. I have also worked with the students to show completed steps on their assignments so that they can see at a later time where a mistake has been made. During an interview, Shirley said "If I know what I'm doing then I don't show it all, just some steps" (Student interview, April 3rd, 2008). She and other students agreed that they start off showing all of the work on all of the problems and then when they became more confident they would skip some of the easy steps. Lissel said that her written work is "a lot of scribbling and stuff that comes out of my head," but sometimes this doesn't help "when I go back through and try to figure out where I went wrong" (Student interview, April 21st, 2008). The work shown may need to be written in a more organized manner, which I have been trying to get students to do.

The idea of organization and note taking has been useful in this classroom. Many of the students are utilizing this idea. Some of the students have seen how their notes help them on the tests. An excerpt from a teacher journal entry states,

> I have noticed improved effort by Alan to get some good notes taken. Today Alan sat at a small table all by himself away from the distraction of his friends. Alan was asking some very good questions and making sure that I went slowly so that he could write all of the information down in his notebook. I am working on getting the students to write down notes that they can utilize at a later date. The students know that they can use their notes on homework assignments as well as on tests. Alan relies heavily on his notes

> come test time. I wonder what some of these students would do if I did not allow them to use their notes. (Personal Journal, March 13th, 2008).

Students with better communication skills and organization are more likely to complete their homework and tests. The students who are better able to communicate with their teacher and peers have been able to ask the questions needed to complete homework.

My third research question is my teaching research question and it focuses on what my teaching will look like after I introduce new communication skills and confidence boosters. I have found that my teaching will be more student-centered. I will be showing and telling the students that I care about their learning in my classroom. These findings are supported by the following evidence.

I want students to realize that they come first in my classroom. In a recent journal entry I wrote that,

> I have started allowing more time in class for small group work. During this time students are also allowed to ask questions of the teacher. Students are more apt to work on their homework and get assignments done when they are given time in class. I find that students will rarely work at home if they have any questions on an assignment. Giving the student's time in class is a way to allow them to communicate in small groups, one-on-one with a friend, as well as one-on-one with a teacher. (Personal Journal, February 21st, 2008)

During an interview, I asked Shirley what has helped the most this year in mathematics. Shirley replied, "Staying after and trying to catch up on assignments…you explain it [in a way] that I can actually understand it and [you] help me with it" (Student interview, April 3rd, 2008).

Allowing students time after school and during my planning periods is a way that I can show students that they can come to me with questions if they need help from me.

On the survey students were asked to write a quick comment to finish the following statement: When I don't understand a mathematics assignment I …(here are some responses)

-ask questions from my teacher

-just ask about it in class the next day and the teacher will put it on the board

-ask my teacher questions if I'm in class, but if it's outside the classroom and I don't have time to go to her, I ask my peers

Getting these responses lets me see that some of the students do realize that I am available and willing to help them when they have questions on an assignment.

My teaching is now more student-centered. I am more available to students after school and during planning times. I help to facilitate student-led discussions on questions that come from the students. My students are comfortable participating in these student-led discussions.

VII. Conclusion

When students are comfortable in the classroom or in a particular situation they will open up more in their confidence levels as well as their communication abilities. Students need to feel a respect for those who are helping them whether it is a teacher, parent, or peer. Having respect for someone can come from a positive relationship. Students working together can also build the needed respect so that the students can communicate effectively with each other.

According to Eccles et al. (1993) students have two motivationally constructed questions that they ask themselves: "Can I succeed on this task?" and "Do I want to succeed on this task?" I see this in my research, especially in my personal journal. Many of the students can answer yes

to the first question because they are very smart and very capable of succeeding. Those students then need to say yes to the second question in order to succeed. Do they want to hand in their assignments to get the good grade or do they not care if they pass math this year? The students who have to answer no to the first question are sometimes the students who want desperately to be able to answer yes to the second question. I have students in my class who struggle to understand a concept, taking notes on everything that is said, asking questions until their face turns blue, and yet they do not understand. I want to be able to allow these students who struggle the chance to answer yes to both of the questions above.

When a teacher is more available to the students in a one-on-one situation the relationship with the students will be able to grow. This relationship can then build into the positive experience that students need in order to gain a higher level of confidence. When students are confident they will be more likely to open up and communicate more clearly with their teacher and their peers.

VIII. Implications

As a result of my study, I will work to be more available to my students. This process will take at least a couple of years as I currently teach in two different buildings in the district. In two years, I will be in only one building. I am not available to my high school students in the mornings before school since I am at the middle school building. I will work to make the time after school more productive when the students are able to come in to work with me. I will also attempt to get students into my classroom on a regular basis. I believe that a homework class after school would be beneficial to the students so that they could get more face-time with a teacher. Many times this face-time would be one-on-one or have a low teacher-to-student ratio.

I would also like to be able to create a working relationship with all of my students so that they can understand that am here to help them. If we can get past any negative ideas that students have about mathematics or my teaching, we can work on the positive aspects of mathematics and the experience of the students can be the positive one they need for an increased level of confidence.

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Appendix A

Student Survey Student #_____

Please give your honest response to each statement.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I feel comfortable asking questions in front of my classmates during a class discussion.	1	2	3	4
I feel comfortable asking questions to my classmates in a one-on-one setting.	1	2	3	4
I feel comfortable asking questions to my teacher in a one-on-one setting.	1	2	3	4
Others can understand the questions that I ask.	1	2	3	4
I avoid asking questions during class because I feel scared.	1	2	3	4
I give up on a homework assignment when the problems get hard.	1	2	3	4
I always ask questions when I am having difficulty on an assignment.	1	2	3	4

Please rate your current confidence levels for the following items: (1 is lowest and 4 is highest)

Working word problems on my own	1	2	3	4
Working word problems in pairs	1	2	3	4
Working word problems as a class	1	2	3	4
Completing my homework with no help	1	2	3	4
Completing my homework with some help	1	2	3	4

Finishing my test, asking no questions	1	2	3	4
Finishing my test, asking a few questions	1	2	3	4
Taking online tests with no prior review	1	2	3	4
Taking online tests with prior review	1	2	3	4

Write a quick comment to finish each of the following statements.

What helps me most in mathematics class is...

The hardest part of mathematics class is …

The easiest part of mathematics class is…

When I don't understand a mathematics assignment I …

Appendix B

Interview Questions Student Name_____
Emily Lashley

1. What is your overall attitude towards mathematics?

2. Explain how you feel about your confidence level in mathematics.

3. Describe your written work on assignments and tests.
   A) what is shown?
   B) what is not shown?

4. a) Can you explain to me how you ask a question during group discourse?
   b) During one-on-one time with a teacher?
   c) During one-on-one time with a peer?

5. Are you comfortable in all three of the above situations? Please Explain.
   a) group?
   b) w/ teacher?
   c) w/ peer?

6. Why do you think that these particular situations are the most comfortable?

7. a) What do you feel would make questioning easier?
   b) Why do you feel this would help make questioning easier?

8. Explain how you feel your work has changed since the implementation of new communication skills?

9. a) Will any communication skills you learn in this classroom be applicable in other classes?
   b) Why or why not?

10. a) Explain what has helped you the most this year in mathematics?
    b) the least?

11. a) What makes math easy for you?
    b) What makes math difficult for you?

12. a) Do you like mathematics as a subject?
    b) Why or why not?

13. What communication skills have you learned in math this year that you feel you will continue to use next year?

14. As I think about planning my math classes for next year, what advice would you give me about: a) group discourse b) one-on-one time with a teacher c) one-on-one time with a peer?

15. Is there anything you want to know from me?

16. Is there anything else I should know about you to better understand your views in math or your general math experienced?