

I Became a Teacher for the Money and Fame: An Examination of the Effects of Humor  
on Student Perceptions and Attitudes towards Mathematics

by

Daniel Rider

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## Chapter 1: Introduction

### Problem Statement

Some students in high school often possess a negative perception of mathematics because learning mathematics can be difficult for them. Whether it is because they struggle to understand it, receive low grades, or just find their mathematics course to be an uninteresting class, many students openly admit their dislike for the subject. Most explanations for this are related to student perceptions. These could be perceptions of their own identity, of their ability to perform or succeed, of the difficulty of mathematics, or even of the teacher's beliefs or abilities. Collectively, these things can be considered the classroom environment, which may play a large role in student ability and desire to learn.

Some students dislike mathematics because they do not believe they are good at mathematics. They do not identify themselves as being people that are able to succeed within the setting of the mathematics classroom. The fact that young persons' developing identities are an important factor in the success of students in secondary mathematics is often overlooked and neglected (Boaler, William & Zevenbergen). If students are able to develop a sense of identity that works within the context of the mathematics classroom, they may be more likely to enjoy learning mathematics and choose to further their mathematical education when compared to their fellow classmates that do not develop a similar identity.

Some students may not perceive school as being a fun place. It may not be interesting for them, which may result in a lack of motivation. If their level of intrinsic

motivation, motivation based on taking pleasure in an activity rather than working towards an external reward, to learn were increased, students may be more interested in their learning. Genuine interest may be created from an identification of self with some idea. When schools are seen as an interesting place to be, students may develop a stronger identity that is associated with school and learning. The problem may be that mathematics classes are often seen as boring and lead to low achievement.

Laughter and a good sense of humor may help to improve any situation. However, it does not take a comedian to deliver a joke or any other type of humor in the classroom. Humor can be a great tool for any teacher to use. Whether lightening up a class to help students learn the material or using humor to manage the students and the classroom environment, a little bit of laughter can be used to improve any class (Banas, 2011). Some professionals in education worry about the possible negative implications of using humor in the classroom (Huss, 2008). It is a sensitive tool that, when not used properly, has the potential to create more work for the teacher if a student feels uncomfortable with the humor being used and if the student becomes disengaged or uncommunicative (Huss, 2008). That is why it is imperative that careful consideration be taken by any teacher who plans to implement humor in the classroom.

This thesis presents the effects of the use of humor in the classroom on student attitudes and perceptions in a mathematics classroom. Students' attitudes towards mathematics class and the learning of mathematics as well as their feelings about the use of humor in the classroom, before and after the implementation of humor, were compared. The results will present how, or if, student perceptions and attitudes changed over time, due to the use of humor.

## **Significance of the Problem**

Students may not find their mathematics classes interesting and could attribute this lack of interest to the subject matter. Along with this disinterest, students may display a lack of motivation and may struggle to understand the material (Ames, 1992). These students may not connect with their teacher or identify as a learner of mathematics. If students are to better engage in activities and learning tasks in their mathematics classes, student attitudes towards, and perceptions of, their mathematics classes and learning environments must first be improved (Ames, 1992).

## **Purpose**

Humor can be implemented in the classroom to provide a relaxed atmosphere in which students can learn and reduce the level of stress (Girdlefanny, 2004)). Humor also allows students to better connect with their teachers, gain understanding and connection to material, and increase student interest (Huss, 2008). This thesis will explore how students' perceptions and attitudes towards mathematics class change when humor is implemented in the classroom. Middle school mathematics students enrolled in a private, Catholic school in western New York completed a survey before and after the implementation of humor in the classroom. The pre-surveys and post-surveys were compared to determine how perceptions and attitudes changed over time for individual students. The results of this thesis may better inform educators of the practices that can be utilized in order to improve student perceptions and attitudes towards mathematics.

## **Definitions**

*Acronym* - a word formed from the initial letters of other words (Oxford Dictionaries).

*Alliteration* – the occurrence of the same letter or sound at the beginning of adjacent or closely connected words (Oxford Dictionaries).

*Attitudes* - For the purposes of this study, attitudes refers to the level of interest in the material and motivation for students to learn.

*Humor* - Any type of communication that elicits laughter or creates a feeling of amusement (Shibinski & Martin, 2010).

*Identity* - It is the combination of a sense of belonging to a group, a sense of achievement within that group, and different behaviors associated with belonging to the group for an individual (Boaler, William & Zevenbergen).

*Oxymoron* - figure of speech in which apparently contradictory terms appear in conjunction (Oxford Dictionaries).

*Perceptions* - For the purpose of this study, perceptions are considered to be the students' perceived difficulty and importance of mathematics.

## Chapter 2: Literature Review

### Student Perceptions and Attitudes towards Mathematics

Some students may dislike mathematics because they do not believe they are good at learning mathematics. They do not identify themselves as being people that are able to succeed within the setting of the mathematics classroom (Boaler, Wiliam & Zevenbergen). The fact that young persons' developing identities are an important factor in the success of students in secondary mathematics is often overlooked and neglected (Boaler, Wiliam & Zevenbergen). If students are able to develop a sense of identity that works within the context of mathematics, they are more likely to enjoy the subject and choose to further their mathematical education than their fellow classmates that do not develop a similar identity (Boaler, Wiliam & Zevenbergen).

First, it needs to be clear what 'identity' is. Identity can be separated into three components. There is a sense of belonging to a group, a sense of achievement within that group, and different behaviors associated with belonging to the group (Boaler, Wiliam & Zevenbergen). Belonging to a group is regarded as a key component of self-concept where members develop a sense of the value of the group and membership in the group as well as derive self-esteem from belonging to a particular group (Boaler, Wiliam & Zevenbergen). Members who hold positive views of their group, tend to have high self-esteem (Boaler, Wiliam & Zevenbergen). It is also true that those who have negative opinions of their group tend to have low self-esteem (Boaler, Wiliam & Zevenbergen). As children enter adolescence they become more aware of who they are within the boundaries of a group and begin to explore the group more (Boaler, Wiliam &

Zevenbergen). Associations that students make regarding their belonging to a specific group are very important to their level of success in education. If a student believes that he is not good at mathematics, that individual may not perform well in the mathematics classroom.

Learning is a social practice through which we, as learners, come to know who we are and develop our identity and sense of self (Boaler, Wiliam & Zevenbergen). Through different social processes and shared experiences, people gain a sense of self and meaning within a group (Boaler, Wiliam & Zevenbergen). Individual people do not have just one identity. We all have different identities for different situations (Boaler, Wiliam & Zevenbergen). The person that you are within the context of a mathematics classroom may be completely different from who you are in an English class or on a soccer field. Naturally, you tend to enjoy and participate in those groups or contexts with which you have positive feelings and experiences while avoiding other groups (Boaler, Wiliam & Zevenbergen). If students lack an identity in mathematics class, or gain a negative one, early on in school, they are going to carry that with them as they further their education (Boaler, Wiliam & Zevenbergen). In this situation, it is possible for students to learn how to participate in the context of a mathematics class so that they can get by instead of truly immersing themselves in the class (Boaler, Wiliam & Zevenbergen). They may know when to respond, when to resist what they are being told, and how to appear busy but avoid doing any work (Boaler, Wiliam & Zevenbergen). A routine is learned, they work the system and learn how to cope (Boaler, Wiliam & Zevenbergen), rather than being active participants in the classroom.

Students that do like mathematics often relate their feelings to their perceptions of

being good at it (Boaler, William & Zevenbergen). They like it because it will lead to the level of education they hope to achieve or the future employment opportunity that they desire (Boaler, William & Zevenbergen). To them mathematics is seen as a necessary price to pay for educational progress; not something that is truly enjoyed by students, but accepted as a requirement to continue towards the future (Boaler, William & Zevenbergen). Even then, this may be only true for some students. Other students that are successful in learning mathematics may choose to give up the subject as soon as possible, even though they are aware of the possible limitations this will present for their future careers (Boaler, William & Zevenbergen). The negative feelings and lack of connection to the subject matter are so strong, students abandon their education in mathematics at the first opportunity, and manage the effect or consequences it will have on their future (Boaler, William & Zevenbergen). This attitude stems from the fact that they do not see success in learning mathematics as relevant to their developing identities; who they are as individuals (Boaler, William & Zevenbergen).

The relationship between the student and teacher may affect student motivation and scholastic attitudes. Perceptions of the usefulness and importance of mathematics are directly connected to level of achievement (Midgley, Feldlaufer & Eccles, 1989).

Teachers that present more supportive qualities have pupils who are more motivated to learn and less anxious about the process (Midgley, Feldlaufer & Eccles, 1989). During the transition between elementary and high school students are more vulnerable to both positive and negative influences (Midgley, Feldlaufer & Eccles, 1989). Those who have negative attitudes towards school and learning see teachers as less warm, while students with attitudes that are positive see teachers as more supportive (Midgley, Feldlaufer &

Eccles, 1989). A positive relationship between students and teachers is important during adolescence because it is when students are developing new identities (Midgley, Feldlaufer & Eccles, 1989). Students are trying to figure out who they are outside of the family group and look for more adult role models (Midgley, Feldlaufer & Eccles, 1989). If the relationship is a positive one, students are more likely to develop an identity in which they are strong learners that belong in the classroom (Midgley, Feldlaufer & Eccles, 1989). A negative relationship could result in an identity where the student believes he is not able to succeed and does not belong in school. It is an attitude and concept of identity that leaves students with a dislike of mathematics and underachieving (Midgley, Feldlaufer & Eccles, 1989). If the value of math decreases for low-achieving students, they are especially likely to give up trying to achieve and drop it entirely (Midgley, Feldlaufer & Eccles, 1989).

Schools are not very interesting places for most of the people in them and that is especially the case for middle and high schools (Mitchell, 1993). Students do not think of school as a fun place to be (Mitchell, 1993). It is not interesting for them and therefore there is a lack of motivation (Mitchell, 1993). If their level of intrinsic motivation to learn were increased, students would be more interested in their learning. Genuine interest is created from an identification of self with some idea. When schools are seen as an interesting place to be, students develop a stronger identity that is associated with school and learning (Mitchell, 1993). The problem is that mathematics classes are often seen as boring and lead to low achievement (Mitchell, 1993). Students see these classes as a collection of bits and pieces (Mitchell, 1993), leaving them disconnected from the subject.

Often teachers attempt to increase interest in classes by appealing to something else that students already like (Mitchell, 1993). However, this does not work because it reinforces the identity with that object, but does not connect it to the material being covered in the classroom to create personal interest (Mitchell, 1993). Puzzles are one way teachers attempt to increase interest but it is only a short-term solution (Mitchell, 1993). Activities like puzzles only catch initial interest and provide students with a reward that is unrelated to the subject (Mitchell, 1993). A more useful activity that teachers can use is group work since students in high school are typically social, and the group work encourages them to use that behavior in order to discuss subject matter (Mitchell, 1993). In this way students may be able to use their natural behaviors to create connections and an identity within the classroom. According to students, they are more likely to pose question to other students in a small group than risk embarrassment in front of the whole class, and group work presents the opportunity for those discussions (Mitchell, 1993).

Students' relationships with the classroom environment determine the amount of avoidance strategies used by students (Turner, et al., 2002). The use of different activities tends to provide an emphasis on a mastery goal orientation, leading to lower amounts of avoidance strategies (Turner, et al., 2002). Self-acceptance is the highest human priority (Turner, et al., 2002). It is our own concept of our identity. In order to protect our self-worth, our identity, we want to avoid situations that can harm that self-concept (Turner, et al., 2002). Students who are uncertain of their own abilities may develop strategies that deflect attention from it in order to avoid being labeled as stupid (Turner, et al., 2002). They may avoid seeking the necessary help, resist novel approaches to learning, or purposefully withdraw effort (Turner, et al., 2002). Working hard is a huge risk for

students because failure would indicate that they are not as able as their peers (Turner, et al., 2002). To some, it may be better to fail due to a lack of effort.

Classes should focus on understanding, intellectual development, and improvement instead of performance (Turner, et al., 2002). Students that feel a threat to their self-worth due to low perceived ability need the opportunity to increase understanding through teacher assistance (Turner, et al., 2002). Help received should decrease over time so that the student is accountable for his own learning and is able to accept responsibility for the improvement that is made (Turner, et al., 2002). Supportive teachers that are viewed as being pleasant and responsive to student needs contribute to an environment where students feel that there is a level of predictability and are able to build trust (Turner, et al., 2002). This decreases the level of anxiety or apprehension that low-achieving students may feel in the classroom and increase the level of engagement (Turner, et al., 2002). That could then help students feel confident and successful, changing their perceptions and attitudes towards mathematics.

### **Humor in the Classroom**

Humor is defined as any type of communication that elicits laughter or creates a feeling of amusement (Shibinski & Martin, 2010). By no means is the use of humor in the classroom a new concept. An ancient Babylonian Talmud was known for using humor as a teaching technique (Shibinski & Martin, 2010). Seventeen hundred years ago, a Talmudic sage by the name of Rabbah would begin lessons by saying something humorous. He would then continue with the lesson once the laughter subsided (Shibinski & Martin, 2010). Originally, humor comes from the Latin word *humor*, which means

“moisture” (Weaver & Cotrell, 2001). In this case, moisture referred to the fluids of the body including blood, phlegm, choler, and melancholy. The various mixtures of these fluids were believed to determine the complexions, temperaments, and physical and mental qualities in different men (Weaver & Cotrell, 2001).

In the classroom, humor is able to break the ice, reduce fear, encourage a sense of trust, and establish a feeling of camaraderie and friendship among classmates (Weaver & Cotrell, 2001). Open class with something funny (Girdlefanny, 2004). Provide a video or cartoon that introduces the topic of that day’s lesson or a funny quote or question to think about as they enter the room and you take attendance. Traditionally we think of humor as being a joke, funny story, props, puns, anecdotes, riddles, cartoons, and more. But it is not limited to these items (Shibinski & Martin, 2010). Humor is more of an attitude towards life. It is a sense of comfort with oneself and your surroundings; being able to accept not only ourselves, but also our mistakes and situations around us lightheartedly (Weaver & Cotrell, 2001). One of the best things may be for students to feel relaxed in class. Humor releases our body’s natural painkillers, called endorphins, which are produced when laughing (Hellman, 2007). Most importantly, the use of humor fosters a sense of openness and respect between students as well as teachers. It has a humanizing affect on the image of the teacher. Teachers are people and part of the learning community. They have feelings and personalities of their own. Humor in the classroom allows students to realize this fact as well as establish a greater connection with their teacher (Shibinski & Martin, 2010). It shows that teachers are comfortable with the students, the material being taught, and their own abilities as educators (Weaver & Cotrell, 2001). When a teacher is comfortable and confident, students recognize it and

may be more confident themselves.

Student stress is reduced in classes where humor is an accepted form of communication (Girdlefanny, 2004). Good class discussion often develops in classes where humor is an accepted form of communication and students are often able to get the most out of the lessons (Weaver & Cotrell, 2001). Through discussions and other communication that result from a humorous class environment, students become members of a supportive social climate where they are more receptive to learning (Kher, Molstad, & Donahue, 1999). This climate allows students to take more risks in their learning (Girdlefanny, 2004) than they would otherwise, allowing them to be more creative and discover more in their learning (Weaver & Cotrell, 2001). Humor creates a sense of community where students feel they belong (Huss, 2008) and provides an accepting environment in which they can learn. Students understand that mistakes are made and that they should be accepted (Weaver & Cotrell, 2001). Mistakes are to be learned from as teachable moments so that we are able to continue to progress in our education (MAT Blog, 2013). Humor provides an out for teachers when they make a mistake, so that they may be turned into a teachable moment (MAT Blog, 2013). Teachers should occasionally make a mistake on purpose, encouraging students to laugh and show that everyone should embrace mistakes instead of hiding them (MAT Blog, 2013).

Among the observable effects of humor are an increase in student involvement, improved retention of novel information, increased learning speed, improved problem solving skills, increased attention, increased motivation, and an increase in comprehension (Shibinski & Martin, 2010). By using humor in class, teachers create a

less intimidating environment for students. This allows students to relax and try different activities in class (Huss, 2008). With students that embrace this learning environment, teachers are able to use a variety of activities, through which students can learn, in order to appeal to student interests; interests that may only be identified through the improved communication allowed by the use of humor in the classroom. This may allow students to be more involved in their learning process. Humor grabs the attention of inattentive students (Bergin, 1999). People who are in possession of a good sense of humor are considered interesting and relevant by others, and this includes students (Huss, 2008). Students will pay attention to an interesting person and may perceive information to be more relevant than they would if the same content was provided without the use of humor. While the teacher has the attention of students, they are more alert and receive information that may otherwise be missed (Bergin, 1999). When humor is used students find the classroom to be a more interesting place where they feel relaxed. It is this environment that allows students to experience a greater level of enjoyment of class, which makes them more motivated to be an active participant and learner in that classroom (Banas, 2011).

It is easier to recall humorous information than non-humorous information (Banas, 2011). Any individual could tell you that he pays more attention to something funny, rather than a piece of general information. It makes sense that we are better able to remember that to which we pay closer attention. A humorous example provided during a lesson improves the retention of information for students (Kher, Molstad, & Donahue, 1999). People are able to recall humorous information faster and more easily (Hellman, 2007) so it makes sense to incorporate laughter into lessons. Laughter is not just laughter.

That humorous example utilized during a lesson provides a context for students to recall information (Kher, Molstad, & Donahue, 1999). The use of humorous examples concerning important information results in higher test scores for students when compared to students in the same class that do not receive the examples (Banas, 2011). In a study comparing sentence recall between students who were shown humorous sentences to those that were presented with non-humorous sentences, sentences considered humorous were remembered better than those that were non-humorous (Huss, 2008). This information is best utilized when humor is integrated into the course material. When exposed to a series of lectures containing course specific humor, students showed an improved retention of the content taught compared to students that received the same information without content humor (Huss, 2008).

Incorporation of humor into a classroom can be used to communicate rules and develop an understanding and rapport between the teacher and students (Shibinski & Martin, 2010). Humor is an integral form of communication. It is this connection that provides teachers with more control over the classroom and student attitudes (Weaver & Cotrell, 2001). Humor can be a great tool that teachers and students can use to connect and gain a clearer understanding of each others' communication processes. Teachers can also use humor in class to 'hook' students (Shibinski & Martin, 2010), meaning that it can earn the initial attention of students. After student attention is obtained, the teacher can transition into the material and have the lesson resonate better with those students. The effects of humor as a 'hook' can be improved by combining it with constructive humor. Constructive humor utilizes a close connection to content to allow students to gain meaning from an activity where humor is used (Shibinski & Martin, 2010). Not only

can humor be used to pull students into the lesson, it can also be used to hold their attention throughout that lesson. In this way, humor is an integral part of the lesson itself where students are creating meaning from new information. A simpler, but just as beneficial a use of humor is breaking up the monotony for students (Weaver & Cotrell, 2001). Breaking up the monotony for students in your class as well as their overall school day. Teachers are unable to control what goes on in the classrooms of other teachers and how students view them. They are able to control what goes on in their own room and earn a different perception. By using humor in class, teachers present students with a warm, open, community environment (Weaver & Cotrell, 2001). This may reduce the negative attitudes towards school that students may bring in to class and communicate to them that you understand them, and want to work with them in order to learn the material. Students are more agreeable and motivated to learn in a humorous classroom (Girdlefanny, 2004).

Humor can be a great tool to help teachers and students involved in ‘dread courses’ (Kher, Molstad & Donahue, 1999). A dread course is a class that students try to avoid (Kher, Molstad & Donahue, 1999). This may be due to a lack of self-confidence, the perceived difficulty of the class, or previous negative experiences with the subject (Kher, Molstad & Donahue, 1999). As long as humor is not being used as a disruption or maliciously (Frankel, 2009), it can develop a positive learning environment and diminishes student anxiety (Kher, Molstad & Donahue, 1999). By changing the tone of the class, humor allows students to be more receptive to material that they find difficult (Kher, Molstad & Donahue, 1999). Students are better able to learn in a class environment where humor is used and students feel relaxed (Girdlefanny, 2004). One

reason for this effect is that students who laugh reduce the need to act out and cause disruptions in class (Walter, 1990). The use of humor in the classroom will not resolve all management issues (Kher, Molstad & Donahue, 1999). But it will prevent many volatile situations from happening (Frankel, 2009) and can diffuse tense situations when they do occur (Kher, Molstad & Donahue, 1999). Humor can diffuse and prevent tense situations by providing students with a break from various classroom agitations (Huss, 2008) and removing unnecessary confrontations (MAT Blog, 2013). Class disruptions are also reduced because teachers view student behaviors differently when humor is an integral part of the classroom (Walter, 1990). When humor is used, teachers are more relaxed (Girdlefanny, 2004) and less likely to be critical of student behaviors (Walter, 1990).

### **The Implementation of Humor in the Classroom**

There are many things that need to be taken into consideration when using humor in the classroom. Several key steps can be taken in order to implement humor successfully into the classroom (Hellman, 2007). The first step is to be yourself (Hellman, 2007). Use humor with which you feel comfortable using (Banas, 2011). Explore who you are and determine what fits your sense of humor (Shibinski & Martin, 2010). Do not force humor for the sake of using humor (Frankel, 2009). It will not feel natural and will not provide the desired effects (Shibinski & Martin, 2010). An unfunny teacher attempting to be funny is an uncomfortable situation for students (Frankel, 2009). Humor used in class should be made fun for both the students and the teacher (Girdlefanny, 2004). If either component, students or teacher, does not appreciate the use of humor, it will not be a positive experience that benefits the classroom. While there are

few things worse than an unfunny person trying to be funny (Banas, 2011), that does not mean that you should not take chances in using humor. Jokes can be funny whether they are good or bad (Weaver & Cotrell, 2001). Jokes that are considered corny or lame can still register a chuckle, so feel free to express your own humor (Girdlefanny, 2004). It does not need to be more than that. Only after consistent failed attempts does the use of humor become inappropriate. So make sure that you are amusing yourself, not worrying if an attempt at humor fails occasionally (MAT Blog, 2013). You do not have to tell jokes if it is difficult for you (Hellman, 2007). There are many other ways that humor can be brought into the classroom including, but not limited to, cartoons and video clips (Banas, 2011). Keep it natural and positive by staying lighthearted, being spontaneous, and smiling often (Shibinski & Martin, 2010).

The second step for using humor is to pick your spots (Hellman, 2007). It should be used to create an informal climate that is conversational and loose (Shibinski & Martin, 2010). This type of environment welcomes humor, allowing students to relax and to feel that they are able to laugh and make jokes themselves (Girdlefanny, 2004). Students are more likely to participate in class discussion and be receptive to learning when in a humorous community of learners (Kher, Molstad, & Donahue, 1999). Since they are more receptive to learning, it is easier to continue to tie jokes and other forms of humor into the class material during lessons. Keeping the attention of students (Girdlefanny, 2004). It is important that a teacher be able to blend humor with the material. Humor in the classroom should be purposeful and relevant to the lesson (Shibinski & Martin, 2010). Unrelated humor should be kept to a minimum so that you are able to minimize the number of distractions that occur in class (MAT Blog, 2013).

Humor can be fun, but the goal of education is for students to learn. That is why humor should be used as a learning tool and never become a class disruption (Hellman, 2007). Teachers can use unrelated humor to grab the attention of students (Shibinski & Martin, 2010) or for purposes of classroom management (Huss, 2008), but it should be brief and focus should be returned to class material as quickly as possible. It is important to consider how often humor is utilized in class in order to maintain a level of professionalism (Hellman, 2007). If humor is used too often, it can be harmful to the credibility of the teacher (Banas, 2011) and teachers may lose the respect of students in their classes (Hellman, 2007). It is suggested that teachers implement, on average, four humorous items per hour of class (Banas, 2011).

Third of the seven steps for using humor in the classroom is to be politically correct (Hellman, 2007). Teachers should take time to think about the humor they are going to use in class and consider whether it may possibly be taken as offensive by some students. Today's society is very conscious of politically correct statements. Almost anything that is said could potentially offend someone, especially if the reception is wrong (Hellman, 2007). When using humor, the tone in the delivery often affects the way that it is received (Shibinski & Martin, 2010). Teachers must be careful in the phrasing and delivery of jokes that are used in class. It is also important that humor is never used to embarrass or ridicule students (Shibinski & Martin, 2010). Therefore teachers should avoid humor that is related to physical appearance, mannerisms, or cultural identification (Huss, 2008), which could isolate a student. They should also avoid referring to family relationships, religion, customs, and racial issues through humor (Huss, 2008). Humor in class should be used to engage students; not embarrass them.

Step number four is knowing your audience (Hellman, 2007). A major aspect of teaching is getting to know the individual students in the classroom so that they can be provided the appropriate tools needed to be successful learners. The same consideration and effort should be put forth with the implementation of humor in the classroom. Take the time to discover how students receive humor (Shibinski & Martin, 2010) and to what degree they are comfortable with the use of humor in class, so that it never becomes a distraction (Hellman, 2007) and no student becomes isolated from the group (Banas, 2011). Teachers must know their students in order to know what humor can be understood by students. If a piece of information is outside an individual's frame of reference, that person will be unable to understand that information and the meaning behind it is lost (Hellman, 2007). Humor in class should be purposeful and help students learn and understand the material (Shibinski & Martin, 2010). Using humor that students do not understand means that they will not gain a good context to help student recall (Kher, Molstad, & Donahue, 1999). It is not a concern if there is a disconnect with humor on occasion (MAT Blog, 2013), but teachers should make an effort to minimize this occurrence in order to maximize the effect of humor. Teachers should take the time to familiarize themselves the different media relevant to students. Read their magazines, books, and newspaper; watch their movies and television shows; listen to their music (Weaver & Cotrell, 2001). Teachers do not need to become experts on student media, but should be aware of it in order to make, and understand, appropriate references (Hellman, 2007). There is a great deal of humor to be found in student media (Weaver & Cotrell, 2001) so use it.

The fifth step for using humor in the classroom is using oxymora, alliteration, and

acronyms (Hellman, 2007). An oxymoron is a figure of speech in which apparently contradictory terms appear in conjunction (Oxford Dictionaries). Alliteration is the occurrence of the same letter or sound at the beginning of adjacent or closely connected words (Oxford Dictionaries). An acronym is a word formed from the initial letters of other words (Oxford Dictionaries). “What is learned with laughter is learned well (Weaver & Cotrell, 2001 p. 168).” Use a humorous turn of phrase to help students connect to important information. Humor provides a memorable context for recalling information (Kher, Molstad, & Donahue, 1999) so people are able to recall humorous information quicker and easier (Hellman, 2007). These literary elements allow for simple, humorous items within the context of the class which students can use to remember important information (Hellman, 2007). They can be used as mnemonic devices (Huss, 2008) that students may remember long after they finish the class.

Step six for using humor in the classroom is knowing when to be quiet (Hellman, 2007). Humor provides a humanizing effect on the image of the teacher (Shibinski & Martin, 2010) and allows students to be more relaxed in class (Weaver & Cotrell, 2001). This creates an environment that is accepting of humor and students must feel that they are able to participate in creating humor as well (Girdlefanny, 2004). Allow students to be funny. They naturally look for and create humor, so let them do so (Hellman, 2007). Create moments that provide students the opportunity to use their sense of humor in order to contribute to the humor in class (Girdlefanny, 2004). Letting students create humor does not mean that the teacher is not in control of the situation. It is the role of the teacher to demonstrate how to use humor appropriately in the classroom (Hellman, 2007), granting students the ability to fully participate in this classroom dynamic and do so

successfully. By showing students how to use humor in the classroom, teachers provide students to learn reasoning, listening, and socially appropriate expression (Girdlefanny, 2004) which will serve them well in the future. A sense of humor was found to be the most consistent characteristic among executives that are promoted in major companies (Girdlefanny, 2004). Managers that show a sense of humor were advanced quicker and further than those without one (Girdlefanny, 2004). Demonstrating appropriate use of humor can prepare students for the professional world. Humor should not be used to make fun of ignorance, inappropriate behavior, or failure to grasp material, which isolate students from the teacher and the rest of the class (Banas, 2011). Teachers should also avoid the use of humor to address a student's bad mood in front of the class (MAT Blog, 2013). Some light humor could be used to address this one-on-one, but not in a way that can draw unwanted attention to the individual student, singling them apart from the other students (MAT Blog, 2013). Students should feel like a member of a community of learners. Inappropriate humor reduces this sense of belonging and increases student anxiety, resulting in less motivation to learn (Banas, 2011). Humor should always be used to laugh with students; never at them (Banas, 2011).

The seventh and final step for using humor in the classroom is acknowledging the humor of others (Hellman, 2007). It is acceptable for teachers to laugh when students make a joke or when something humorous happens. Funny events occur in classroom environments and situations frequently (Girdlefanny, 2004), so teachers do not need to be funny themselves. They just need to make sure that they acknowledge when something funny happens instead of ignoring it. Even if they are not the originator of the humor. According to one student, "...They don't need to stand in front of us and make jokes but

if something funny happens, they should play it up to improve the classroom atmosphere (Weaver & Cotrell, 2001 p.172).” Teachers do not need to create all of the humor themselves (Hellman, 2007). There should be a give and take between teachers and students regarding humor (Shibinski & Martin, 2010). Allow students to demonstrate their sense of humor and guide them in using it appropriately.

### **Concerns about using Humor in The Classroom**

Some educators have concerns about those that use humor in the classroom. They question how teachers that do use humor are able to ensure that they do not lose control of the classroom (Girdlefanny, 2004). They may also suggest that students do not always know when to stop (Girdlefanny, 2004) and may take the humor too far. Concerned about the level of professionalism in the classroom (Huss, 2008). Humor being used inappropriately could create a hostile learning environment as well as stifling student communication and self-esteem (Huss, 2008). However, this is not a concern when proper steps are taken before humor is implemented (Hellman, 2007). Professionals against the use of humor may come from a more traditional development. Believing that “A student who wants to remember key concepts will do so no matter how the material is presented. A little less humor and more self discipline would work just as well (Huss, 2008 p.32).” Some of those professionals were more open to the idea of using humor in class stating, “Humor might be used to initially draw the students into the discussion, but you do not want to make a joke of the subject material (Huss, 2008 p.32).” When considering these concerns it is important to remember that the suggestion of incorporating humor into the classroom is not advocating the complete abdication

professional responsibilities (Weaver & Cotrell, 2001). It is a suggestion to incorporate some humor into the classroom, not to replace teaching methods (Weaver & Cotrell, 2001).

Remember that you are a teacher and not a standup comedian (Hellman, 2007). It is beneficial to share some characteristics with comedians, such as being quick witted, able to think on your feet, and having a sense of authority, never showing fear to the audience (Frankel, 2009). There is no need for wild laughter when an amusing anecdote will be sufficient (Hellman, 2007). Teachers are there to do a job, not to polish their egos (Frankel, 2009). Do not make jokes for the sake of being funny (Frankel, 2009), you may lose the respect of the students (Hellman, 2007). When using humor in the classroom teachers should ask themselves, “Is humor being used to change student behaviors, to address classroom communication, to develop assignments, to transition from one topic to another, or to enhance the understanding or purpose of any topic or activity?” (Shibinski & Martin, 2010). Teachers passing classrooms in the hallway should not be envious of the quiet room, but of the excited classroom where productive laughter can be heard (Jones, 2011). That is the class where you know the teacher is doing something right (Jones, 2011). The use of humor in the classroom is about the development of relationships and classroom atmosphere more than the actual responses to jokes (Huss, 2008). When the laughter subsides, make sure you summarize the information for students to keep the humor connected to the material (Banas, 2011). The most important thing in the classroom is that students are learning (Frankel, 2009). Everything else is a secondary concern (Frankel, 2009).

### **Chapter 3: Methods and Procedures**

This study was designed to examine the effect that the use of humor has on student perceptions and attitudes in a mathematics classroom. In this section I describe the participants and procedure of the study. I will also discuss the collection of data, analysis, and possible limitations of the study. The goal of this study is to determine how the students view mathematics initially, as well as after humor has been introduced to the classroom. If student survey responses concerning mathematics change after the implementation of humor, then whether or not the use of humor in the classroom has an effect on student perceptions and attitudes of mathematics can be determined. It will also be possible to discern whether the effects elicited from the introduction of humor were significant, meaning that they did not occur by random chance.

#### **Research Questions**

The questions explored through this study were:

- What are students' perceptions and attitudes towards mathematics?
- What are students' perceptions and attitudes towards the importance of humor in the mathematics classroom?
- How do students' attitudes and perceptions towards mathematics and the use of humor in the classroom change after humor is implemented in the classroom?

Determining the beliefs of students about the importance of humor in the classroom can allow us to see if they are open to the use of humor in the classroom. If students believe that the use of humor in class is not important, or that it has no place in

the classroom, then that would show a resistance to the study, and the effects of the implementation of humor would be minimal. By demonstrating a valuing of humor in the classroom, or an openness to role that it can play in a mathematics class, allows for a clear assessment of the effects that the implementation of the humor used in this study had on the perceptions and attitudes of the students. Evaluating the change, if any, of the importance placed on humor in the classroom will also indicate whether students became more open to, or accepting of, the use of humor in the mathematics classroom, which will also demonstrate the effects of the study.

## **Participants**

The study was conducted in a private Catholic School in Western New York, in a middle school mathematics class. Participants were members of the seventh grade, including students in both advanced and regular seventh grade mathematics. The seventh grade class consists of a total student population of 33 students, 97% of which are Caucasian and 3% of the students are Asian. There are 12 male students and 21 female students between the two classes. Of those students, 24% qualify for free or reduced lunch. All members of the class were provided the opportunity to participate in the study and were selected based on the fact that they were willing to participate. Participation in the study was considered to be the completion of both the pre-survey and post-survey as well as allowing them to be analyzed. All students were presented with the same assignments, assessments, and necessary mathematical content to be learned and discussed over the duration of the study.

## **Data Collection**

Students participating in the study were provided a pre-survey along with an outline of the study and consent form to be signed by them as well as their legal guardians. The survey was to be completed outside of school at their own discretion and returned the following day. No instructional time was used for the completion of surveys during this study. Surveys were to be handed in along with homework at the beginning of class in order to assure that no instructional time was lost. Students were informed that the study would consist of exposure to mathematical humor during class and the completion of both the pre-survey and post-survey.

Participants were provided a survey consisting of 32 items (see Appendix). For each item, participants indicated to what extent they agree with the statement provided. Possible responses were based on a Likert scale. Pre-surveys were collected and set aside for future comparative analysis with the post-surveys. The survey consisted of statements concerning the use of humor in class, the presence of humor in class, the individual level of comfort in class felt by the student, the importance of mathematics, the usefulness of mathematics, and styles of learning mathematics. The items provide a variety of elements and viewpoints so that students' attitudes and perceptions can more accurately be evaluated.

Over the following three weeks, the treatment of humor was implemented in the classroom consistently through the use of humorous images related to mathematics. Humor items were selected from results found in Google Images after searching for a combination of the words math and humor. At the end of the three week period, students were provided with the same survey (post-survey) (see Appendix), and instructed to

answer each item by selecting to which extent they agreed with each statement. The post-surveys were then collected and compared to the pre-surveys for analysis.

### **Data Analysis**

The Likert scale responses on student surveys were converted from alpha to numeric values. Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD) were converted to 1, 2, 3, 4, or 5 respectively. The average responses for all students were calculated for each survey item. This was done for the pre-surveys and post-surveys so that the change in responses for students could be measured. For each student, the difference between responses on the two surveys was calculated by subtracting the value of the response on the pre-survey from the value of the response on the post-survey for each item. This measure was used to determine how the student's opinion changed. It could then be determined how many students' attitudes and perceptions improved as a result of the study for each item on the survey. A paired t-test was used to determine the significance of the study.

### **Possible Limitations**

Some limitations of the study are a result of the fact that all people do not share the same sense of humor. Some students may find the items introduced to the class humorous while other may not. It is impossible to ensure that all participants will experience humor throughout the study. It is also difficult to ensure that all classes receive the same exposure to humor during the study. Besides the humorous images displayed at the beginning of the lessons, there is little control over what type of humor

occurs in the classroom. There are moments where there is a misunderstanding, a mistake, or another unexpected event which could lend itself to a humorous moment for the class. Students may also bring in their own thoughts and opinions which can result in some interesting and humorous conversations. This makes it difficult to allow for a wide variety of humor to be used during the study, which could have enhanced the observable effects.

## Chapter 4: Analysis

During the study, students were asked to complete a pre-survey and a post-survey. On the surveys students could indicate to what extent they agreed or disagreed with each statement. The surveys contained statements that concerned both mathematics and the use of humor in the classroom. In order to determine if there was a significant change in the attitudes and perceptions of students, a paired t-test was used. Post-survey minus pre-survey responses were analyzed and the paired t-test value was 0.000024587, indicating a significant p-value of less than 0.001. This means that the results of the study did not occur by random chance, but occurred due to the treatment of humor implemented in the classroom. Since the p-value is less than 0.05, we can reject the null hypothesis that the mean attitudes and perceptions of students before and after the implementation of humor are the same and accept the alternative hypothesis that the mean difference occurs because the attitudes and perceptions improved because of the implementation of humor in the classroom. Further analysis is provided in the following discussion presenting the breakdown of percent change for student responses from post-survey minus pre-survey analysis.

### **Humor**

The pre-surveys indicated that the average student agreed that humor plays an important role in teaching. Sixty percent of students responded positively (agreeing or strongly agreeing) to the statement, with only 3% responding negatively (disagreeing or strongly disagreeing). For survey items 8, 9, 10, 13, and 15 (Appendix A), the average

response of students was neutral; neither agreeing nor disagreeing with the statements. Students were neutral as to whether or not the use of humor was helpful in understanding class material, being motivated to work harder, remembering class material, feeling comfortable asking questions during class, and paying attention during class. On average students indicated that they agreed that the use of humor in class helps to relieve tension and stress, makes them more willing to participate in class, makes the teacher more approachable, and makes the overall classroom environment more positive.

The post-surveys indicated that 27% of students responded more positively to the statement that humor plays an important role in teaching. The average student still agreed that humor plays an important role in teaching, with 83% of students indicating that they agreed or strongly agreed with the statement. Students believed that they were better able to understand class material, were more motivated to work harder, and were more likely to remember class material when humor was used in the classroom; 3% of students disagreed. Seventy-three percent of students believed that they were more likely to remember class material if it was presented with humor more than they did at the beginning of the study. Students indicated that they were more comfortable asking questions and more likely to pay attention in class when the teacher used humor. On average, students still believed that the use of humor in class helped to relieve tension and stress, made them more willing to participate in class, made the teacher more approachable, and made the classroom environment more positive. There were 3% of students that did not agree with each of these positive effects of humor, though over 93% of students indicated that they believed the effects of humor.

At the end of the study, 57% of students agreed that they were more willing to

participate in class when humor was used to a greater extent than when the study began. The extent to which students believed that a teacher who uses humor in class is more approachable increased for 43% of students, resulting in 93% of students agreeing that the teacher is more approachable when humor is used in the classroom. The same was true for students concerning whether or not they believed that they understood material better because the teacher uses humor in class. Forty-three percent of students surveyed indicated that they believed the use of humor helped them understand class material more than they did initially. At the end of the study, 50% of students agreed with the statement that their teacher's humor motivated them to work harder in class, more than they did when the study began. Students who believed that they were motivated to work harder due to the use of humor made up 77% of students surveyed. Seventy-seven percent of students also felt more comfortable asking questions in class when the teacher uses humor. The extent to which they agreed with this statement increased for 53% of students.

## **Mathematics**

During the pre-survey, 37% of students indicated that they believed that mathematics is something that is just memorized, while only 27% of students disagreed with the statement. By the end of the study, 43% of students disagreed with the statement more than they did at the beginning. This resulted in 50% of students disagreeing with the statement that math is something that is just memorized and only 17% of students agreeing with the statement. Even though some students believed that math was just something that was memorized, 63% of them agreed that math is important for solving

real world problems. This improved to 73% of students by the end of the study.

While agreeing that math is important for solving real world problems, 30% of students indicated on the pre-test survey that they believed high school mathematics has little to do with the real world. Thirty-three percent of students disagreed with the statement. For 37% of students, the extent to which they agreed that math has little to do with the real world decreased. This resulted in 47% of students disagreeing with the statement and only 7% agreeing with the statement. At the beginning of the study the average student did not agree or disagree with the statement, but at the end, the average student disagreed with the statement that high school mathematics has little to do with the real world.

The average responses for students initially were that they enjoyed learning in mathematics class and got satisfaction from doing well in class. Average responses improved for both statements, with the average student strongly agreeing that they received satisfaction when they do well in mathematics class. Of students that took the survey, 57% indicated that they enjoyed learning in math class and 87% indicated that they got satisfaction from doing well in class. Responses for both statements improved for 37% of students. On the post-survey, only 3% of students indicated that they did not enjoy learning in math class and 0% of students did not get satisfaction from doing well in mathematics class.

### **Level of Comfort**

Initially, students agreed that they felt comfortable in class, but on average were neutral as to whether or not they felt comfortable asking questions in class and if they felt

embarrassed when they make a mistake in class. The average student was also neutral to the statement that he or she looks forward to attending class. At the conclusion of the study, 37% of students felt more comfortable in class than they did at the beginning of the study. Forty-three percent of students were more comfortable asking questions in class and 40% of students more looked forward to attending class. Twenty-three percent of students indicated that they disagreed with the statement, that they felt embarrassed when they make a mistake in class, more than they did initially.

### **The Presence of Humor**

In order for the results to show the effects of humor, it needed to be determined whether or not students believed that humor was present in the classroom during the study. The study began and ended with the average students believing that they stay awake in mathematics class more than others and that the use of humor by a teacher is not a waste of time. Half of the students surveyed (50%) began the study believing that their teacher's humor was entertaining and the class was entertaining. This improved to 87% of students that found their teacher's humor entertaining and 97% who believed that their teacher kept class interesting and entertaining. Believing that they stayed awake in mathematics class more than others were 87% of students. Only 3% of students felt that the use of humor by a teacher was a waste of time.

## Chapter 5

### Conclusions

The results of the surveys indicate that using humor in the classroom had a positive effect on the attitudes and perceptions of students. Students showed an improved attitude towards mathematics as well as a more positive perception. They no longer found mathematics to be something that is simply memorized, but perceived it as a tool that was useful and important for solving real world problems. Students began to see the value of working with others to learn mathematics and less of a solitary pursuit. Humor in the classroom resulted in an increased value in understanding mathematical concepts, a feeling that they were completing problems that were relevant to real world problems, and more enjoyment in the learning of mathematics (as indicated by survey responses).

Using humor in class allowed students to feel more comfortable and better able to understand the material that was learned. Students perceived the classroom environment to be more positive and looked forward to attending class. They indicated that they were motivated to work harder and more likely to remember class material when it was presented with humor. Students perceived the teacher to be more approachable when humor is used in class as well.

Students were more likely to pay attention and participate in class when humor was present. They felt more comfortable asking questions and participating in class when the teacher used humor, most likely because they felt less embarrassed when they made a mistake. Since students were not as concerned about making mistakes during class, they may have been better able to work to the best of their capabilities and try to understand the material.

## **Future Research**

It would be interesting to see how the implementation of humor in the classroom affects students of different cultural, religious, educational, and socio-economic backgrounds. Different groups may be more accepting of humor being used in the classroom while others may be resistant to it. It could also be extended to examine the difference between different age groups. Does humor lead to more production for older students but not for younger? Are younger students more accepting of humor being used in the classroom than are older students? It would be beneficial to know for which age of students incorporating humor into the classroom is most beneficial.

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## Appendix

\_\_\_\_\_ Individual Number     \*Please do NOT write your name anywhere on this survey.

Survey: Indicate the extent to which you agree or disagree with each of the following statements by circling the choice that best represents your opinion.

SA=Strongly Agree   A=Agree   N=Neutral   D=Disagree   SD=Strongly Disagree

- |   |             |
|---|-------------|
| 1. I stay awake in this class more than others.                                   | SA A N D SD |
| 2. I believe humor plays an important role in teaching.                           | SA A N D SD |
| 3. My teacher's humor is entertaining.  | SA A N D SD |
| 4. I believe teachers who use humor in their class are liked more by students.    | SA A N D SD |
| 5. My teacher keeps class interesting and entertaining.                           | SA A N D SD |
| 6. I try to take classes with teachers that other students believe to be funny.   | SA A N D SD |
| 7. I try to avoid taking classes with teachers that are not funny.                | SA A N D SD |
| 8. I understand the material better because my teacher uses humor during class.   | SA A N D SD |
| 9. My teacher's humor motivates me to work harder during class.                   | SA A N D SD |
| 10. I am more likely to remember class material if it is presented with humor.    | SA A N D SD |
| 11. The use of humor by a teacher is a waste of time.                             | SA A N D SD |
| 12. A teacher's job is to teach, not to entertain.                                | SA A N D SD |
| 13. I feel more comfortable asking a question if the teacher uses humor in class. | SA A N D SD |
| 14. I feel comfortable asking questions in class.                                 | SA A N D SD |
| 15. I am more likely to pay attention in class if the teacher uses humor.         | SA A N D SD |
| 16. I feel embarrassed when I make mistakes in class.                             | SA A N D SD |
| 17. The use of humor in class helps to relieve tension and stress.                | SA A N D SD |
| 18. I am more willing to participate in class when there is a sense of humor.     | SA A N D SD |
| 19. A teacher who uses humor in class is more approachable.                       | SA A N D SD |
| 20. The classroom environment is more positive when the teacher uses humor.       | SA A N D SD |
| 21. I feel comfortable in class.  | SA A N D SD |
| 22. I look forward to attending class.  | SA A N D SD |
| 23. Math is something you just memorize.  | SA A N D SD |

- |   |             |
|---|-------------|
| 24. Math is important for solving real world problems.              | SA A N D SD |
| 25. I solve real life problems in my math class.                    | SA A N D SD |
| 26. I enjoy learning in my math class.                              | SA A N D SD |
| 27. Math is learned best by working alone.                          | SA A N D SD |
| 28. It is important that I understand mathematical concepts.        | SA A N D SD |
| 29. Math is learned best by working with others.                    | SA A N D SD |
| 30. I get satisfaction when I do well in my math class.             | SA A N D SD |
| 31. High school mathematics has little to do with the real world.   | SA A N D SD |
| 32. I like solving math problems that involve real life situations. | SA A N D SD |