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“Now I Feel Like I’m Supposed to Make Mistakes”: Changing Student Perceptions of Mistakes

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Abstract

This study examined how second-grade students in a GT-clustered classroom perceived making mistakes. The researcher implemented literature discussion circles focused on growth mindset and making mistakes as an intervention to improve student perceptions. She collected data through surveys, field notes, and student focus group interviews. Data were analyzed using the constant comparative method to look for recurring themes as well as descriptive statistics in the case of numerical data. Three major themes emerged including struggles with mistakes, internal processes, and benefits of mistakes. Statistics confirmed that the intervention effectively improved the perceptions of almost every student and that GT students generally had higher perceptions of making mistakes than non-GT students. The researcher displayed the findings through poetic transcriptions and double bar graphs.

“Now I Feel Like I’m Supposed to Make Mistakes”: Changing Student Perceptions of Mistakes

“I just can’t do it. I’ll never be able to do it.” I was walking around the classroom during independent work time when I heard this comment slip out from under the breath of my student, Aiden (all names are pseudonyms). I walked over to his desk and knelt beside him. As soon as I did, he looked at me with tears in his eyes and said, “Ms. Lunde, I keep getting it wrong. I can’t do it.”

Aiden was normally exceedingly positive and optimistic in his abilities. He was a student that believed anything was possible and wanted to prove it. When we discussed what he was struggling with, Aiden revealed he had spent ten frustrating minutes working on the same math equation and continuously arrived at an answer he knew did not make sense. His repeated mistakes wore him down to the point that he no longer believed in his ability to work it out.

Aiden and I talked about the value of making mistakes and the importance of believing in ourselves and our abilities. While we only scratched the surface of these topics, Aiden’s attitude towards himself and the work improved, and he was able to continue. We worked on a couple of problems together, and then I left him to finish on his own. Later that day when I was grading the assignment, Aiden received a score of 100.

This seemingly small interaction helped me understand the magnitude of power that positive beliefs hold. I frequently heard negative comments like Aiden’s from other students. I knew all of my students were capable of reaching amazing heights and showing persistence in the face of challenges, but there seemed to be a disconnect between their abilities and their mindsets. I wanted to take a deeper look into my students’ beliefs about mistakes and determine if discussion centered around literature with positive messages could improve their beliefs.

Purpose

Mistakes lead learning down new pathways of exploration (DeBrincat, 2015), help prevent future error (Moser, Schroder, Heeter, Moran, & Lee, 2011; Schroder et al., 2017), and prepare students for life outside of the classroom. Yet, learners, especially gifted and talented learners (Mofield & Peters, 2018), can struggle with the mere idea that they have made an error. Teaching students to have a growth mindset, a belief that they are capable of improving their abilities and persisting through challenge (Dweck, 2016), is one important way that teachers can help their students shift their view of mistakes. I saw a need for growth mindset in my students as I had witnessed many of them cry over minor mistakes or shut down in the face of what they felt was failure. I conducted this study to see if literature discussion circles would act as an effective intervention in improving my students' perceptions of mistakes. My study aimed to answer the following questions:

Question 1: What are second-grade students' perceptions of making mistakes?

Sub-Question 1: How do GT and non-GT students' perceptions of making mistakes differ?

Question 2: Would the implementation of literacy discussion circles focused on making mistakes change second-grade students' perceptions?

This action research study took place while I was a graduate student fulfilling a year-long clinical teaching placement in a west Texas city with a population around 120,000. My placement was at Huffhines Elementary School which serviced roughly 600 students K-12. Huffhines is one of 14 public elementary schools in its district. The approximate racial and ethnic demographics of the school include 60% White, 30% Hispanic, 5% African American, 5% two or more races, >1% Asian, and >1% Native American. At Huffhines, 4% of students were in

the bilingual/ESL program, 12.2% of students were in the gifted and talented program, and 8.4% of students were in the special education program. Approximately 20% of students were considered at-risk, 42% were considered economically disadvantaged, and 4% had limited English proficiency.

Literature Review

Mistakes can become haunting memories that engrain themselves in the mind of a learner. Many students struggle with making mistakes and moving past them. They view mistakes as negative failures that expose what they do not know (Tulis, Steuer, & Dresel, 2018). This sets off a domino effect that results in students shutting down, learning coming to a halt (Donaldson, 2019), and the suffering of student self-efficacy and achievement (Dweck, 2010). Research has shown that for many students, mistakes are rooted in fear and frustration or avoidance of their failure (Donaldson, 2019).

The need for students to perceive mistakes positively is crucial. This positive perception can stem from understanding the benefits of mistakes. New learning experiences come from getting the answers wrong (DeBrincat, 2015). Neurons, or nerve cells, in the brain fire, and new pathways are created during the experience of a mistake (Moser et al., 2011). These pathways work to decrease future mistakes, which can ultimately lead to a greater chance of success (DeBrincat, 2015; Moser et al., 2011; Schroder et al., 2017). Research has demonstrated that some children show amusement in their mistakes by laughing at themselves and happily learning from the experience (Donaldson, 2019). Pleasure can come from understanding that mistakes are a natural and unavoidable part of life (DeBrincat, 2015). This understanding is crucial for preparing students for life in and out of the classroom where they will make various mistakes of all magnitudes.

Perhaps the most important variable in holding positive perceptions of mistakes is having a growth mindset. One can either have a growth mindset or a fixed mindset, and the mindset you hold drastically affects how you live your life, view yourself, and view the world around you (Dweck, 2016). A fixed mindset asserts that who we are, our intelligence, creativity, personality, and so on, cannot change, while a growth mindset asserts that these attributes can change and develop (Dweck, 2010, 2016). In reference to mistakes, those with a fixed mindset view mistakes as failures that expose a lack of knowledge (Dweck, 2016; Tulis et al., 2018), while those with a growth mindset view mistakes as opportunities to learn, grow, and challenge oneself (Dweck, 2010; Moser et al., 2011).

Moser, Schroder, Heeter, Moran, and Lee (2011) conducted a research study that examined the neural mechanisms and electrical activity of the brains of 25 college students with fixed and growth mindsets and how those students neurologically responded to mistakes. Moser et al. (2011) found that the students with growth mindsets were more positive towards mistakes and showed a greater awareness of and attention to them. Interestingly, Moser et al. (2011) found that these students were more successful after an error than the students with fixed mindsets. Research done by Schroder et al. (2017) confirmed that elementary students with growth mindsets paid more heightened care to their mistakes which, like the college students in Moser et al. (2011) study, lead them to greater success post-error than those with a fixed mindset. Teachers must have insight into their students' mindsets and feelings towards their mistakes, so they know how to best tend to their students and shift their mindset towards growth (Donaldson, 2019).

When it comes to dealing with mistakes positively, research has shown that gifted and talented students tend to struggle more than other students (Mofield & Peters, 2018). Mofield

and Peters (2018) conducted a study where they compared the mindsets, levels of perfectionism, and achievement attitudes of gifted, advanced, and typical students. In their findings, they discovered that there was no statistically significant difference in groups in the areas of growth mindset or fixed mindset, but gifted students did have a slightly higher concern over mistakes than advanced or typical students. Mofield and Peters (2018) also found that gifted students had a higher academic self-perception that, coupled with a concern over mistakes, could lead to negative perfectionist tendencies. As young children, gifted students tend to be successful in their endeavors which leads to perfectionism and the avoidance of failures (Reeves, 2014). This implicates the pertinence for gifted students, along with all students, to develop a growth mindset that allows them to embrace mistakes with open arms.

To shift a student's mindset from growth to fixed and help them cultivate a more positive perception of making errors, teachers must create a space for meaningful experiences and reflection to occur. One strategy that fits these criteria is literature discussion circles. Research displayed that literature circles in the elementary classroom increased excitement about reading, elevated comprehension of the text, and were perceived as highly enjoyable (Certo, Moxley, Reffitt, & Miller, 2010). The combination of high-quality literature and discussion creates meaningful interactions with the reading that pushes students beyond the text and into reflection, connection, and higher levels of thought (Gallavan & Kottler, 2002). Mills and Jennings (2011) claim that literature circles not only give power and voice to students but also push them to deeper levels of inquiry about the text and their own lives that can have lasting effects.

Although there is existing literature on the value of mistakes, growth mindset, and literature discussion circles individually, no study has brought the three together. This study contributes to the current literature by bringing a new type of intervention to the realm of growth

mindset. Using literature discussion circles to deepen students' understandings of growth mindset could be an extremely effective way to nurture a growth mindset within students and help them grow positive perceptions of mistakes. This study explores new areas of research by uncovering second-grade students' perceptions of mistakes as well as taking a look into the differences between GT and non-GT student perceptions, which no study has previously done. The implications of this study could be substantial for the elementary classroom.

Methods

This action research study took place in a second-grade, GT-clustered classroom. Data collection methods included a survey, fieldnotes, and focus group interviews. Qualitative data were analyzed using the constant comparative method (Hubbard & Power, 2003) and leveled coding (Tracy, 2013). Quantitative data were analyzed using descriptive statistics (Hubbard & Power, 2003).

Participant Selection

Participants were selected from one self-contained, second-grade classroom of 23 students. Participation was solicited from every student. An informational letter and an attached consent form were sent home to the parent or guardian of every student in the class. The students who received parental permission to participate in the study completed an assent form while at school. In total, all 23 students turned in signed consent and assent forms for participation. Fifteen out of 23 students were identified as gifted and talented. Students in this class were seven to eight years old. Eleven students were girls, and 12 students were boys. Three students were receiving speech services, one of which was identified as gifted and talented. Twenty students were of Caucasian descent, two were of African American descent, and one was of Latinx and Caucasian descent.

Data Collection

Three methods of data collection were used so data could be triangulated and common themes and patterns could be identified (Hendricks, 2017). These methods included a survey, fieldnotes, and student focus group interviews. The survey (see Appendix A) aimed at determining student perceptions of mistakes. It was administered before (pre-survey) and after (post-survey) the intervention of the literature discussion circles. Questions included in the survey ranged from emotions students felt after mistakes to how students felt others viewed them when they made mistakes. All participants took part in the survey process. The survey contained six statements that the students scored on a Likert scale of emojis as well as three short-answer questions. The results of the pre-survey were analyzed to determine three different groups: students with high perceptions of making mistakes, students with mid-level perceptions of making mistakes, and students with low perceptions of making mistakes. Students with high perceptions might view mistakes as positive challenges that help grow their learning while students with low perceptions might view mistakes as negative displays of their failures or shortcomings. Students with neutral perceptions might have a view of making mistakes that lies somewhere between the two extremes or contains aspects of both.

Data was collected throughout the implementation of the intervention using fieldnotes. Once a week for four weeks, I conducted a literature discussion circle with the whole class to improve their perceptions of mistakes. All participants took part in the circles. I began each circle by reading aloud a different book about making mistakes or growth mindset (see Appendix B). I then facilitated a 20–30-minute, semi-structured discussion between the class about the reading and their experiences. I used pre-planned but open-ended questions to guide each circle (Hendricks, 2017). The questions differed during each circle based on the content of the book in

use. During the circles, I jotted down a few memorable quotes or ideas that I heard from the students. I audio recorded each circle to refer back to, but it was not transcribed. Following each circle, I took fieldnotes where I wrote down other memorable quotes, ideas, or patterns I heard during the discussion. After school, I fleshed out the fieldnotes to add more details and observations (Hendricks, 2017).

During the final week of data collection, I conducted three focus groups of three to four students each. I purposively selected (Patton, 1990) one focus group for each of the three groups of student perceptions as determined by the pre-survey. The low and neutral perceptions focus groups consisted of four students apiece, with two students in each group identified as gifted and two students non-identified as gifted. The high perceptions focus group included three students who were all identified as gifted because they were the only students in the high perceptions group. The students selected for each focus group only participated once. To conduct the focus groups, I used a semi-structured protocol to ask pre-planned, open-ended questions as well as additional questions derived from participant responses (Hendricks, 2017). Each focus group was about 20 minutes long, audio recorded, and transcribed.

Data Analysis

As data were collected and transcribed, I analyzed it using the constant comparative method which entailed continuously checking and analyzing current codes to see if any new codes could be broken off and further explored (Hubbard & Power, 2003). Coded data included short-answer questions from the surveys, fleshed out fieldnotes, and focus group interview transcriptions. The coding process involved generating level 1 codes, or codes that describe the direct content of the data, from the first 20% of collected data (Tracy, 2013). I generated twelve level 1 codes that I then used to analyze the remaining 80% of the data. Five additional level 1

codes were created as needed to represent new themes that emerged from the remaining data. After all data were analyzed with the 17 level 1 codes, I synthesized the codes to create three level 2 codes which provided an interpretation of the overarching themes seen in the level 1 codes (Tracy, 2013). Throughout the coding process, I kept a running index of my codes, which involved gathering and organizing all data for each level 2 code (Hubbard & Power, 2003). I created memos for each of my level 2 codes that described the meaning and significance of the codes and allowed me to process and understand the data on a deeper level (Tracy, 2013). Lastly, I created a codebook (see Appendix C) as a way of organizing and demonstrating the level 1 and 2 codes by including definitions and examples of each code (Tracy, 2013).

The Likert scale questions on the pre- and post-surveys were analyzed using descriptive statistics (Hubbard & Power, 2003). The six Likert scale questions on the pre-survey were totaled and scored between for each participant. The three short-answer questions were given a score that corresponded with either low perception, middle perception, or high perception. The scores from the Likert scale questions and the short answer questions were added together so that each student received an individual score that assessed their level of perception of making mistakes. These scores were individually charted on a double bar graph so that changes in perception could be measured (Hendricks, 2017). The data was also disaggregated by GT and non-GT students so differences in perceptions could be noted.

Findings

Analysis of quantitative data revealed a significant change in the perception of almost every student. Analysis of qualitative data led to the discovery of three major themes: struggles with mistakes, internal processes, and benefits of mistakes. To visually present my findings, I utilized double bar graphs and poetic transcriptions. Poetic transcriptions are a type of found poetry the

researcher creates from the words of participants to convey key findings from qualitative data. (Glesne, 1997). For each poetic transcription, I used student quotes from the short answer questions on the surveys, discussion circles, and focus groups to create poetry that personified students’ perceptions about making mistakes. One poetic transcription was created for each student perception group.

Quantitative Findings

“When I make a mistake I... get a little sad, and I say, ‘Aw man, I made a mistake.’”

“When I make a mistake I... am okay with it, and it's a good thing because I learn things from it.”

Warner wrote these sentences four weeks apart in response to the survey short-answer question “When I make mistakes I...”. Like Warner, many of my students displayed negativity towards mistakes and themselves before the literature discussion circle intervention which changed to displays of positivity after the intervention. To directly measure this change, I compared students’ pre- and post-survey scores to identify where individual perceptions began and determine where they ended. The lowest possible score on the survey was 9.9, and the highest possible score was 32.7. The class average score on the pre-survey was 16.9, improving to 21 on the post-survey. Figure 1 represents individual student scores on the pre- and post-

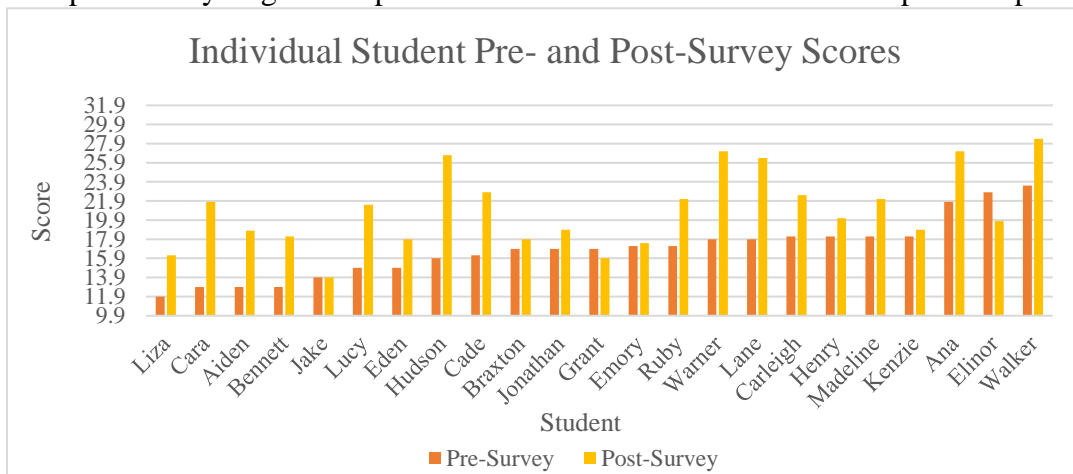


Figure 1. Individual student pre- and post-survey scores.

survey. The average amount of change in students’ pre-survey to post-survey scores was a 4.1-point increase. Grant and Elinor decreased in score, and Jake scored the same on both surveys. This could be for a variety of reasons, one of which might include the students gathering a greater awareness of themselves and their feelings through the discussion literature circles, leading to a more accurate self-assessment on the post-survey. Data from the pre-survey were used to group students by their perception level. Nine students had a low perception of mistakes, 11 had neutral perceptions, and three had high perceptions. After the post-survey, three students had low perceptions, nine had neutral perceptions, and 11 had high perceptions.

Data from the surveys were disaggregated to show the differences in GT and non-GT students’ perceptions and changes in perceptions. While the average score for the whole class on the pre-survey was 16.9, the average score for GT students was higher at 17.3 and the average score for non-GT students was lower at 16. The class average score on the post-survey was 21, while the GT average score was higher at 22.7 and the non-GT average score was lower at 17.8.

Figure 2 visually represents the average pre- and post-survey scores of each group. Gifted

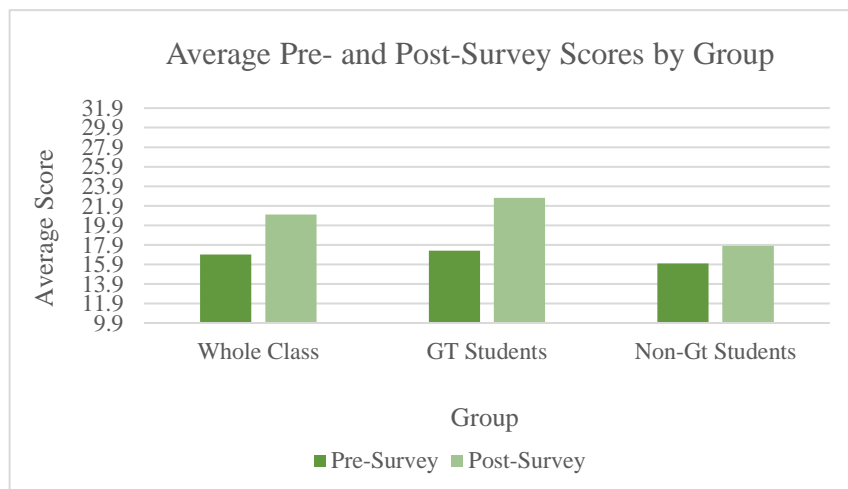


Figure 2. Average pre- and post-survey scores by group.

students also had a higher average change in scores with a 5.4-point increase, while the non-GT students’ average change in scores was a 1.7-point increase. From the data, it can be seen that the

GT participants had both a higher perception of mistakes and had a higher increase in perception after the implementation of the literature discussion circles.

Struggles with Mistakes

What if?

It was a big mistake,
like *really* big.

I felt sad, embarrassed, angry, anxious,
like an anvil was in my stomach,
like I was a big failure,
like I shouldn't even be in school.

Mistakes are bad.
They're *very* wrong.
What if my friends laugh?
What if they ditch me?

But,
what if I never made mistakes?
Mistakes help you learn something.
They make your brain grow.
They lead to
 really
 awesome
 things.

Now, I know a lot about mistakes,
and I feel better when I make one.
I give myself permission
to make mistakes.

I know I'm not perfect,
but I am good.

This poetic transcription is a compilation of quotes from students in the low perceptions group. It was inspiring to hear my students' words shift throughout the study. Before this shift took place, many students revealed struggles they encountered because of mistakes. Students repeatedly referenced five negative feelings when discussing their perceptions: sadness, anger,

frustration, embarrassment, and worry. Some students discussed negative physical reactions to mistakes such as the feeling of “an anvil”, “a knot”, or “butterflies” in the stomach. Emory wrote that mistakes made her “put her hand down”, which exemplifies the feeling of discouragement.

Anxiety played a significant role in the struggle with mistakes. Cade created the term “what-if questions”, explaining that he asked what-if-this-happened questions in a chain-like pattern when worried or fearful. Not all of these questions were directly related to mistakes, but other students adopted this term and used it to describe their thought process after making a mistake. Liza explained how she asked what-if questions when she was fearful or worried about making mistakes in front of others. Bennett said that when he made a mistake, he got “really tingly and anxious.” Warner and Carleigh also used the word anxious to describe how they felt during the mistake process.

A contributing factor to anxiety over mistakes was concern with other people seeing the mistake. Students cited feeling worried about what others would think or embarrassed that their peers or family saw them fail. Some students feared others would make fun of them, think less of them, or leave them for “smarter” friends. Students verbalized how this added to their mistake anxiety. Even students in the high perceptions group felt concern over others seeing their mistakes. Fear of others seeing an error presented a large barrier for many students’ cultivations of positive perceptions of making mistakes.

Alongside anxiety and concern of others, perfectionism was a major struggle with mistakes. Many students discussed how they strived for perfection both inside and outside of school. Ana expressed how she put pressure on herself to get every question correct on tests. Hudson believed that the art piece he entered into a competition must be flawless. Warner explained that he needed to throw a football to his father perfectly so that he would not

disappoint him. More anxiety arrived for the students when mistakes revealed they had not achieved their standard of perfection.

Interestingly, some students listed benefits of mistakes while displaying negative perceptions of making mistakes. This highlighted a disconnect between knowledge and perception. I saw this disconnect at the beginning of my study, so I used my understanding of it to plan specific questions for discussion circles. These questions helped bring the disconnect to light within the students that held it and worked to close the gap between knowledge and perception. Ultimately, I think student awareness of the disconnect played a crucial role in improving student perception.

As it can be seen in my low perception poetic transcription, a shift from negative perception to positive perception occurred within many of my students. The coded data followed this shift as well. The amount of data assigned to this level 2 code decreased as the study went on. Far more codes that displayed negative perceptions were cited in the pre-survey than in the post-survey, as well as in the first few of the discussion circles to the last few. This confirms how many students' perceptions generally shifted from focusing on their struggles with mistakes to noticing the benefits mistakes pose.

Internal Processes

Now I Know

When I made a mistake
I used to think
I was not smart at all,
and I didn't believe in myself.
I used to think
I could have done better,
and I feel ashamed.

I used to think,
but now I know.

I know more about how mistakes work,
and how I'm actually getting smarter.

Now I know

I haven't learned all I need to yet,
and I can keep trying.

Now I know

mistakes are actually kind of fun,
and I feel silly and free.

Now I know

I'm supposed to make mistakes,
and when I do,
I am still myself.

This poetic transcription belongs to the neutral-perceptions group. Like the low-perception students, the neutral-perception students shifted from a more negative to a more positive perception. This poetic transcription encompasses some of the internal processes my students discussed, including internalizing messages and self-talk. I describe the code of internal processes as the many different internal thoughts and mechanisms students engage in that develop perception and spur action. As students elaborated on their thinking, they revealed more about the internal processes of fear, calming methods, internalized messages, self-talk, and response to peer mistakes.

The most widespread, negative internal process was fear. Every student confirmed that they were afraid of something. Some fears were external, like fear of heights or the dark, but many fears were internal and abstract, like fear of failure or loneliness. Lane said his fear was "as big as this school." Many students' fears caused anxiety that led to the avoidance of the source of their fear. Ruby discussed how her fear of mistakes prevented her from having fun and trying again. Similar to Ruby, other students discussed how they feared making mistakes because it implied imperfection.

To combat negative emotions caused by fear or anxiety about making mistakes, students discussed the utilization of various calming methods. Some of these methods included taking a deep breath, walking away, doing something they loved, talking to a friend or parent, taking a break outside, and thinking positive thoughts. Calming methods allowed students to take a step away from a challenge and come back refreshed to push forward.

Throughout the study, I noticed the students internalized different messages that inspired action when they made a mistake. Liza, Walker, and Jonathan discussed how the message “never give up” helped them continue to persist through mistakes and fear. Many students internalized the message “nobody is perfect”, which helped them see mistakes as a natural and unavoidable part of being human. One inspiring message that Grant and Aiden internalized was “mistakes do not define who you are.” In the weeks after they shared this message with the class, I watched other students begin to internalize it as well. We discussed various internalized messages often and affirmed them constantly through our literature discussion circles, which appeared to help many students improve their perception of mistakes.

Internalized messages exemplify one form of self-talk that students engaged in during the process of making a mistake. Some self-talk was negative and pointed towards low perceptions of mistakes. After she made a mistake, Carleigh used to say to herself, “I'm no good. I made a mistake. That is awful. I can't do anything.” Braxton used to tell himself, “I [am] not smart at all.” Other self-talk was growth-mindset-based, displaying positive perceptions and boosting self-efficacy as students worked through their mistakes. Now when Carleigh makes a mistake, she says to herself, “I'm supposed to make mistakes.” Braxton now tells himself, “Yeah, I'm cool. I'm actually getting smarter.” Carleigh and Braxton's shift in their self-talk from negative to positive mirrors the shift from lower to higher perception, as seen throughout the study.

The way students responded to their peers' mistakes insightfully displayed aspects of their internal processes. Many students stated that when their peers make mistakes, they help them, encourage them, and explain the benefits of mistakes to them. However, when students discussed their feelings after a mistake or how they thought their peers viewed them after a mistake, responses were often much more negative. This displayed an internal disconnect between perception of mistakes and perception of peer mistakes. We specifically discussed this disconnect during two circles, which helped students stay conscious of it and work to combat it. Alongside the disconnect, many students explained that watching their peers make mistakes helped them feel better about their own mistakes. Carleigh said that watching peers make similar mistakes helped her feel like she was not alone in her imperfection, encouraging her to persist through the challenge as well as develop improved perceptions of mistakes.

Understanding my students' internal processes was extremely important to the effectiveness of the study. The more insight I had about the internal processes, the more I understood student perceptions. The pattern of these processes throughout the study displayed a shift from negative processes, like fear and negative self-talk, to positive processes, like calming methods, positive internalized messages, and positive self-talk. The knowledge of my students' internal processes and the identification of the shift brought clarity to needed discussion topics that were implemented into the literature discussion circles. Furthermore, the discussion of these topics appeared effective in improving student perception.

Benefits of Mistakes

I Can Do This

When I make a mistake
sometimes I get frustrated
or embarrassed if other people see.
Mostly I am happy

because mistakes help you learn.

I can tell myself mistakes are good
and don't give up.
I just keep trying
and stick with it.
I can fix it next time,
and it's not a big deal.

I have accepted that I'm not perfect.
I'm not afraid to make mistakes
because that's life.
I can do this.
I can do *anything*.

This poetic transcription was created from quotes of students in the high perceptions group. While the high perceptions group negatively reacted to mistakes at times, their perceptions were overwhelmingly positive from the beginning of the study. This group's understanding of the vast benefits of mistakes greatly contributed to their high perceptions of making mistakes. Our discussion circles focused on understanding these benefits, and I see this knowledge as a crucial factor for a student's development of positive perceptions of making mistakes.

When students recognized the benefits of mistakes, they realized that mistakes were not inherently bad or displays of failure. Instead, they viewed making mistakes as a necessary and important process that benefited their learning and character. Throughout the study, all students agreed that it was okay to make mistakes. When Warner makes a mistake, he tells himself, "No big deal. I will just fix it and move on." Bennett, who began the study with having one of the lowest perceptions in the class, ended the study by saying, "It's actually pretty good to make mistakes." and "Mistakes can lead to really awesome things."

A major benefit of mistakes repeatedly cited by students was that mistakes help them learn. Cara, Liza, Eden, Aiden, and Ana all stated that mistakes cause the brain to form more pathways. These pathways deepen understanding and form connections, making learning more permanent

and effective. Braxton shared two experiences in which mistakes helped him get the answer right the next time. When describing an experience where she was faced with a mistake, Ruby told herself, “I can learn from this. This can help me figure out different ways to do things.” Ruby’s response displayed a determination to work through a mistake by repeated trial-and-error. This pushed her into creative thinking and problem solving that further developed her learning. Other students shared similar experiences to Ruby. They made connections to times when they made mistakes work for the better at school and home.

Many students shared stories of having fun and feeling enjoyment while making mistakes. Warner told of a time when he plugged his Nintendo Switch into the charger but forgot to plug the charger into the wall. He came back hours later to find the Switch still dead, then laughed and said he felt silly. Ana talked about a time when she made a mess in the kitchen while baking a batch of cookies and cheerfully explained how much fun she had along the way. Other students shared examples of times they had fun during or after a mistake. The association of mistakes to enjoyable memories appeared to improve students’ perceptions of making mistakes.

Mistakes show students their potential and drive them towards success. During a discussion circle, students discussed the importance of the word “yet” in the phrase “I can’t do that, yet.” Pairing “yet” with mistakes allowed students to understand the impact that the word has on improving their perception. Bennett explained how “mistakes and yet are a good combo” because “yet” helps you set a goal to further your learning. Students discussed how being unable to do something in the present does not mean they cannot do it in the future. Many students said this message inspired them to continue trying and believe in their ability to succeed.

Understanding the benefits of mistakes through second-grade students’ eyes lead to better crafted discussion questions targeting these areas so perceptions may improve. As the study

progressed, data corresponding to students' knowledge of the benefits of mistakes increased exponentially. Students' perceptions improved because they understood the benefits of mistakes. Continuously discussing these benefits played a key role in improving the perceptions of many students.

Implications for Teachers

The purpose of this study was to explore second-grade students' perceptions of mistakes and understand potential differences in GT and non-GT students' perceptions. I saw a potential effectiveness in combining growth-mindset literature with discussion circles for improving students' perceptions, so I implemented eight literature discussion circles into my classroom.

The study began with a pre-survey that provided a baseline of students' perceptions as well as specific insight into my students' feelings after making mistakes. After the pre-survey, eight literature discussion circles occurred, each focusing on a different aspect of growth mindset or positivity towards mistakes. At the beginning of the study, the majority of students displayed negative feelings about mistakes and stated their belief that mistakes displayed failures and shortcomings. After the literature discussion circle intervention, most students exhibited positivity toward mistakes and professed their belief that mistakes are a valuable and natural part of life. Perception-level focus groups brought a greater insight into students' perceptions and highlighted a shift in perception within specific students. The existence of this shift was solidified by the post-survey when almost every student clearly improved their perceptions.

Analysis of quantitative data revealed that 20 out of 23 students improved their perceptions. Two students digressed in their level of perception, and one student made no change in perception. This could be explained with a variety of reasons, the most probable including that a deeper and more accurate understanding of their feelings after the intervention allowed them to

answer their post-survey questions more accurately. Quantitative data also displayed that GT students' perceptions were higher than non-GT perceptions, and GT students increased in their overall perception more than non-GT students. Analysis of qualitative data collected revealed three major themes: struggles with mistakes, internal processes, and benefits of mistakes.

Students struggled with mistakes when they felt negative emotions, increased their anxiety, worried what others thought, or felt the need to be perfect. While making mistakes, students underwent many different internal processes. These processes involved fear, internal messages that inspired action, self-talk, calming methods, and reactions to peer mistakes that differed from reactions to their own mistakes. Throughout the study, students' perceptions improved because they saw the benefits of mistakes. Students realized the necessity of mistakes and saw them as unavoidable processes that deepened their learning and revealed the potential of their future knowledge. They understood that mistakes helped them get the right answer later on – a message that inspired perseverance. Students were surprised that there were many times when they found joy in making a mistake. Understanding these benefits combatted struggles encountered after mistakes, ultimately improving many students' perceptions.

Throughout the study, I watched literature open the door to vulnerable discussion. The growth-mindset literature we read during the literature discussion circles allowed students to make deep, meaningful connections and further understand their feelings and perceptions about making mistakes. When students listened to stories of other characters similar to themselves or listened to peers share experiences, they felt safe to open up to the whole class. The circles gave students a place to recognize their likeness with others while having a voice and a captive audience to listen to and validate vulnerable parts of themselves. Our discussion circles taught me that students want to know and see that they are not alone in their mistakes or their feelings.

This study taught my students that negative feelings about mistakes hold them back from success. They understood the necessity and humanity of mistakes. Students learned many ways mistakes benefited them and used that knowledge to improve their perceptions. As students developed more positive perceptions, they pushed their mindsets towards growth. Growth mindset propelled students into persistent determination, greater self-efficacy, and deeper success in and out of the classroom. Aside from perceptions about mistakes, I believe this study taught my students the importance and value of their feelings. Sharing in the circles empowered students and expressed that their thoughts are worthy of being heard. It showed them the strength that comes from their feelings, voice, and their vulnerability.

For teachers wanting to implement this intervention into their classrooms, I suggest using a survey to determine their students' baseline perceptions of making mistakes. Before my pre-survey, I had already selected all of the high-quality, growth-mindset literature we would use during our discussion circles. However, understanding my students' perceptions through the survey allowed discussion questions to be specifically tailored to their unique needs. I also suggest that teachers answer 1-2 questions during the discussion circles and share their experiences with their students. The circles need to be dedicated to student voices; however, when teachers model vulnerability, it supports, encourages, and calls students into vulnerability as well.

The research questions of this study were answered in full; however, I am left wondering about further areas of research. What other growth-mindset interventions are effective for elementary students? My class had an affinity for deeply analyzing and making connections to high-quality literature. I chose to implement literature discussion circles because I thought it would be the most effective form of intervention possible for this group of students. However,

some of my students process deeply and think creatively through writing, art, or logic as opposed to literature and discussion. Would a combination of interventions based on different learning modalities be more effective in changing students' perceptions of mistakes?

This study heavily impacted my teaching practices. I will continue to implement literature discussion circles in my classroom to cover various topics because of the powerful way they helped students conceptualize and identify with the message of the story. I will continue using circles to discuss the benefits of mistakes and the importance of perceiving mistakes positively. I will use what I learned in this study to give my students a voice and validate their feelings. Twice a week for four weeks, I watched my students open up to one another and vulnerably share matters of the heart. I saw my students' perceptions of mistakes and their perceptions of others and themselves transform. There is power in literature discussion circles, and power in perceiving mistakes positively. I will incorporate what I have learned from this study for years to come.

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Appendix A





Survey

Making Mistakes Survey





1. How do you feel when you make a mistake at school?

			
Very Upset	A Little Upset	A Little Happy	Very Happy





2. How do you feel when you make a mistake at home?

			
Very Upset	A Little Upset	A Little Happy	Very Happy





3. How do you think your teachers feel when you make a mistake?

			
Very Upset	A Little Upset	A Little Happy	Very Happy

4. How do you think your families feel when you make a mistake?

			
Very Upset	A Little Upset	A Little Happy	Very Happy

5. How do you feel when you see your mistakes?

			
Very Upset	A Little Upset	A Little Happy	Very Happy

6. How do you feel when other people see your mistakes?



Very Upset



A Little Upset



A Little Happy



Very Happy

Write your responses to the following sentence stems:

7. When I make a mistake, I _____

8. Mistakes make me feel _____
because _____

9. If one of my friends made a mistake, I _____

Appendix B**Literature Discussion Circle Books**

Week 1

- *I am Human* by Susan Verde
- *The Girl Who Never Made Mistakes* by Gary Rubinstein and Mark Pett

Week 2

- *Mistakes that Worked* by Charlotte Foltz Jones
- *Me and My Fear* by Francesca Sanna

Week 3

- *Ish* by Peter Reynolds
- *The Most Magnificent Thing* by Ashely Spires

Week 4

- *Penelope Perfect* by Shannon Anderson
- *I Can't Do That, Yet* by Esther Cordova

Appendix C

Codebook

Code	Level	Definition	Example
Struggles with Mistakes	2	Feeling negative emotions, embarrassment, or anxiety from mistakes.	“When I make a mistake, I feel like an anvil is in my stomach.”
Negative feelings about mistakes	1	Negative feelings and emotions towards mistakes.	“Mistakes make me feel upset, sad, mad, because I could have done better and I feel ashamed.”
“I don’t want other people to see”	1	Not wanting peers or family members to see mistakes.	“Whenever someone else sees my mistake it can get kind of embarrassing and my eyes start to tear up.”
“What-if questions”	1	Questions asked when worried about what might happen.	“A chain like yeah like what if I fall? What if the ambulance comes and saves me but what if the break is bad?”
“Trying to be perfect”	1	Attempting to be perfect and make no mistakes.	“I kind of feel like I need to be perfect on any test.”
Benefits of Mistakes	2	Understanding the benefits of mistakes and the importance of making them.	“Mistakes make me feel a little happy because I know that mistakes help you learn and it's not a big deal.”
“It’s okay to make mistakes”	1	Understanding that mistakes are not inherently bad.	“If you make a mistake, it doesn’t matter, as long as you tried your best.”
“Mistakes and yet are a good combo”	1	Understanding that one's ability in the future will be greater than one's ability in the present.	“Sometimes when you get it wrong at first, you can keep on trying. And then you get it and look back and see that you couldn’t do it yet.”
Mistakes can be fun	1	Having fun during and after a mistake.	“When I make things that use a stand mixer. The first time I used a stand mixer, I put it up too high. So it went everywhere, even on my face. So I was like, oh my gosh, the kitchen looks like a blizzard just went through it!”

“You learn from your mistakes”	1	Understanding that mistakes help develop deeper knowledge and understanding.	“I can learn from this. This can help me figure out different ways to do things.”
“Make it work”	1	Determination to work through a mistake by fixing it or making it into something better than before.	“Even when you make a mistake it can be good because it can turn out as something better than what you were thinking.”
Internal Processes	2	Internal thoughts and messages that can lead to perceptions and actions.	“I am like, whenever, I make mistakes, I used to think like I was terrible. I'm no good. I made a mistake. That is awful. I can't do anything. But now I feel like I'm supposed to make mistakes. That everything in the world can make mistakes and it's not just me out there.”
Fear on the inside	1	Internalized fear of tangible and intangible things.	“My fear is as big as this school.”
“Don't quit”	1	Continued persistence through mistakes and fear.	“Don't let mistakes make you quit.”
Self-talk	1	Messages said internally or externally about oneself.	“I thought like, Emory, you are strong, you are brave, you can do it. Just believe in yourself.”
“You are still yourself”	1	Understanding that mistakes do not define who you are.	“Even if you make mistakes, God still loves you and you are still yourself.”
Response to peer mistakes	1	Reactions to the mistakes of peers	“I, when I feel good about myself like when I made a mistake on like a paper or something. Whenever I see other people make a mistake on the same paper, it kind of makes me feel better because like I'm not the only one that's not perfect.”
Calming methods	1	Tools used to calm down in the face of negative emotions.	“Take a deep breath so our brain gets oxygenated.”

<p>“No human being is perfect”</p>	<p>1</p>	<p>Understanding that everybody makes mistakes.</p>	<p>“That other people can always make mistakes and everybody is the same in one way: no one is perfect.”</p>
<p>Kinds of mistakes</p>	<p>1</p>	<p>Mistakes made both in and out of school.</p>	<p>“I got it wrong because I'm pretty sure I forgot to regroup.”</p>