Spring 2023

Coaching to Success: Moving From a Fixed Mindset to a Growth Mindset Through Positive Motivation

Shannon Dianna Ramirez

COACHING TO SUCCESS: MOVING FROM A FIXED MINDSET TO A GROWTH
MINDSET THROUGH POSITIVE MOTIVATION

by

Shannon Dianna Ramirez

Bachelor of Arts
California State University, San Bernardino, 1999

Master of Arts
Concordia University, 2011

_____

Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Education in

Educational Practice and Innovation

College of Education

University of South Carolina

2023

Accepted by:

Elizabeth Currin, Major Professor

Todd Lilly, Committee Member

Toni Williams, Committee Member

Shayna Golbaf, Committee Member

Cheryl L. Addy, Interim Vice Provost and Dean of the Graduate School

DEDICATION

I would like to dedicate this research study to my parents, Ben and Natalia Ramirez. Thank you for all your love, support, and encouragement you gave while I chased my dream. The two of you have always made me believe I could achieve anything I wanted as long as I believed in myself and worked hard enough.

I would also like to dedicate this research study to all the students who have been part of my school family. You gave me inspiration and love—and at times, a hard push—to continue working toward the finish line. You all are the reason I keep going to make myself better every day.

ACKNOWLEDGEMENTS

I would like to thank Dr. Currin for the constant support and guidance throughout this research study. Without her constant encouragement and willingness to assist me in any way she could, this research study would not have been possible. Additionally, I would like to thank my committee members, Dr. Lilly, Dr. Williams, and Dr. Golbaf, for the help, encouragement, and willingness to serve.

ABSTRACT

The purpose of this study was to explore my students' belief perseverance and fixed mindset and help them shift toward self-determination and a growth mindset. Incorporating goal setting, positive intentions, and coachable techniques in my sixth-grade math class, I collected data through an observation journal, student artifacts, and pre and post assessments. I found that goal setting, positive intentions, and coaching techniques enabled students to shift from belief perseverance toward self-determination that will transfer into life outside of the classroom. My findings showed helping students move from a fixed mindset to one of growth is possible but takes time. Creating true change requires starting from the moment students enter school.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

PoP .... problem of practice

SDT .... self-determination theory

CHAPTER 1

INTRODUCTION

I have been part of the education field for over 20 years and always welcome the infinite possibilities of each school year. I spend weeks preparing for my new class of sixth graders to arrive. I carefully plan interactive and engaging lessons in hopes that the students will love learning as much as I do.

The first week goes pretty smoothly. Most students are engaged and excited about the new year and the thought of a fresh start in my class. The students are full of hope that this school year will not be as difficult as the last. They enjoy the fun and engaging activities, and likely expect the remainder of the year will be a similar experience.

However, as the first week progresses into the second and third, I add more work and reading to the engaging lessons. Expectations increase and become slightly more complex. The students see where the trend is heading, and they begin to relive years past, flashing back to previous classes and the difficulties they faced. They fall back on the tradition of withdrawing in class and tuning out what the teacher has to say.

At some point, I notice the click in their faces, and I can see them drifting away from my lessons. When I try to talk with the students about what I am seeing and how they are feeling, they put up their guards. Finally, one brave student blurts out, "I'm just not good in school. I cannot do the work. It is too hard, and I do not understand it."

Students who voice such concerns often come alive during conversations about other topics. For example, a student who excels in sports can easily explain how he is a

superstar on the field, conveying the sense that he can accomplish anything as long as he has a ball in his hand. Wondering if students believe their athletic abilities are natural, I will ask if they ever have to practice any of the movements they accomplish on the field. They concede they have practice after school. I then ask if they conduct these practices by themselves. They all laugh and say they have coaches who lead the practices.

These conversations reveal a similarity between sports and their education. In school, as in sports, accomplishing a goal takes practice, generally with the help of someone else to guide and push. Once a player understands what is expected of them and how to achieve it, the goal is much more accessible. They perfect their performance by repeatedly practicing the steps until the process becomes second nature.

I see a clear connection to achieving a goal in sports and achieving a goal in their education, but students may struggle to see it. I wondered, then, how to create a connection for the students and help them develop the same intrinsic motivation that they have for sports for their education. Through action research (Herr & Anderson, 2015), I could attempt to incorporate techniques that successful coaches use into my teaching.

Problem of Practice

Education has become a difficult balancing act for teachers and students between what is expected and what should happen naturally in a classroom. Told what to teach and how to teach it, teachers are facing increasing workload pressures and expectations, and school leaders may pass these challenges on to students (Thompson et al., 2021). At the same time, the system expects students to internalize these high standards as motivation for performing at a faster pace with little time to practice and digest new information (Evans, 2001).

Teachers like me feel pressure from administration. Because teachers are accountable for how students perform in the classroom and on assessments, they may use "external controls, close supervision and monitoring, and evaluations accompanied by rewards or punishments" (Niemiec & Ryan, 2009, p. 134). These approaches result in teachers' passing pressures on to students, as they seek to control how students "think, feel, or behave in specific ways" (Deci & Ryan, 2011, p. 418).

When the classroom is controlled to the point where students do not have freedom to learn in their own way or at their own pace, they begin to act out or internalize their emotions. The students begin to lose their "feelings of joy, enthusiasm, and interest that once accompanied learning" and instead may feel "anxiety, boredom, or alienation" (Niemiec & Ryan, 2009, p. 134). These external pressures lead to students' self-doubt.

Despite the looming pressures of administration, teachers like me may try to reach out to students, but motivating them to believe in themselves and their capabilities is hard. A student may apply themselves toward completing an assignment "just hard enough to gain the rewards or avoid negative consequences" (Froiland et al., 2014, p. 91), without being truly invested in the lesson due to a lack of belief in their ability to do quality work. Over time, such negative self-beliefs can reduce the student's motivation to focus on classroom tasks.

This lack of motivation was a persistent problem in my classroom. Students believed they were incapable of succeeding in school, and this feeling of helplessness gave way to their giving up and not trying. By positioning myself as a coach, I wanted to help the students move past these negative self-beliefs toward something greater or more powerful—a belief in their ability to succeed in the classroom, on the field, or in a future

place of business. To help the students understand how they could succeed in the classroom and transfer their learning into every aspect of their lives, I saw a need to change my instructional approach, becoming more like a coach who could guide them to recognize their full potential. Whereas teachers may focus primarily on helping students gain knowledge, in my view, coaches are more likely to take a step-by-step approach and emphasize ongoing practice. Rather than adhering to the teacher's edition and using examples provided by the publisher, I resolved to use examples relevant to individual students as I coached them with positive reinforcements and step-by-step instructions.

Students need to be able to "play, explore, and engage in activities for the inherent fun, challenge, and excitement" of learning (Niemiec & Ryan, 2009, p. 134). Conversely, "attempting to control achievement outcomes directly through extrinsic rewards, sanctions, and evaluations generally backfires, leading to lower-quality motivation and performance" (Ryan & Deci, 2020, pp. 1–2). Through action research, I hoped to resolve this problem of practice (PoP), guided by the following framework.

<center>**Theoretical Framework**</center>

According to Anderson (2007), belief perseverance refers to "the tendency to cling to one's initial belief even after receiving new information that contradicts or disconfirms the basis of that belief" (p. 109). Students exhibit belief perseverance when the self-doubt they bring into the classroom hinders their education. Conversely, self-determination theory (SDT), which "assumes that inherent in human nature is the propensity to be curious about one's environment and interested in learning and developing one's knowledge" (Niemiec & Ryan, 2009, p. 133), can offset belief perseverance and guided my action research as I sought to resolve my PoP.

<center>4</center>

Belief perseverance, which can encompass "everything from beliefs about one's looks and body image to one's personality and social skills to one's intelligence and abilities" (Anderson, 2007, p. 109), may stem from past embarrassments, harsh critiques, or self-distortions from oneself or others. When students exhibit belief perseverance, teachers may struggle to disprove the students' beliefs. Belief perseverance can become so deeply ingrained in a child's brain that they will do everything they can to prove they are correct. This dynamic often turns into a battle between the teacher and the student, which only reinforces the student's belief that they are incapable of excelling in school.

Improving students' self-determination is one means of combating belief perseverance. SDT "assumes that the human organism is evolved to be inherently active, intrinsically motivated, and oriented toward developing naturally through integrative processes" (Deci & Ryan, 2011, p. 417). According to Ryan et al. (2019). "SDT specifically argues that for healthy development to unfold, individuals require supports for basic psychological needs" (p. 1) These basic needs include autonomy, competence, and relatedness. Autonomy is a sense of ownership over one's actions that stems from various positive experiences and values. Negative experiences, such as being controlled, can inhibit autonomy. Competence is the feeling that someone can master their success and growth, which happens in structured environments that provide positive feedback. Lastly, relatedness is the feeling of belonging or making a connection.

SDT enables researchers to analyze educational settings to determine "the extent to which they meet or frustrate these basic needs" (Ryan & Deci, 2020, p. 1). As an action researcher, I conducted such an analysis in my own classroom and made necessary changes to promote my students' self-determination. By positioning myself as a coach, I

could support students' autonomy, competence, and relatedness in an effort to help them through their deep-rooted belief perseverance toward becoming lifelong learners.

Purpose and Research Questions

The purpose of this study was to help my students develop self-determination through intrinsic motivation. I documented observable evidence of students' self-beliefs and continued to monitor students' motivation while positioning myself as a coach by providing praise, inspiration, and encouragement. My research questions were:

1. What happens to student achievement when I teach intrinsic motivation skills through coaching lessons?

2. What happens to my students and me when I position myself as a coach?

These questions acknowledged the overwhelming presence of children in my classroom who seemed to lack intrinsic motivation and my struggle to motivate them academically. I sought insight into whether positive coaching techniques could adjust the students' mindset and my own. The questions enabled me to assess the impact of my efforts to intervene in this problematic situation.

Study Design

My action research primarily took a qualitative ethnographic approach, appropriate for studying "school situations and events as they unfold naturally" (Efron & Ravid, 2013, p. 41), which allowed me to use classroom observations and self-reflection to collect relevant data. To address Research Question 1, I also compared pre and post assessment data. Over a 6-week period of time, I kept a detailed journal on my lesson plans, which incorporated intrinsic motivational skills to support my students' "basic psychological needs for autonomy, competence, and relatedness" (Niemiec & Ryan,

2009, p. 139). I also wrote observational notes about how I adjusted day-to-day and week-to-week based on prior observations. My observation notes likewise recorded the interventions' impact on students, including notations on specific students and the class as a whole. In addition to collecting artifacts that expressed the students' goals and positive intentions, I documented the students' attitudes, how they expressed themselves in class both with other students and with me, and how they responded to assignments.

Initially, I sought evidence of an attitude of defeat or self-degrading remarks to substantiate my PoP. Over the intervention period, I looked for evidence of change. Because keeping "a detailed account of the methods, procedures, and decision points" can ensure a study's "consistency and dependability" (Merriam & Tisdell, 2016, pp. 252, 258), Chapter 3 elaborates on my plans to implement and assess specific interventions.

Positionality

Humans often mistakenly believe they can be impartial and not let their backgrounds influence how they function in life, so researchers must figure out the nuances of how to position themselves in regard to their setting and participants (Herr & Anderson, 2015). Insiders work closely with participants and may even be participants themselves, whereas outsiders generally do not have a prior relationship with participants and observe or engage with them from a distance. Herr and Anderson (2015) argued that action researchers may be somewhere between the two. In my case, because of my district's policy of not allowing elementary students to be participants, I could not really get into the minds of my students. Moreover, because I was an adult and they were not, I was an outsider. However, being their teacher granted me some insider status because I

was with the students every day. I sought to merge my insider and outsider status so my own self-belief did not influence my study.

As a child, I did not start out with a lack of self-belief. When I was very young, my parents never gave me a sense that I could not accomplish anything that I set out to do. I was young, carefree, and willing to take risks without fear of failure. As time marched on and I grew up, I noticed my surroundings and began to take on others' fears and reservations about normal, everyday tasks and how I should live my life. This new sense of awareness shaped my internal beliefs about myself and my abilities: reservation began to fill me with self-doubt, and I began to shy away from taking risks and making mistakes. As I continued to grow, so did my self-doubt until it took over my actions and increased my fear of failure.

When I entered school, my self-doubt increased by leaps and bounds because I was no longer surrounded by people with whom I have always felt love and safety. I began to feel inferior. The new people surrounding me made me feel judged and like I needed to compete with them. I felt unprepared for this new reality, and my newfound self-doubt began to manifest in my doing poorly in school. I began to give up before I even tried to do the lessons on my own. Believing I was incapable of learning new material and getting good grades felt safer than being embarrassed by not understanding something. This new coping skill helped me survive through school, but it did not help me grow in my education or socialization.

Now that I am an educator of more than 20 years at various grade levels, I have seen students going through the same difficult stages I did. Many students have learned to embrace the same problematic coping skill. Seeing these students struggle the same way I

did inspired me to help them move past these coping skills. As an insider in this way, I could notice when students were putting up walls of self-doubt and belief perseverance. Being able to recognize the warning signs was beneficial due to my district's policy prohibiting students' participation in the research.

Significance

Improving students' intrinsic motivation and self-confidence could contribute to their academic success inside the classroom, which could reinforce positive self-beliefs. Enhancing students' intrinsic motivation could also play a significant role in their daily lives at school, at home, and in their interactions with others. As a sign of my success, I sought evidence of students' using intrinsic motivation to overcome hard situations that in the past may have caused them to back away or fight. Ideally, beyond the scope of the study, students would be able to apply the techniques they learned to deal with each new situation they encounter.

Because action research is a "systematic inquiry that is collective, collaborative, self-reflective, [and] critical" (McCutcheon & Jung, 1990, as cited in Herr & Anderson, 2015, p. 4), I also expected the study to impact my practice. I intended to adjust my lessons and teaching style in ways that would benefit future students. As Chapter 5 illustrates, I intend to continue to adjust my teaching to maintain a classroom environment that will motivate children to play, explore, and engage in an activity for the inherent fun, challenge, and excitement of doing so (Niemiec & Ryan, 2009).

Action research is not intended to be generalizable but can be "transferable, beyond the immediate setting" (Herr & Anderson, 2015, p. 6). Therefore, my study may interest educators with students of any ages by demonstrating how to build intrinsic

motivation and apply it to all aspects of life. To ensure this transfer, my dissertation

describes the systematic process of my action research, including the literature review in

Chapter 2.

CHAPTER 2

LITERATURE REVIEW

At the outset of this study, students often entered my classroom believing they were incapable of learning. Based on prior experiences and persistent feelings of defeat, they seemed to lack motivation in school. As Lepper et al. (1986) explained, "individuals who experience initial success or failure in some new undertaking tend to infer that they possess relatively high or low aptitude in the pertinent domain of endeavor" (p. 482). Students who are not successful in a new academic endeavor may develop a deep-rooted negative mindset of who they are and what they can achieve in the classroom. In turn, this fixed negative mindset and lack of motivation lead to poor participation, low test scores, and students' persistent belief that they are incapable of improving in school.

To resolve this PoP, I turned to action research and explored the following research questions:

1. What happens to student achievement when I teach intrinsic motivation skills through coaching lessons?

2. What happens to my students and me when I position myself as a coach?

Existing literature, as presented in this review, offered insights into how teachers use coaching techniques to increase student academic success through intrinsic motivation. After elaborating on the theoretical framework I introduced in Chapter 1, I explore my study's equity-focused aspects by discussing the relationship between belief perseverance and SES. Lastly, I review related research that informed my interventions.

Literature Review Methodology

To gain a deeper understanding about using intrinsic motivation through coaching in the classroom, I looked for "information to address the key ideas contained in [my] preliminary topic statement" (Machi & McEvoy, 2018, p. 61). Given my PoP, I searched for the following terms: motivation, coaching, self-determination, intrinsic and external motivation, and belief perseverance. I consulted books, peer-reviewed articles, and dissertations I located through the following sites: University of South Carolina library, ERIC, SAGE Journals, ProQuest, JSTOR, Research Gate, and Google Scholar.

Theoretical Framework

The framework I introduced in Chapter 1 synthesizes belief perseverance theory and SDT. The combination of these lenses illustrates how students' set beliefs promote or inhibit their self-determination in class. Therefore, my understanding of these theories guided my interventions and data analysis.

Belief Perseverance Theory

As Nestler (2010) stated, "individuals cling to beliefs even when the evidential basis for these beliefs is completely refuted" (p. 35). Festinger et al. (1956) conceptualized belief perseverance when studying a cult that believed the world would end on December 21, 1954. Even after the prediction failed to come true, the cult members refused to abandon their faith. Anderson et al. (1980) extended this scholarship by researching public beliefs about the correlation between firefighters' risk-taking and occupational performance. The researchers informed one group of participants that taking risks results in positive outcomes for firefighters. They informed the other group that taking risks results in negative outcomes. At the end of the study, both groups learned the

information they had received was not based on actual results. Even when the researchers informed participants about this lack of correlation, their beliefs persisted to the contrary (Lepper et al., 1986).

As Figure 2.1 illustrates, scholars have identified three different types of beliefs that are susceptible to belief perseverance, encompassing beliefs "about the self and others, as well as beliefs about the way the world works, including prejudices and stereotypes" (Vinney, 2019, para. 1). The first type, self-impressions, involve one's looks, personality, or skills, such as my students' beliefs that they cannot succeed in school. The second type, social impressions, involve one's beliefs about others, including close acquaintances, strangers, or even celebrities. The third type, social theories, which are broader beliefs about how the world works, include political views and stereotypes about racial and ethnic groups.
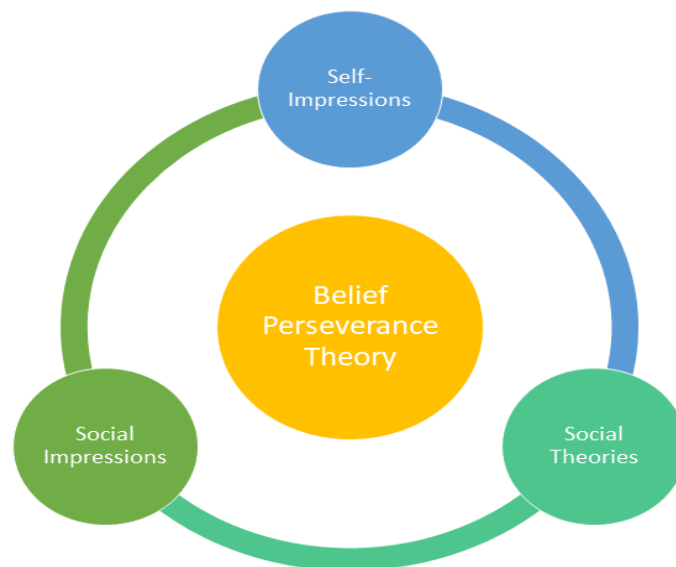
Figure 2.1 *Types of Belief Perseverance*

All three types influence how people function in the world and are usually constructed at a "very early age as a part of [humans'] evolutionary survival kit" (Savion,

2009, p. 84). Once people create an image of who they believe they are and how the world operates, it becomes ingrained. For instance, many students enter the classroom believing they are not capable of succeeding in math. They bring with them previous struggles with math and what they have heard from others—that math is difficult to comprehend and math problems are hard to solve. Students develop their "sense of competence (or lack thereof) based on experiences of success or failure" (Curtis, 1989, p. 12). When students enter the classroom defeated before they even attempt the first problem, they exhibit a mindset of failure that hinders my ability to move their mentality toward the possibility of their success.

Self-Impressions

A person's view of themselves may not always be accurate. Rather, a self-impression can be a manipulation of something that actually happened and how one interprets that experience (e.g., as success or failure). The person "imagines various causal factors that could have produced" a given outcome (Guenther & Alicke, 2008, p. 707). In the context of belief perseverance, a faulty self-impression can persist even when proven wrong. As Ross et al. (1975) suggested, once impressions form, they are "remarkably perseverant and unresponsive to new input" (p. 880). They filter into one's everyday life, interactions, and work.

Social Impressions

Although self-impressions are most relevant to my PoP, social impressions—based not on one person's thought process but that of a group—may also play a role. As Anderson and Lindsay (1998) suggested, social impressions develop primarily through indirect experience—watching others interact with society either in person or virtually.

Witnessing such interactions can shape one's behavior toward others, and "mistaken attributions can lead to inappropriate reactions" (Curtis, 1989, p. 13).

These impressions are not limited to others. Rather, people can apply social impressions to themselves. In the context of belief perseverance, such internalization can lead to "self-defeating behaviors" (Curtis, 1989, p. 13), which inform how people interact with others and view their place in society. Thus, social impressions can lead to a fixed mindset of self-doubt regarding one's ability to succeed in school and in life. Targeted coaching techniques, which rely on positive interaction, may help people overcome negative social impressions.

Social Theories

Social theories, belief systems that form through a lifetime of interactions, create a lasting impression of stereotypes as to how people see and act toward other people. Such stereotypical beliefs may concern gender, ethnicity, race, socioeconomics, and education and are "frequently based on faulty teachings or faulty evidence" (Curtis, 1989, p. 15). In the context of belief perseverance, social theories can cause harm. By clinging to outdated beliefs, one may sacrifice the needs and welfare of the whole. For example, set beliefs about underserved populations in education might reinforce the status quo of providing limited resources to their schools. Inadequate funding could mean a lack of sufficient opportunities to develop a positive growth mindset.

Studies Related to Belief Perseverance

Several studies have documented belief perseverance in action. Glasgow and Reys (1998) conducted an experiment with a college math class by asking students to solve an equation first by estimating the answer and then by using calculators

"programmed to produce incorrect answers (increasing from a 10% overestimate on the first three items to a 50% overestimate on the final two items)" (p. 384). Students who had estimated the answer close to the correct response believed the calculator instead, even when the researchers informed them that they were closer to the actual answer and that the calculator was programmed to give the wrong answer. Their belief systems were shaken. The researchers attributed the outcomes to participants' "lack of confidence in estimation skills," persistent trust in the calculator, and "a reluctance to question or reflect on their own mathematical thinking" (Glasgow & Reys, 1998, p. 388). The college students' belief perseverance in trusting technology over their own knowledge was so strong that they could not face the truth.

In an earlier study, Nissani and Hoefler-Nissani (1992) asked a group of natural scientists to evaluate a user manual for teaching high school science and math. The scientists became familiar with the contents and the proposed experiment that went along with the manual. The researchers also provided the participants with hands-on experience with the materials. In the second part of the experiment, the researchers created "an artificial clash" by giving participants "an incorrect theoretical formula" (Nissani & Hoefler-Nissani, 1992, p. 97). When the scientists compared their original result to the results from the skewed formula, they did not attribute the discrepancies to the formula, despite their prior hands-on experiment. After reviewing the findings, the researchers identified multiple stages that precede a shift in beliefs: "discomfort, ad hoc explanations, adjustment of observations and measurements to fit expectations, doubt, [and] vacillation" (Nissani & Hoefler-Nissani, 1992, p. 97). The participants' beliefs did not

shift, suggesting they got stuck somewhere in the process. No matter the subject or the

person's intelligence, belief perseverance can run strong and deep.

To help my students move past their mistaken self-impressions or other types of

belief perseverance, I needed to shift their belief that they were not capable of

succeeding. In other words, I aimed to enhance their self-determination. Therefore, I

explored research on SDT.

SDT

Deci and Ryan (1985) conceptualized SDT as a theoretical explanation of

motivation, believing people are driven by the need to grow and gain fulfillment—that

people are constantly moving toward growth through mastering specific tasks and new

experiences, which leads to knowing who they are and how they fit in society. Deci and

Ryan also believed autonomous motivation is essential for gaining any reward from

achieving growth. Autonomous motivation activates intrinsic sources of motivation to

accomplish goals and gain new knowledge (Niemiec & Ryan, 2009).

Throughout their research, Deci and Ryan (2011) discovered three essential

needs—autonomy, competence, and relatedness—to achieve psychological growth or

"optimal development and functioning" (p. 417). People with autonomy feel in control of

their own behaviors and goals. People with competence have mastered a task and learned

the skills to accomplish the task. People with relatedness have a sense of belonging or

form an attachment to others. When all three needs are satisfied, people have high levels

of self-determination and can take on a new task and learn from it, whether or not they

succeed. They may also be motivated to continue looking for ways to complete it. This

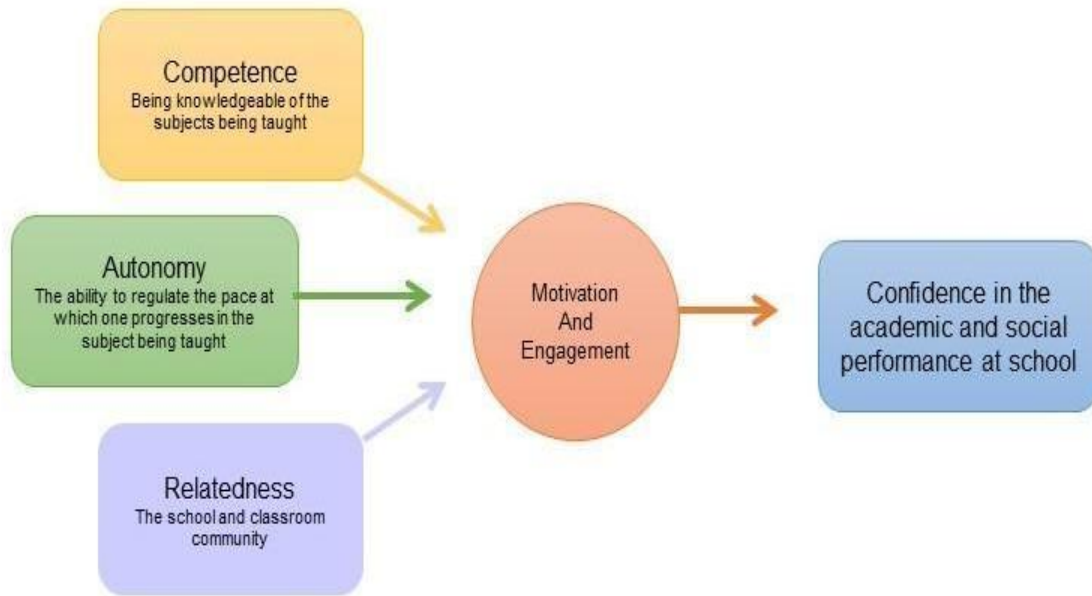theory thus suggested a potential resolution for my PoP (Figure 2.2).

Figure 2.2 *Components of SDT*

Conversely, people who struggle to meet these needs have low self-determination, which may cause them to make excuses for why they cannot complete a task, placing the blame elsewhere. Unlike their self-determined counterparts, they are not motivated to look for solutions to correct any missteps. However, Deci and Ryan (2011) believed motivation "could be either undermined or enhanced depending on whether the social environment supported or thwarted the needs for competence and self-determination" (p. 417). People develop self-determination through social interaction—at home; in school; through sports, groups, or clubs; and in society in general. If a person feels as though they excel by taking on a positive role in achieving personal or group goals, building a positive relationship with others, and receiving and giving positive feedback, they will tend to have high self-determination and want to achieve more. Without this positive social interaction, a person will have lower self-determination and tend to shy away from improving themselves and achieving goals.

Studies Related to SDT

As with belief perseverance, existing scholarship has documented SDT in action. Deci (1971) first investigated SDT in a three-part study, beginning with a controlled indoor environment. Deci observed participants while they solved puzzles to see how they worked and provided free time in the middle of each session. During Session 1, participants did not use much of the free time to solve the puzzles. During Session 2, Deci told participants they would receive a dollar for every puzzle they solved, and the prospect of an external reward increased their motivation. During Session 3, Deci removed the external reward and noticed the results were very similar to the first session: participants lacked motivation to accomplish anything beyond the given task.

The second part of the experiment occurred in a newspaper office and was similar to the first, except that participants wrote headlines instead of solving puzzles (Deci, 1971). Offering participants the incentive of 50 cents per headline resulted in an increase in production. However, during the third session, removing the possibility of payment correlated with "a decrease in intrinsic motivation for the activity" (Deci, 1971, p. 110).

Based on the first two experiments, Deci (1971) predicted similar results for the third, which was the same except for providing praise and reassurance instead of a tangible external motivator. The "verbal reinforcement and positive feedback" seemed to increase participants' internal motivation (Deci, 1971, p. 114). Looking across the experiments, Deci demonstrated how individuals lose intrinsic motivation after experiencing extrinsic motivation.

Pritchard et al. (1977) conducted a similar, two-part experiment to see if Deci's findings were reproducible. In the first part, participants completed a survey about their

experience with chess, weekly time spent on chess, and their enjoyment of the game, among other questions. While a researcher reviewed the surveys, the participants remained in a room with chess problems arranged so they would easily find them. When the researcher returned, participants received a packet with chess problems and were told they would be compensated financially for the number of problems they solved. The following week, participants returned and followed the same procedures, except the researchers explained they would not be compensated. Looking across both weeks, Pritchard et al. (1977) found the use of "extrinsic financial rewards made contingent on performance decreases intrinsic motivation" (p. 11), thus confirming Deci's findings that intrinsic motivation is stronger than extrinsic reward.

In a subsequent study, Deci partnered with a collaborator to revisit the original findings and explore five related topics:

> the effects of social environments on intrinsic motivation; the development of autonomous extrinsic motivation and self-regulation through internalization and integration; individual differences in general motivational orientations; the functioning of fundamental universal psychological needs that are essential for growth, integrity, and wellness; and the effects of different goal contents on well-being and performance. (Deci & Ryan, 2011, p. 416)

This new phase of SDT research explored social environments such as "health behavior change, education, psychotherapy, work motivation, sport and exercise, and prosocial behaviors" (Deci & Ryan, 2011, p. 416). Within these environments, researchers explored motivation, energy depletion, mindfulness, and behavior regulation. Building on

20

these explorations into the mind, my study applied principles of SDT to incorporate

equitable practices for all students.

Applying My Framework

Students come into the classroom with a specific set of beliefs built through

interactions with their family, friends, and the outside world. These long-standing beliefs

may be so strong they are almost impervious to change. Students who persevere with

strong, healthy beliefs are likely to be self-determined, endowed with intrinsic motivation

that pushes them to excel on their own. If students' set beliefs are weak and the students

have a lot of self-doubts, their self-determination level will be very low, causing them to

believe they are incapable of succeeding. This lack of confidence can lead to self-

sabotage, beginning a continuous cycle of self-torture that is difficult to break.

Educators can motivate students to move past their set beliefs in the classroom by

teaching lessons on intrinsic motivation and positioning themselves as coaches.

According to Spence and Oades (2011), presenting lessons in a coaching fashion can (a)

incorporate students' interests and give them choice in their learning, satisfying their

autonomy needs; (b) acknowledge students' capacities and strengths to gain mastery of

tasks and different skills, satisfying their competence needs; and (c) show students they

belong through genuine caring, trust, and honesty, thus satisfying their relatedness needs.

In other words, coaching is a means of supporting students' self-determination.

As I explain in Chapter 3, my initial data collection involved looking for evidence

of students' belief perseverance. I then guided them in lessons that employed principles

of SDT to increase their intrinsic motivation and resolve their belief perseverance. Over

time, I looked for growth in their positive beliefs. Such evidence also reflected my ability to give students equal opportunities to showcase their strengths in the classroom.

Equity in the Classroom

According to Soken-Huberty (2020), social justice is "the fair distribution of opportunities and privileges as they apply to individuals within a society," beyond simply "wealth and property" (para. 1). Equitable or inequitable distribution of resources has implications for how students interact with school, as does "how social justice is *taught* within the school system" (Soken-Huberty, 2020, para. 3). For example, students' educational experiences may differ depending on where they live and the schools they attend, and SES can also impact students' belief perseverance and self-determination (Bellibas, 2016). Students born into middle-SES homes are more likely to have access to books. Consequently, Claro et al. (2016) found that students in lower-SES homes are less likely to have a growth mindset than their peers. Because self-determination provides individuals with "a sense of purpose and destiny and can encourage positive outcomes in life" (Ginneh, 2019, p. 9), schools must help students from lower-SES families develop the kind of positive belief perseverance that is vital to their academic success. The next section reviews some promising approaches for achieving that aim.

Related Literature

Beyond scholarship related to my theoretical framework and aligned with my commitment to equity, I also explored studies that could inform my approach as an action researcher. Literature related to having a growth mindset gave me a deeper understanding of how it can "lead to academic achievement" (Toney, 2019, p. 5). Existing research also

suggested I could combat belief perseverance by positioning myself as a coach to activate students' intrinsic motivation to achieve.

Mindsets

Mindsets shape how people see the world and their place in it. From a young age, people learn how to interact with others through the values, attitudes, and social identities with which they are raised (Gee, 1989). These beliefs inform the mindset a person develops and uses in their daily lives and interactions. Dweck (2010) theorized people tend to have either a fixed mindset or a growth mindset. The belief that one's intellectual abilities can be developed suggests a growth mindset, whereas believing one's intellectual abilities are unchangeable indicates a fixed mindset (Claro et al., 2016).

Fixed Mindset

According to Vandewalle (2012), "when one holds a fixed mindset, that initial information becomes an anchor that impedes the likelihood of engaging in counterfactual thinking" (p. 304). This fixed mindset prevents the person from moving forward with a challenging task. Feeling stuck and incapable of accomplishing anything, the person will exert less effort (Hochanadel & Finamore, 2015). Individuals with a fixed mindset believe intelligence is simply an inborn trait (Dweck, 2010). This thought process leads to belief perseverance, which perpetuates learned helplessness, a state in which one stops trying to improve the situation they are in even if they are able.

Growth Mindset

People with a growth mindset feel "they can develop their abilities through hard work, good strategies, and instruction from others" (Haimovitz & Dweck, 2017, p. 1849). This way of thinking is essential for moving past obstacles and setbacks one might

encounter. Indeed, people with a growth mindset are known for "more resilient coping—more positive affect, positive self-assessments, and greater persistence" (Haimovitz & Dweck, 2017, p. 1852). Beyond school, these skills can lead to success in all areas of life.

Educational Coaching

Teaching and coaching have many similarities, including the need for preparation. Teachers plan lessons by studying the curriculum down to the specific standards and objectives, considering the students' need to learn and internalize, and reviewing textbooks and manuals (Shen et al., 2007). In doing so, teachers make instructional decisions, aligning content with "activities or methods that enable students to grasp the subject matter" (Shen et al., 2007, p. 249). Using planning time, teachers can think about what students know and the best way to help them understand what they are to learn.

Coaches also engage in preparation. When preparing for a game, they spend a lot of time preparing themselves, individual players, and the team as a whole. For successful coaches such as John Wooden, this preparation includes "extensive, detailed and daily planning based on continuous evaluations of individual and team development and performance" (Gallimore & Tharp, 2004, p. 124). A coach's preparation does not end there. Rather, at game time, they have considered "each individual very carefully [to] anticipate what [players] would do—or fail to do—and [are] primed and ready to instantly respond with . . . brief, information-packed instructions" (Gallimore & Tharp, 2004, p. 124).

Successful coaches also use relationships to instill good habits and a positive mentality in their players. As Dawn Staley indicated, the process of achieving greatness is a journey, and it takes a patient leader who knows the people they are leading (Gervais,

2021). I saw the potential to apply similar techniques in my classroom by using my knowledge of students' interests as sources of motivation.

Educational coaching can be "a powerful tool for personal change and learning" Devine et al., 2013, p. 1383), benefitting both students and teachers. As Devine et al. (2013) explained, coaching involves "using active listening and inquiry [while] providing appropriate challenges and support" (p. 1383). By collaborating with students, teachers can provide opportunities for learners to express "their personal power to learn" (Wang, 2012, p. 178) through interactive displays of their abilities.

Educational coaching is more than just having a dialogue with students and hoping to make an impact. It creates an environment where students develop "coping skills and resilience, increased well-being, cognitive hardiness, and hope" (Devine et al., 2013, p. 1386). To develop such an environment for students, teachers must develop coaching strategies that will benefit their students and themselves.

First, teachers must examine specific coaching elements and consider how to transfer these practices into their educational setting (Devine et al., 2013). For example, a teacher may look at students' essential needs and identify areas where they may need more help. Then, the teacher can determine which coaching skills will benefit each lesson. In the case of my students' difficulties with math, understanding that the students do not automatically know how to solve the problems may trigger a back-to-basics approach: breaking the problems into manageable steps "to promote deeper and more engaged understanding of important concepts" (Brown & Wilson, 2020, p. 16). When the students begin to internalize such coaching techniques, their new way of thinking can ultimately "facilitate goal attainment and foster purposeful[,] positive change" (Devine et

al., 2013, p. 1386). By teaching various coaching techniques, I hoped to empower students to solve problems at school and in their daily lives. Indeed, educational coaching is known for "building hope and optimism, the capacity for self-direction and self-determination, risk-taking and future-mindedness, interpersonal skills, insight and perseverance, [and] civic responsibility and work ethic" (Devine et al., 2013, p. 1387).

The benefits of using coaching techniques in the classroom are not limited to students. It can "support the development of . . . teachers, school leaders and the educational institutions of which they are a part" (Devine et al., 2013, p. 1383). Specifically, coaching strengthens teachers' interpersonal skills, such as listening, empathizing, and conveying trustworthiness (Hooijberg & Lane, 2009). Through constant evaluation of their skills and competencies, teachers, similar to athletic coaches, can fine-tune their coaching techniques to bring out their students' best abilities.

Chapter Summary

As this chapter explained, all people, including teachers and students, can develop belief perseverance to protect themselves from not being able to measure up to expectations, whether others' or their own. This belief perseverance can cause one to struggle with their ability to move past these mental barriers. The next chapter describes my plan for using principles of SDT and coaching techniques to move my students past their fixed mindset and improve their ability to meet the challenges they face.

CHAPTER 3

METHODOLOGY

My students' problematic belief perseverance prompted my desire to help them develop self-determination through intrinsic motivation. Positioning myself as a coach by providing praise, inspiration, and encouragement, I explored the following interconnected research questions:

1. What happens to student achievement when I teach intrinsic motivation skills through coaching lessons?

2. What happens to my students and me when I position myself as a coach?

This chapter includes my detailed plan for answering these questions.

Research Design

This 6-week action research study took a qualitative ethnographic approach to examining ongoing actions in my classroom (Herr & Anderson, 2015). Action research often "uses a narrative style that allows the researcher to reflect on the research process as well as the findings" (Herr & Anderson, 2015, p. 1), which made a qualitative approach an appropriate choice. Moreover, my insider status enabled me to work closely with the students through firsthand observations in the natural environment, yielding ethnographic data, such as detailed notes, in response to the research questions. However, my research design also included assessment data, in response to Research Question 1. Students completed a mid-module assessment before we started the math module, providing baseline data. The students retook the assessment in the middle of the module

and also completed the end-of-module assessment in a pre and post manner. Evaluating their assessment data gave me additional insight on the impact of my interventions.

Qualitative Design

Using a qualitative research design allowed me to observe "the setting where the phenomenon of interest naturally occurs" (Merriam & Tisdell, 2016, p. 137). In this case, the phenomenon was the students' mindset, and it naturally occurred in my sixth-grade classroom, as I described in Chapter 1. A qualitative approach also gave me, an insider, a firsthand view of participants for "holistic interpretation" of their behavior (Merriam & Tisdell, 2016, p. 161). As I explain in this chapter, detailed records of my observations accounted for any growth, stagnation, or setbacks among my students throughout the coaching interventions and also captured how the process impacted me as their teacher.

Ethnographic Design

Among other kinds of qualitative education research, an ethnographic design can "yield detailed and comprehensive accounts," especially of "actions, behavior, interactions, [and] beliefs" (Reeves et al., 2013, p. e1365). Ethnographers "'immerse' themselves in a social setting, thereby generating a rich understanding of social action" (Reeves et al., 2013, p. e1365). I was already immersed in the setting as a practitioner, and the social action occurred between my students and me as well as between students and their peers. Ethnography's emphasis on behavior and beliefs also aligned with my theoretical framework because my interactions with students could shape their mindsets.

Setting and Participants

This study took place in a Southern California suburb in Riverside County, 60 miles outside of Los Angeles. The district serves over 40,000 students who attend one of

32 elementary schools, 11 middle schools, or 13 high schools. My elementary school was built in 1948 and recently modernized. It houses one of the largest elementary populations in the district, and most of our students come from low-SES backgrounds, hence the school's high rate of students receiving free and reduced-price lunch. The student population is predominantly Hispanic with a large cluster of ELLs.

Because my district prohibits elementary students from participating in research, I could not collect survey or interview data, but I could interact with them in my role as a teacher in a way that aligned with my research aims. At the beginning of the school year, I taught math in a whole-group format, but I soon saw the need to change to a small-group format. The six students in what I will call Group X became the focus of this study. Their lack of self-confidence in math suggested negative belief perseverance. As I implemented strategic interventions during the 6-week study, all students and their guardians were aware of my study (Appendix A), but I concentrated my data collection on Group X.

Interventions

Using the insights I gained from my literature review, I planned mini lessons that would enable me to position myself as a coach and help students move past their belief perseverance and toward increased intrinsic motivation. I sought to "focus not only on what happen[ed] but also how it happen[ed] over the course of the ongoing action research cycle of plan, act, observe, [and] reflect" (Merriam & Tisdell, 2016, p. 235). The lessons encompassed three growth mindset strategies: (a) positive aspects, (b) positive affirmations, and (c) goal setting. Based on my initial observations and reflections, I continually adapted my approach.

One intervention I used was asking students to create a daily list of positive aspects about themselves. I invited them to "write down three good things" (Seligman et al., 2009, p. 301) they saw in themselves, such as "I tell good jokes. I have a beautiful smile. I can run really fast," in their daily planner. At first, this simple task may seem monumental to a student, but as the student continues to notice positive aspects of themselves, it could begin to feel like part of their daily routine.

Another intervention was the creation of positive affirmations—positive statements such as "I AM good at math." According to Cascio et al. (2015), "self-affirmations are acts that affirm one's self-worth" (p. 621), which can help students see their value. Positive affirmations "reduce the effect of negative emotions" and "may increase focus on sources of positive value to individuals" (Cascio et al., 2015, p. 622). Positive affirmations are what students hope to gain in the future.

A third intervention I implemented was positive goal setting. Sides and Cuevas (2020) noted it "may affect academic performance through increasing motivation, self-efficacy, and self-regulation" (p. 1). As students reach their self-set goals, they can reflect on how the process of goal setting helped them improve and continue to add new goals until goal setting becomes a natural part of their daily routine.

As for positioning myself as a coach, I used the following outline to help me plan strategic lessons for my students. First, I reviewed each lesson, "identifying key points of the content" and "anticipating difficult points for students" (Shen et al., 2007, p. 251). Once I had a grasp on the material, I began to write the lesson plan carefully, taking time to write each step in a way that students would easily comprehend, including color coding to demonstrate how the parts of a lesson related to each other. While rereading my

notes and the problems I intended students to solve, I determined what manipulatives and aids would benefit the students. When I had a detailed blueprint, I would double back to the lesson and review it through the lens of how my students would react to the lesson and the problems.

As the study proceeded, this review included thinking about notes on student artifacts regarding their positive intentions and goal setting, as well as my observational notes on the students and their progress with previous lessons. Much like an athletic coach, I engaged in "daily planning based on continuous evaluations of individual and team development and performance" (Gallimore & Tharp, 2004, p. 124). I examined the lesson plan in terms of relationships, too (Gervais, 2021), anticipating how each student would react to the notes and steps, with an overall goal of ensuring the whole class could succeed. I adopted this stance so I could instruct and redirect each student using calculated strategies personalized for each student. Although these practices might sound like good teaching in general, for me, they were specific changes to my instructional approach. I strayed from my traditional use of the teacher's manual to provide examples and instead coached students using personalized examples tailored to each individual student and their background.

Data Collection

To assess the impact of my interventions, I originally intended to collect data over an 8-week period. However, due to a delay in the district approval process, I reduced the time period to 6 weeks. With the consent of the university, the school district, and my principal, I notified all students' guardians of my study (Appendix A). I then began

interventions while collecting four types of data: observational notes, teacher reflection, assessment scores, and artifacts.

Observational Notes

Observation is a key element of action research, facilitating powerful insight that might not otherwise be possible in the often-chaotic classroom environment (Efron & Ravid, 2013). Observation was appropriate for this study because my students could not readily volunteer the information I was seeking. The observational time allowed me to record the "physical setting; provide a verbal portrait of the participants; record the acts, activities, and events that [took] place; and document conversations" (Efron & Ravid, 2013, p. 88). Viewing the students in their natural setting, I met with Group X daily during the 6-week research period, documenting students' actions.

Initially, I looked for each student's academic, social, and personal baseline. Students enter my classroom at different levels socially and academically. A student may be on grade level academically but socially behind or vice versa. Establishing a baseline enabled me to see students' intertwining the coaching techniques from the interventions into their daily lives.

To examine the interventions' impact in response to my research questions, I kept a detailed student notebook, guided by specific questions. For example, to capture student attitudes at the beginning of the day, I asked: Are these attitudes the common everyday attitudes, or has something changed? I watched how the students walked toward the small-group table, assessing their expressions, moods, and energy. I noted whether they appeared tired, were struggling, or seemed to want to remove themselves from everyone. This approach gave me a sense of where the students were mentally. I quickly wrote my

observations, color-coding the notes by student to maintain their anonymity. While documenting my observations in the moment, I tended to scribble in a hurried, messy manner. At the end of the day, I rewrote my notes in a more composed manner, which allowed me to add my reflections on the students and the day's lesson. Figure 3.1 provides an example.
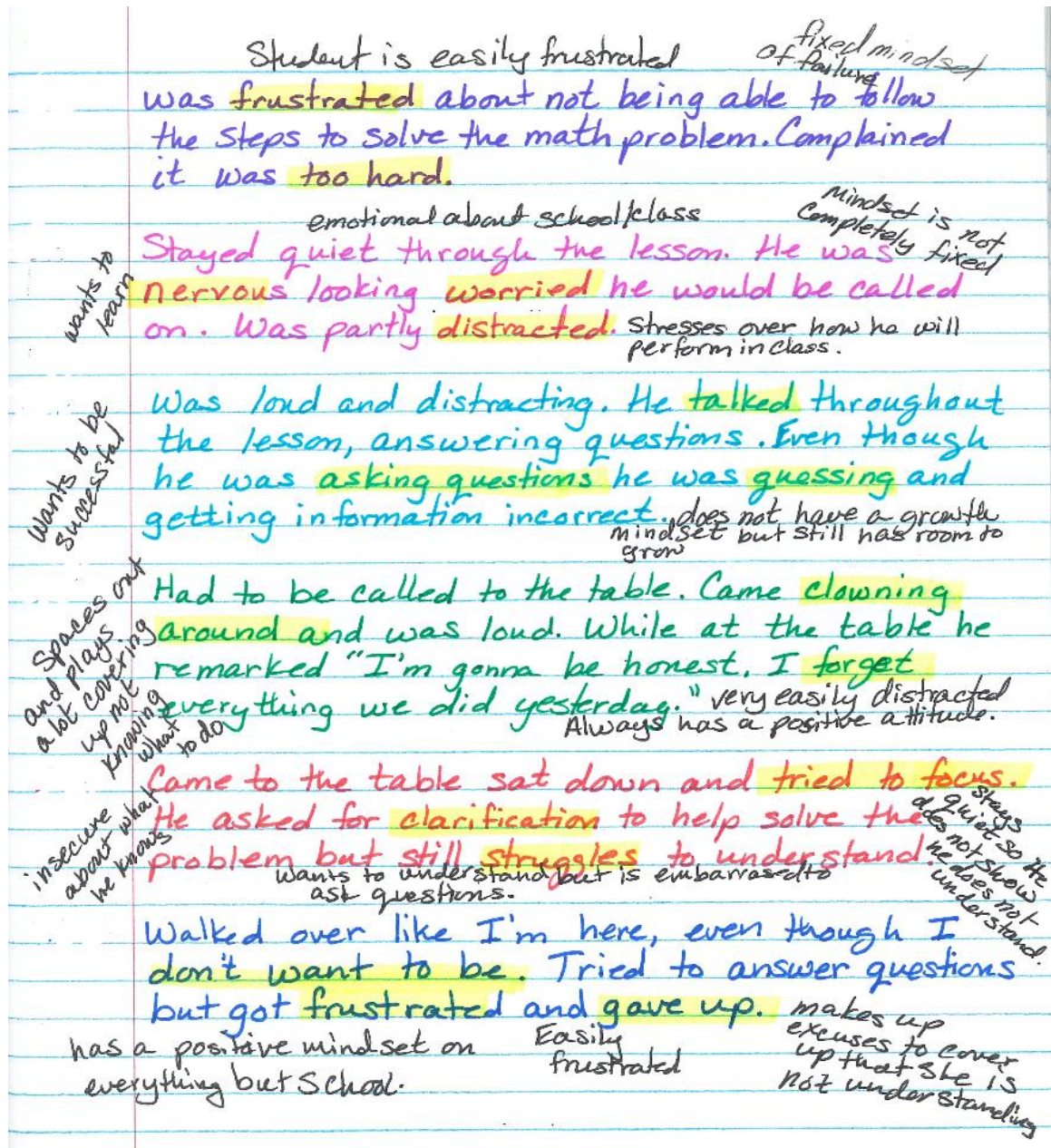

Figure 3.1 *Field Notes Excerpt*

Another guiding question was: Do I see evidence of anxiety, and if so, could an assignment or project be the source? I looked for key expressions of anxiety toward math as students approached their small-group session, knowing anxiety can weaken self-confidence and contribute to math avoidance (Wei, 2010). Anxiety can manifest in facial expressions, body tension, or verbal cues suggesting resistance. I recorded these kinds of observations using tally marks while elaborating with the same color-coding method.

I also considered a broader guiding question: Does the student's attitude change from subject to subject, and if so, why? Documenting students' attitude toward other subjects expanded my understanding of how they viewed school and their role in it. From prior experience, I knew students could be stronger and more confident in other subjects. Formally recording observations about each student's interests and strengths exposed pathways for connecting with the students so I could coach them in math by using familiar and understandable topics. Using the same color-coding method, I noted any expressions, comments, or observations about students' work ethic toward other subjects.

As each lesson proceeded, I posed another question: Do I see a noticeable change in the way students communicate? While working with Group X, I made observational notes about their communication style with me. I also noted whether they began to engage more with me and other students by asking questions, providing aid to other students, and presenting solutions for the problems that arose.

Finally, I asked: Do I see a noticeable change in the way students hold themselves? This last guiding question primed me to document any growth in each member of Group X. I sought evidence that students had grown enough in their

mathematical capabilities and confidence to complete the math problems on their own without teacher support.

I changed my approach about what to observe as new insights emerged. For example, while teaching skills of intrinsic motivation through coaching lessons, I hoped to see the students use what they learned to thrive academically. Ideally, my detailed observation notes would show students' growth in their ability to overcome belief perseverance and gain self-determination.

Teacher Reflection

In addition to taking notes on my students, I also took notes related to myself because teacher reflection is essential to learning students' needs, assessing their progress, and examining one's techniques (Merriam & Tisdell, 2016). Keeping a detailed journal enabled me to record my sense of my efforts to mentor the students in intrinsic motivation through coaching. I also documented how my positioning seemed to affect the students' mentality toward learning and achievement, as well as my own, in line with my second research question. Noting the coaching techniques I planned to use, I also recorded any changes or adjustments, especially in response to how students responded individually and as a collective.

My journal also reflected how I was adjusting during the interventions. I documented my attitude at the beginning of each day and noted any underlying emotions that may impact the student culture in the classroom. While using the coaching techniques, I reflected on any differences I saw in myself and my interaction with the students. I also recorded any adjustments I made to the curriculum and the way I

presented it to the students. As with the field notes, I adjusted the structure of my reflections as needed as the study progressed.

Assessment Scores

All students took a pre-intervention assessment at the beginning of the math unit, which provided baseline academic data aligned with Research Question 1. I recorded how many problems Group X students solved correctly, attempted, responded to with "I don't know," or left blank. After the students spent some time learning the mathematical standards for the unit and engaging in positive coaching techniques, they completed mid-module and end-of-module assessments that enabled me to measure growth. Specifically, I looked for any change in the number of problems solved, attempted, responded to with "I don't know," or left blank, facilitating comparison to the pre-module assessment.

Artifacts

Artifacts enhance teacher researchers' understanding by providing additional information and insight into the social and cultural life of their classrooms (Efron & Ravid, 2013). Customized action plans (Appendix B) served as artifacts in my study. During the intervention period, students created the plans to help them infuse positive intentions into their educational and daily lives. Each plan included a personal mantra and attainable goals that students could adjust as they internalized their intrinsic motivation.

I assisted in the creation of these plans during a one-on-one conference with each student. When I invited the students to set goals, they struggled at first because they were not sure what kind of goal to set. When I let them know the goal could be educational or personal, they were able to think of a goal, which we both wrote. Next, we discussed how they felt about themselves. As with goal setting, students initially struggled to identify

positive attributes about themselves. I asked questions to help them recognize possible responses. Once the students identified three positive attributes about themselves, we wrote them so students could refer back to them daily. During the last part of the conference, I helped each student create a positive intention. We discussed something they would like to be true, whether in their academic or personal life.

When the action plans were complete, I explained that students should keep them and say their positive intentions out loud at least twice a day—in the morning and again at night. I encouraged them to say their intention more often if they liked and instructed them to read the other parts of the plan each day, focusing on their goal and the positive aspects they voiced about themselves. My copy of their plans, which allowed students to plot a pathway to success, helped me address my second research question.

Data Analysis

While analyzing my notes, reflections, assessment data, and artifacts, I referred to my research questions (Table 3.1). Throughout analysis, my theoretical framework helped me see any progress my students and I made from belief perseverance to self-determination. In other words, I looked for moments or strategies that prompted a shift from the initial fixed mindset to an intrinsically motivated growth mindset.

Table 3.1 *Research Question Alignment*

Question	Data
1. What happens to student achievement when I teach intrinsic motivation skills through coaching lessons?	assessment scores
2. What happens to my students and me when I position myself as a coach?	observational notes teacher reflections artifacts

Research Question 1

As I attempted to discover how coaching lessons centered on intrinsic motivation impacted students academically, I used the pre and post assessment data. Comparing the data points enabled me to measure any growth in students' understanding of the math concepts. I looked to see if the Group X students improved and by how much. Viewing this concrete information revealed any positive or negative changes in academic performance. I grouped the results by student and coded the scores by performance level, using percentages to show how many students fell into each performance level.

Research Question 2

Data from the detailed student notebook, teacher journal entries, and artifacts addressed my second research question. Throughout the intervention, my reflection data gave me the ability to reflect on what was working or not and to adjust the techniques I used the next day. I also coded the notes from observations and teacher reflection for each intervention and student and teacher behavior, using different colors for each student and myself. In the observational notes, I arranged the data initially by daily notes with information from all the students. I then broke the data into self-defeating mentality, indifference to the material, and growth mindset mentality. I also analyzed the students' customizable action plans, looking for evidence of interventions in use.

<div align="center">

Chapter Summary

</div>

This chapter explained how and why my qualitative ethnographic action research study used multiple data points. Combining analysis of my observational notes, reflections, and student artifacts, I looked across my research questions to identify any correlation in the change in students' assessment data and how they viewed themselves.

In Chapter 4, which presents the results of my analysis, I attempt to answer my research

questions by examining the impact of my interventions.

CHAPTER 4

FINDINGS

At the outset of this study, my students exhibited negative belief perseverance in terms of themselves and their abilities. This PoP inspired me to help them develop self-determination through intrinsic motivation. I positioned myself as a coach by providing praise, inspiration, and encouragement, and to assess the impact of my efforts, I explored the following research questions:

1. What happens to student achievement when I teach intrinsic motivation skills through coaching lessons?

2. What happens to my students and me when I position myself as a coach?

This chapter includes a detailed explanation of the findings from my 6-week qualitative ethnographic action research study. To collect a sufficient amount of data, I used four different sources: observational notes, teacher reflection, assessment scores, and artifacts. These methods enabled me to see any growth in the students' development of self-determination to move toward positive intrinsic motivation and to capture my own progress toward resolving my PoP.

Group X

As I explained in Chapter 3, I normally took a whole-group approach to math class by focusing on a given standard and helping individual students as needed. This format enables teachers to progress through their lessons at a quick pace but does not always "meet the learning needs of every child" (Dana, 2015, p. 161). Knowing that I

was not meeting every student's needs and sensing that some students were not voicing their needs in a large-group setting, I shifted to small-group instruction. I assessed each student's understanding of math standards and grouped the class according to ability. Group X exhibited stronger belief perseverance and more of a fixed mindset than other groups. They clearly disliked math and struggled among a large group of 26 students. Therefore, these six students became the focus of my study (Figure 4.1), and I attempted to support their intrinsic motivation and self-determination.

Student	Set Belief Indicators		
Student 1	• Gives up before trying • Incomplete/missing work	• Quiet and reserved	
Student 2	• Gives up before trying • Quiet and Reserved	• Deflection of ability	
Student 3	• Incomplete/missing work • Talking and Playing	• Interruptive behavior	
Student 4	• Incomplete/missing work • Talking and Playing	• Interruptive behavior	
Student 5	• Incomplete/missing work • Quiet and reserved	• deflection of ability	
Student 6	• Gives up before trying • Incomplete/missing work • Talking and Playing	• Interruptive behavior • deflection of ability	

Figure 4.1 *Observed Indicators of Set Beliefs in Group X*

Intervention Plan

Whereas a whole-group approach had proven difficult for everyone, scaling back to a small-group made lessons more impactful and helped the students focus more on what I was teaching. Before, the students were struggling with comprehension and internalization of the lessons, and I was struggling with the students' disruptive behavior and negativity. As we adjusted to small-group instruction, I was able to focus more on individual students and recognize how their behavior issues masked their struggles with math. The small-group setting gave way to individual, one-on-one interaction, more akin

to coaching. By focusing on using positive intentions, I equated the math lessons to sports and attempted to help the students shift their mindsets in positive, intentional ways.

Small-Group Procedure

Small-group instruction is a more intimate, in-depth approach. It gives students a safe place to express themselves in their abilities and concerns. To prepare for small groups, I reviewed each lesson in the teacher manual and observed any concerns that might arise. I then created notes to outline the steps for working through the math problems, developed questions to pose to small groups, and gathered math manipulatives that might help students understand the day's math concept. I posted the notes in the Google math class so students could preview the lesson and write the notes ahead of the small-group session or refer to them after the session as a review.

When students gathered with their small group, they brought their math books, binders, whiteboards, markers, and erasers. Students sat and opened their books to the lesson for the day, and I reviewed any new vocabulary that would aid their understanding. We then discussed the lesson and the examples provided in the book. As the students and I worked through the examples on the whiteboards, I asked leading questions to help them understand the concepts. The students also asked me questions and helped each other. After the students solved a problem, we debriefed the example and the students wrote hints that helped them solve the problem.

Throughout such instruction, I observed the students and assessed how they were doing with the lesson. I listened to the students work out the math problems verbally. I also watched their expressions to see how much they were struggling with the problem.

As I observed the students, I wrote notes about their process and their struggles (Figure 4.2), which I reserved for when I worked with the students individually.

Figure 4.2 *Math Coaching Notes for Module 2 Lesson 14*

Individual Procedure

After working with the students in a small group, I pulled individual students aside to make sure they understood the lesson and worked on their mindset toward math and themselves. Each student would pull out their math book and explain how they figured out the math problem. When I asked questions about their thought process of getting to the answer, the student would explain the steps they took in their book. I also asked clarifying questions so they would slow their explanation and not skip steps. Seeing the students work through their explanation, I sometimes saw the frustration they felt during the small-group session arise again. If so, I shared my observations and asked the student why they made a particular comment or facial expression.

Intervention Period

During Week 1, I pulled Group X for small-group instruction. Before we started the scheduled lesson, I asked how they felt about math and told them to be honest. I promised I would not judge them for what they said or hold anything against them. The students talked openly and expressed their feelings—not just about sixth-grade math, but all the math they have experienced throughout their years of education. I recorded their responses in my notebook and later organized the data as I reflected (Figure 4.3).
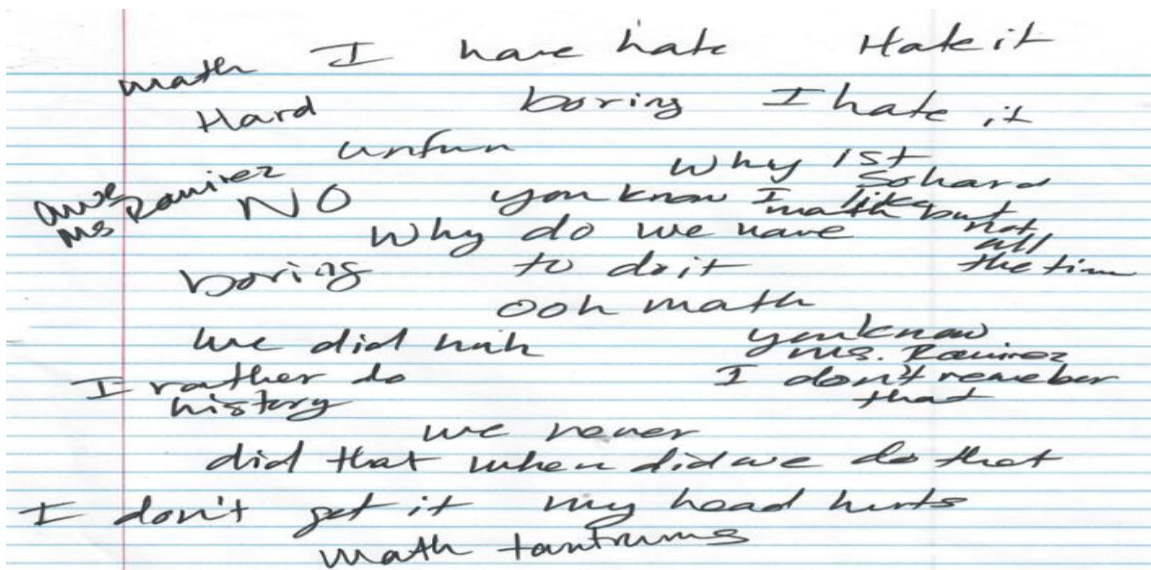
Figure 4.3 *Student Feelings Toward Math*

As Figure 4.3 illustrates, a common expression from the students was how much they hated math. They described it as boring and impossible to understand, and they questioned the need to study it. Another common experience was feeling like they pay attention and get it during class but never remember it when they have to do the math on their own. One student very loudly and aggressively said, "I'm just not good at math. I hate it. Why do we even need it?" In this case, her disdain for math had been evident since the beginning of school. She tended to express her distaste for math every chance

she got through verbal and facial expressions. Another student stated that she had always been told she throws "math tantrums" every time she has to do something that involves math. I had noticed her tantrums since our first math lesson and hoped this open discussion could begin to empower such students by showing I believed their feelings were legitimate. Listening to their views also gave me a starting point for supporting student growth and achievement through coaching.

During Week 2, I introduced coaching by showing students how to break math problems into small steps they could repeat for future problems. For example, I noticed Student 1 was struggling and getting frustrated with dividing fractions. Positioning myself as a coach, I demonstrated how to break a problem into chunks she could understand. Our interaction illustrates how I engaged with Group X throughout the week.

The textbook poses the following problem: "Molly has 1 3/8 cups of strawberries. She needs 3/8 cup of strawberries to make one batch of muffins. How many batches can Molly make?" (Great Minds, 2015, p. 45). Solving it requires students to understand Molly's initial quantity. To see if Student 1 understood fractions, I asked her what 1 3/8 means. When she gave me a blank stare and stated she did not understand fractions, a fifth-grade standard, I retrieved a piece of scratch paper, pencil, and colored pencils.

Figure 4.4 illustrates our process. First, I wrote the mixed fraction of 1 3/8 and explained how the fraction reads as one whole and 3/8 of a whole. Then, I drew a tape diagram—one long box—to represent the one whole. Below it, I drew another box of the same size. I explained to Student 1 that the second box also represented a whole, but unlike with the first box, we would use it to illustrate the fraction by looking at the numerator and the denominator. We started with the denominator of 8, which told us to

break the second whole box into eight pieces. Then, I explained how the numerator of 3 was telling us not to color all eight pieces—only three.
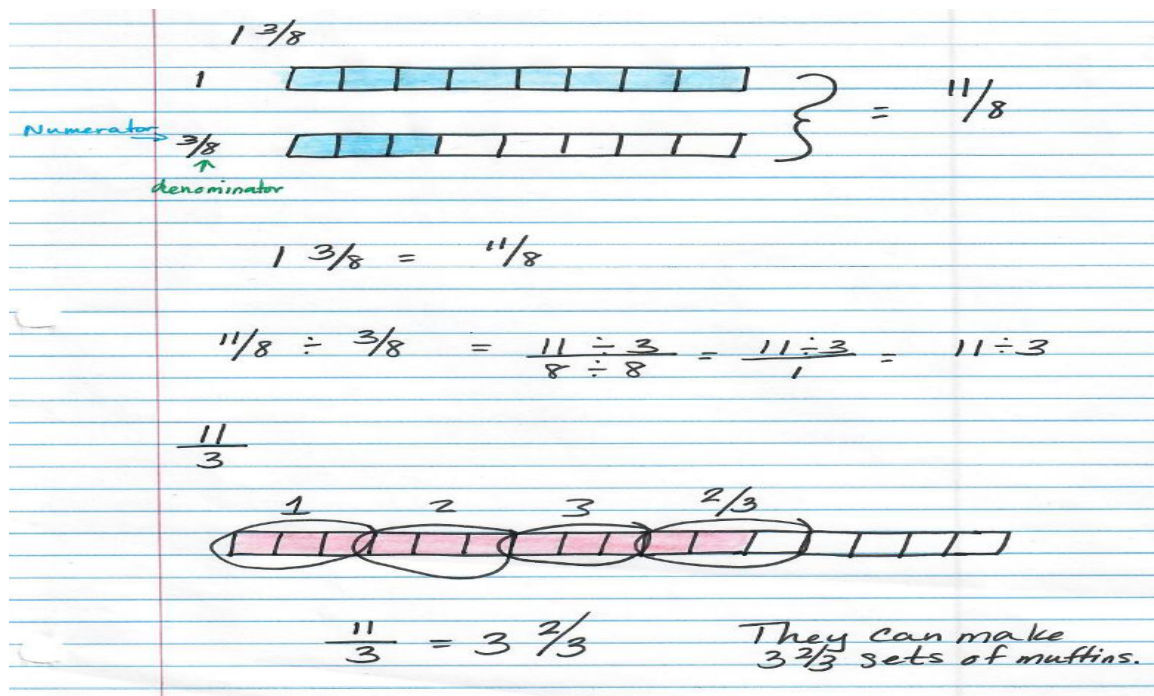

Figure 4.4 *Module 2 Lesson 4 Step-by-Step Notes*

Once the student saw how we represented the 3/8 on the tape diagram, I explained that we could use the same process for the first box, asking, "If the whole has the same denominator as 3/8 does, how many pieces will we need to break down the whole into?" Student 1, seeing that both tape diagrams were the same size (i.e., both denominators were the same), responded, "eight," so I cut the whole into eight pieces. Next, I asked Student 1, "If I colored in the whole tape diagram, how many pieces would be colored?" Student 1 responded, "eight." After I colored them, I gestured to both tape diagrams and asked Student 1, "How many pieces are colored altogether?" Student 1 responded, "11." I agreed and explained, "This is our new numerator."

We looked at one of the tape diagrams, and I asked Student 1, "How many pieces are in this tape diagram?" Student 1 responded, "There are eight," and I explained that 8

would continue to be our denominator. I rewrote the original mixed fraction of 1 3/8 and asked Student 1, "What was the new fraction that we just used the tape diagram to find?" Student 1 responded, "11/8." I wrote an equal sign next to the mixed fraction and wrote 11/8 on the other side, noting how the fractions were the same—just written differently. One was a mixed fraction and the other an improper fraction.

After seeing how we turned the mixed fraction into an improper fraction, Student 1 was ready to revisit the original math problem. I asked, "How many strawberries will the baker need to make one batch of muffins?" Student 1 responded, "3/8 of a cup." On the same paper, I wrote our new problem: $11/8 \div 3/8$. I asked Student 1 what she noticed about the new problem, and she recognized the denominators were the same. I responded with positive affirmation and explained that because the two numbers had the same denominator, we could rewrite the problem in a slightly different way: $(11 \div 3)/(8 \div 8)$.

Writing it this way allowed us to remove the common denominator, so I asked Student 1 to solve the resulting division problem: $11 \div 3$. Student 1 looked at me and replied, "I can't. It won't come out even." I expressed, "Good catch," and proceeded to demonstrate how to handle having a remainder. Writing 11/3, I explained how the notations were equal because the line that made the problem look like a fraction was actually a division line. I asked, "How many times will 3 go into 11?" She responded, "three times." I confirmed and asked, "How many are left over?" She responded "two." I followed, "Out of how many?" Student 1 responded, "I don't know . . . 11, I guess." Starting to see and hear her frustration, I paused to reassure her and suggested we could look at the problem slightly differently.

Revisiting our tape diagram example, I asked Student 1 to draw a tape diagram with 16 pieces to represent two wholes. I then asked how many pieces she needed to color, and she responded, "11." After she colored them, I asked, "What are we dividing by?" She responded, "three." I acknowledged the correct answer and asked her to circle every three pieces. After circling three sets of three, she stopped. Gesturing to the last two colored pieces, Student 1 looked at me and said, "I can't do this. There are not enough." I smiled to let her know she was correct and asked, "How many pieces are there?" Student 1 responded, "two." I said, "Yes, out of how many?" Student 1 responded, "three." I excitedly said, "Yes!" She looked at me with a quizzical expression. I explained by writing her response in fraction form: "You have two out of three or 2/3 left." I then asked how many whole sets of three she had circled. Student 1 responded, "three," and wrote a 3. I then asked how many of the last whole were left. She responded, "2/3" and wrote the fraction next to the 3. We looked at the completed problem and returned to the original question. I reminded Student 1 of our goal to determine how many batches of muffins Molly could make with 1 3/8 cups of strawberries if each batch needs 3/8 of a cup. Student 1 looked at the scratch paper and replied, "3 2/3 batches." I confirmed and asked her to complete the next problem on her own.

She struggled, but referring to the steps we completed together helped her try to answer it correctly. When she remained uncertain, I reassured her like a coach. We read the problem together: "Molly's friend, Xavier, also has 11/8 cups of strawberries. He needs 3/4 cup of strawberries to make a batch of tarts. How many batches can he make? Draw a model to support your solution" (Great Minds, 2015, p. 46). Student 1 looked at me and said, "How am I supposed to know?" I rewrote the problem, using a more

relatable scenario: "You have 11/8 pieces of a candy bar. You need to break the candy bar into 3/4 servings. How many servings will you have?" Student 1 had more of a connection to the words in this version of the problem and began to work (Figure 4.5).
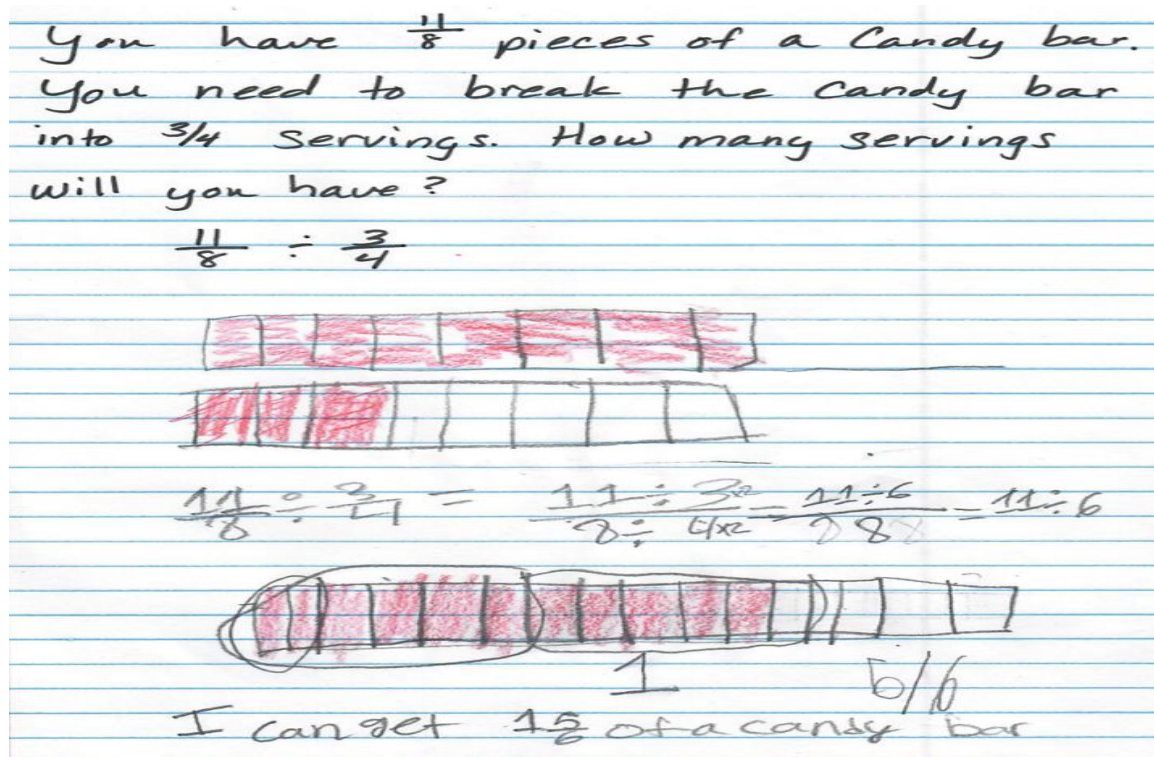
Figure 4.5 *Student Work for Module 2 Lesson 4*

When I realized Student 1 was still struggling, I began to coach her back to the steps we took for the previous problem. She noticed both problems contained the fraction 11/8 and was able to draw appropriate tape diagrams, but she became frustrated because she needed to divide by 3/4 instead of 3/8. I reminded her that we discussed how to create an equal denominator. As she tried to remember what to do, I coached her to think about making the denominators the same, asking, "How would we do that? What should we do to make them equal?" She lit up and said, "We must multiply the 4 by 2 to make an 8." Excited and happy for her, I told her she was right.

Next, I reminded her there was another step she must do. I started to say, "Whatever you . . . ," and she interrupted, "Whatever I do to the bottom, I must do to the top." I responded, "Correct!" Student 1 continued to work out the problem and eventually rewrote it as 11 ÷ 6. As I watched her struggle to draw the number line, I retrieved some candy bars and asked her to break them into 11 pieces and divide the pieces into groups of six. Physically sorting the candy enabled her to see how to solve the problem, which she finished on her paper.

Once Student 1 successfully completed the math problem and overcame the difficulty, we talked about how she sees herself and her math ability. I told her I noticed she had really struggled. She explained, "Math is just too hard, and I don't get it." I then asked if the problem was too hard after we walked through the steps, and she said, "No, but that's how you teach it. Not every teacher teaches like that." I asked if she felt math would be easier if someone broke the problem down into manageable steps that she could repeat. She said, "Yes." I explained that she could break each lesson or standard down into manageable, coachable steps that are easy to repeat. Throughout Week 2, I observed the benefits of the physical–kinesthetic aspect of math. Being able to manipulate objects helped students solve the problems and understand the math.

During Week 3, I continued to have individualized discussions about math with Group X, breaking problems into meaningful, relatable explanations. I also introduced the action plan template to facilitate goal setting and positive intentions (Appendix B). As I explained in Chapter 3, I designed the template using principles of self-determination to increase students' intrinsic motivation to succeed in and out of school. My interactions with Student 6 illustrate how students responded to the activity.

When I sat with Student 6 and asked what her goal was, she gave me a quizzical look, like she had no idea what I was asking. Students are often told what their achievement goals should be instead of being asked to set their own goals, so I restated my question by asking, "What is something you would like to be good at in school?" Student 6 thought for a moment and responded, "I would like to get good grades." I smiled and let her know it was a good goal. We discussed what the goal of getting good grades means to her and what effect attaining it would have on her. She replied, "If I got good grades, I would be able to go to a college I want to go to and play basketball." We each wrote the goal on a copy of the template (Appendix B). Figure 4.6 shows my copy.

Student Goals and Positive Intention

My Goal
My goal is to get good grades.

3 positive things about myself.
1. I am happy.
2. I am nice to people.
3. I am athletic.

Daily Positive Intention
Say the sentence below twice a day or more as needed

Math is easy for me. I can solve any problem.

Figure 4.6 *Action Plan for Student 6*

When we moved to the next section, Student 6 had a difficult time identifying positive things about herself, unsure what to say or what I meant by this request. I began to coach her into expanding her thoughts by saying, "It can be anything, such as a physical quality or how you interact with others or your abilities." As Figure 4.6 indicates, Student 6 responded, "I'm always happy; I am nice to other people; and I am athletic." Seeing these words on paper changed her demeanor from uncertainty to pride. Looking at the pride in her face, I could tell she does not get a lot of positive attention in school. For a teacher to see positive qualities in her clearly made her feel good.

Finally, we discussed the value of daily positive intentions. I guided Student 6 to focus on a math intention, given her deep feelings of dislike. After a brief discussion, we decided on "Math is easy for me. I can solve any problem." I explained that our minds listen to everything we say. If we say we cannot do something, our brain and body will believe us and struggle to accomplish the goal, but if we say something is possible and phrase it in a positive manner, our brains and body will continue to attempt the goal until we reach it. During Week 3, the students gave me a chance to see into their mental state about their insecurities and strengths. This view allowed me to see how the students see themselves compared to the facade they present to the rest of the world.

Building from this knowledge, in Week 4, I touched base with Group X to see how they were feeling about math. Some comments resembled those found in Figure 4.3, such as "It's hard," "I still don't really get it," and "I wish we didn't have to do it." However, other comments indicated a change: "It's still hard, but it's getting easier," "I'm getting a little better at this," "The notes we take are helping," and "If I focus and work harder, I will do good." Hearing some positive comments about math was reassuring, but I sensed the students needed to invest a lot of hard work in their understanding of math to truly excel at it.

During Week 4, the students continued to work on solving math problems using the steps they had practiced in Weeks 2 and 3. As the students applied what they had learned to new math problems, they helped each other. For example, some students reread the problems to each other, pointing out key words for solving them. Others tried to reword the problems for their peers, as I had done with the candy bar example. The students worked as a team and encouraged each other.

As the students coached each other, I pulled individual students to review their action plans. My experience with Student 3 illustrates this process. I began by asking him how he was. He replied, "I'm all right, Ms. Ramirez. I'm just tired. I didn't sleep a lot last night. I was up all night playing video games, and I didn't want to get up this morning." I smiled because his honesty is always so refreshing. When I asked how he was doing with his goal and intentions, he sheepishly looked away, not wanting to make eye contact, before loudly stating, "I'm just gonna be honest, Ms. Ramirez. I lost it and have no idea where it is." I reassured him that I could give him a copy or we could make a new one.

With a fresh template, Student 3 asked if his goal had to be school-related. Consistent with my plan in Chapter 3, I said, "No, it can be about anything." As Figure 4.7 shows, he decided on a goal to be a great basketball player. I praised his goal and coached him to elaborate on his plans. He replied, "Aww, Ms. R., you know you have to practice to become great!" I laughed and agreed, saying, "Kinda like you have to practice to become great at math." Student 3 thought for a moment, looked at me, and said, "Yeah, I guess you're right. If you want to be great at anything you have to work at it." I responded, "Exactly, so to be great at math, you need to practice."

Figure 4.7 *Action Plan for Student 3*

When we continued to the next section of the template, Student 3 stated that identifying positive things about himself was "easy since I know what you're talking about this time." He complimented himself for being an athlete, being funny, and being good at video games. Given the chance to list a fourth item, Student 3 said he would add that he is kind and nice.

The last part of the sheet was a little harder for Student 3, who was unsure how to phrase what he wanted to say. I ask him to tell me what he was thinking so I could help him write it. He said he wanted to be the greatest person and athlete. I took in his words and echoed, "You want to be the best person in the world who is fantastic in sports and can do anything!" Student 3 replied, "YES! Ms. R., that's it." We both wrote the intention so Student 3 could take a copy and I could keep a copy. I repeated this process with all the students in Group X.

Week 4 also included the mid-module assessment, which prompted some groans and complaints. Students questioned why they had to take the test. When I asked why they were upset about the assessment, they responded almost in unison, "Because we can't do it; it's too hard." I took a deep breath and replied, "You all have been working really hard to understand fractions and decimals. You have learned and practiced the steps every day. You have helped each other understand how to do the problems using the proper steps. You are capable." I continued to coach the students toward positive thinking by reminding them, in student-friendly language, that "excessive negative self-reflecting or mental rumination can interfere with cognitive performance" (Perrone-Bertolotti et al., 2014, p. 221). To push them past belief perseverance, I reiterated how we had spent weeks practicing positive intentions and switching the way we think, adding,

This is where you really have to put what you have learned about positive

intentions into practice. When you think about taking the mid-module assessment,

tell yourself you will do well, you will be successful, and it will be easy.

The students were still a little resistant, but they agreed to try to their best on the

assessment and believe in themselves.

As I administered the mid-module assessment, I reminded the students to work

slowly, read what each question was asking, and rehearse the techniques and steps they

had learned and practiced over the last several weeks. I also invited them to ask me any

clarifying questions at any point. While they worked, I circulated to observe. Some

seemed to struggle with some of the questions, but others seemed to recognize they had

done similar problems during the unit. When I noticed students were becoming frustrated

with a question, I had them stop, breathe, and recite their positive intentions to reduce

their anxiety and stress. I also prompted them to think back to the steps they had

practiced and look for any parts of the problem they recognized. Wanting them to

visualize the problem in their heads, I encouraged them to use manipulatives if needed.

When the students finished the assessment, I could see a wave of relief wash over

them as they released the stress they were feeling. Many students admitted the assessment

was not as hard as they thought it would be. Some were anxious to see their scores, while

others still lacked confidence in themselves and were not ready to see what they got. I

discuss the assessment results later in the chapter.

In Week 5, lessons moved from fractions to solving division problems involving

decimals. This shift prompted some students to revert to a negative attitude. I reminded

them how they felt about fractions in the beginning and how by practicing and breaking

the problems into easy steps, they were able to understand how to solve the problems.

The students agreed, yet the lessons also required using multiplication skills, which

frustrated them. I offered to show them how to break multiplication into small chunks. I

began by introducing a multiplication algorithm, which overwhelmed them until I broke

it into manageable pieces of information. I explained that the algorithm would take

multiplication back to the basics no matter what number they were multiplying. As

Figure 4.8 illustrates, we started at 1 and multiplied it by the number in question, 19,

writing 1 x 19 = 19. Moving to 2 x 19, we simply added 19 + 19 to equal 38. This

procedure of adding 19 to each previous answer continued until we multiplied 10 x 19.

The algorithm thus became a multiplication table we could use to answer the problem.

When the students saw they could figure out the answer in an easier way, they relaxed.

Figure 4.8 *Math Coaching Notes for Module 2 Lesson 13*

Continuing to coach the students, I prompted them to use the multiplication chart to solve the division problem of 70,072 ÷ 19. We began with an estimate by rounding 70,072 to 70,000 and 19 to 20, resulting in a new problem of 70,000 ÷ 20, which I pushed the students to break down even further. The students looked at me quizzically, so I explained we could keep the 70,000 but break the 20 into smaller, more manageable pieces. When I asked them to recommend what would be easy, multiple students suggested 10 x 2, and I smiled. We rewrote the problem as 70,000 ÷ 10, and students identified the correct answer of 7,000. Excited, I reminded them not to forget about the 2. The students responded, "Oh, yeah," and we took our answer of 7,000 and divided it by 2, arriving at the answer 3,500. I praised the students for their correct answer and reiterated that it was our estimate for 70,072 ÷ 19.

To figure out the actual answer, we used the multiplication table we had created with our algorithm. The first step was determining how many times 19 can go into 70. From the table, we noticed 19 could go into 70 three times without going over 70. The students noted the answer was easy to find using the table. I was excited to see them recognize that a little extra preliminary work made solving the overall problem a little easier. As Figure 4.8 shows, we subtracted 57 from 70, which equals 13. Knowing 13 cannot be divided by 19, we brought down the 0, creating a new math problem of 130 ÷ 19. Looking at the table, the students noticed we could divide 130 by 19 six times. Because 19 x 6 = 114, we subtracted 114 from 130, which equals 16. Students recognized 19 cannot go into 16, so we brought down the number 7 to create another division problem: 167 ÷ 19. The students saw that 19 could go into 167 eight times. Because 19 x 8 = 152, we subtracted 152 from 167 to arrive at 15. Once again, 19 could not go into 15,

so we brought down the 2, and the new number to divide became 152. The students, excited to realize they had just solved for the answer, started to yell, "We can divide it by 8!" I echoed their enthusiasm and asked, "Are we done?" They looked at the problem and confirmed there were no longer any numbers to divide 19 by. Finally, we compared the actual answer of 3,688 to the estimated answer of 3,500 and determined they were within 200 of each other. In other words, 3,500 was a good estimate.

While the class practiced these new skills, I pulled individual students to discuss their action plans. I noticed they seemed excited to share how they had been using their positive intentions. Some students reported looking at the paper every day, even multiple times a day. They found the sheet comforting and reassuring and considered it something easy to work toward. Students also felt good about being able to change their goal if they attained it or if it no longer appealed to them. The students also reported feeling better about themselves. However, other students admitted they had not been as faithful in following through with their daily intentions and occasionally misplaced their sheet. I reassured them and reminded them they could always get a copy from me or rewrite their action plan any time. In such cases, I encouraged students to fill in the sheet on their own, providing help when needed. Students noticed the exercise became easier; they were able to write more positive items about themselves. They were smiling and happy.

In Week 6, the students progressed to working independently, both when exploring math concepts and reviewing their action plans. As needed, they took a sheet and wrote their own goals, positive aspects, and intentions. They appeared to be at ease with completing the plan, as though it had become part of their routine.

To prepare for the end-of-module assessment, I directed them to review problem sets from each lesson with each other, using the strategies and techniques they had learned to solve the problems. Students 1, 3 and 6 were especially impressive in this regard: they reviewed some of the math concepts with which they had struggled and quizzed each other on math problems that might be on the assessment. As they worked, they referred back to the step-by-step approaches and began to coach each other in how to use them on each problem. That students could recognize how to solve each problem and what strategy to use was a good sign. They also asked each other good questions to clarify their misunderstandings of the problems and identify what they needed to understand. In the past, students never asked for help in such a way. Rather, they tended to display a fixed mindset by attributing their struggles to their inability to understand math. Hearing students communicate with each other and take over the role of coach showed not only the growth in their math skills but also the growth in their ability to believe in themselves.

The other students in Group X asked if they could have a review session with me to clarify what they did not understand. Witnessing the students' taking proactive steps to prepare for the assessment showed me they were moving toward self-determination and a growth mindset. I could see that they wanted to do well on the assessment and were enacting clear strategies to prepare for it. Overall, Group X approached the final assessment with a positive outlook. I noticed them looking for questions they understood easily and gradually moving to the more difficult problems. I also saw them writing little notes to help themselves solve the problems. Some asked if they could use their action

plans to help them refocus themselves. They showed confidence in themselves and their abilities as they worked and when they turned in their assessments.

Presentation of Findings

After the 6-week intervention concluded, I looked across all the information I gathered to evaluate students' progress. Consistent with Research Question 1, I hoped to see growth in their mathematical performance through the assessment data. Consistent with Research Question 2, I also evaluated their progress more holistically through my other data sources, hoping for evidence of self-determination and growth mindsets.

Assessment Results

Before I began Module 2, students took the mid-module assessment to establish a baseline for their performance. After I facilitated lessons that incorporated coaching techniques and step-by-step procedures for solving the math problems, students used the skills, strategies, and techniques they had learned and retook the mid-module test. Comparing data from the pre-module and mid-module assessments revealed any growth in student achievement. Based on the district's scale, scores of 85–100% are considered advanced, 70–84% are proficient, 55–69% are basic, and 54% and below are below basic.

The initial results from the pre-module assessment showed students did not have a secure understanding of the math standards related to the multiplication and division of fractions. All Group X students scored in the below basic area. However, after lessons on goal setting and positive intentions, the mid-module results revealed considerable progress (Figure 4.9). The majority of Group X placed in the basic category, a few points away from being proficient, which was a huge boost to their pride. In fact, Student 1 went from below basic to proficient, which inspired her to push herself to do even better.
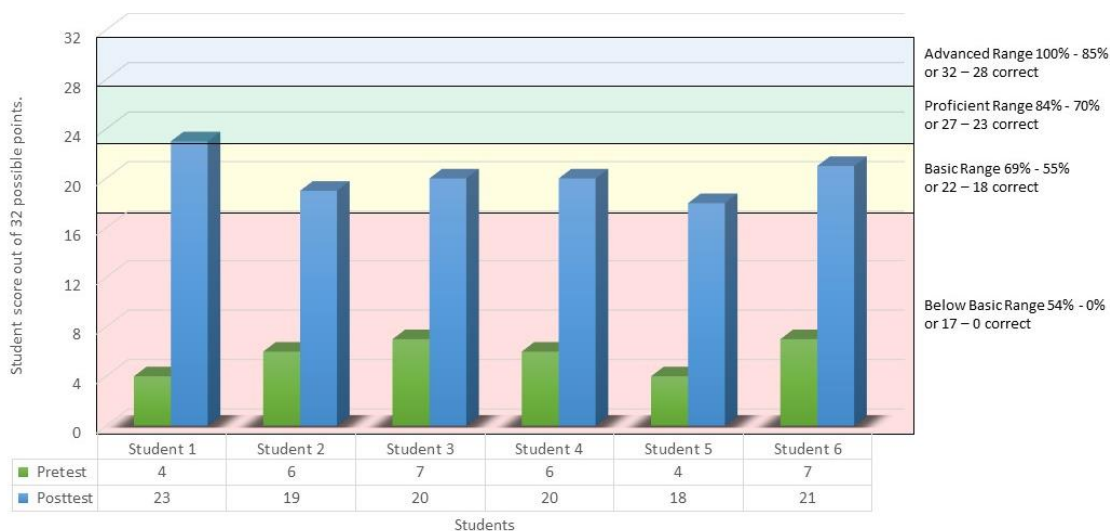
Figure 4.9 *Mid-Module Assessment Results*

In alignment with Research Question 1, comparing the baseline and mid-module results revealed students were beginning to understand division and multiplication using fractions. With additional practice, I knew students in the basic zone could easily reach proficiency. The results also gave the students confidence in their success with math.

As in the first half of the intervention period, the students took an end-of-module pre assessment as a baseline for the actual end-of-module assessment. Using the district scale, the initial results again showed Group X scoring far below basic. Understanding what the students understood and more importantly did not understand gave me a road map to coach the students to success, and on the actual end-of-module assessment, they applied the step-by-step procedures we had practiced. Comparing the pre and post results showed considerable growth in students' understanding, in alignment with Research Question 1 (Figure 4.10). Student 1 went from scoring below basic on the pre assessment to advanced on the post assessment. Students 3, 4, and 6 went from below basic to proficient. Students 2 and 5 went from below basic to basic, only one and three points away from the proficient range. Nevertheless, all Group X students demonstrated growth.
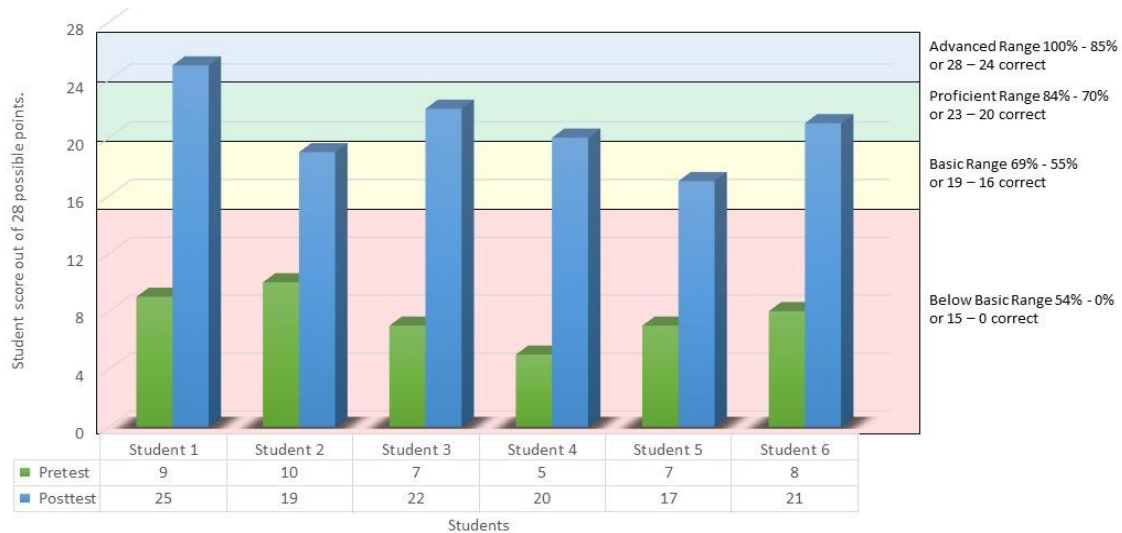
Figure 4.10 *End-of-Module Assessment Results*

To further reflect on the students' growth, I used the district's grading scale to determine that a majority of Group X moved up a percentage band (Figure 4.11). Student 1 went from proficient on the mid-module assessment to advanced on the end-of-module assessment. Students 3, 4, and 6 moved from basic to proficient. Students 2 and 5 stayed in the basic band but made growth. Again, Student 2 was one point shy of the proficient band, and Student 5 needed three more points to reach proficiency.
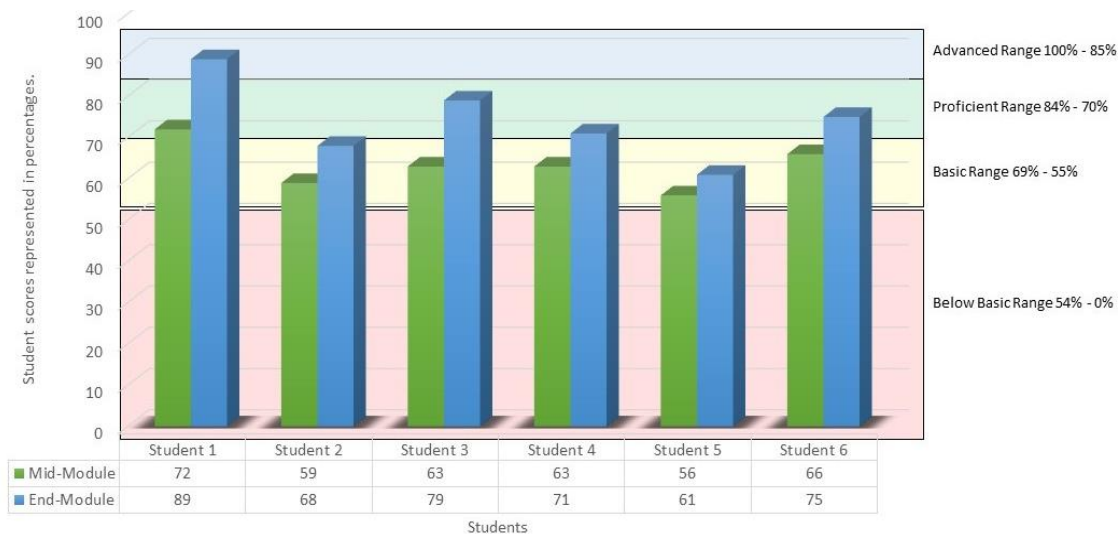
Figure 4.11 *Mid-Module and End-of-Module Assessment Comparison*

After looking at both the mid-module and end-of-module assessments, I wanted to see how the students in Group X scored in relation to other students, and I noticed the students in Group X performed higher than their classmates (Figure 4.12). On the mid-module assessment, no one in either group scored in the advanced range, yet 17% of Group X demonstrated, whereas only 5% of the other students did. Moving to the basic range, a majority of Group X (83%) reached this level, while 43% of their classmates did. Conversely, 52% of the students outside of Group X scored below basic, whereas no students in Group X scored in this range. These findings suggest coaching Group X helped them focus and internalize the lessons during the first half of the math module.
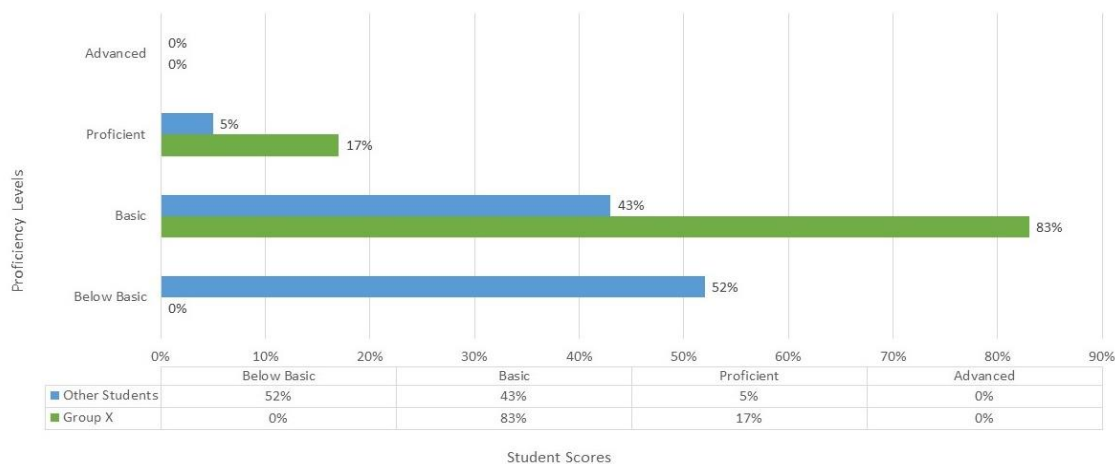
Figure 4.12 *Mid-Module Assessment Class Comparison*

The end-of-module assessment was significantly more difficult for all students, as evident in their struggle to answer the questions. As Figure 4.13 shows, although 17% of Group X scored in the advanced range, none of their classmates did. The results also showed 50% of Group X in the proficient range, compared to 10% of the other students, and a third of each group in the basic range. Lastly no students in Group X scored in the below basic range, but a majority (57%) of their peers did. These results suggest that

even though this assessment was more difficult, Group X was relatively successful, scoring in the basic to advanced range. The students in Group X were able to use the skills and strategies they had learned from my step-by-step instructions.

Proficiency Levels				
	Below Basic	Basic	Proficient	Advanced
Other Students	57%	33%	10%	0%
Group X	0%	33%	50%	17%

Student Scores
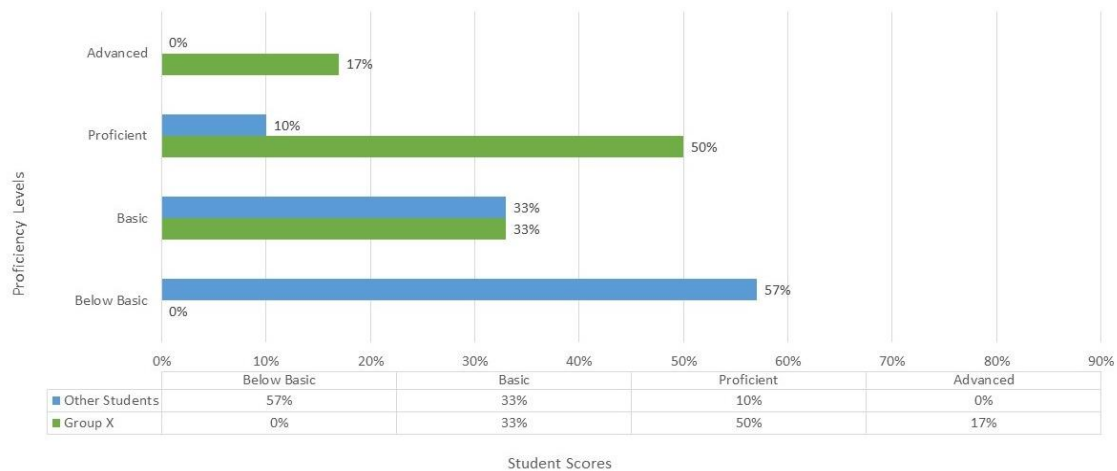
Figure 4.13 *End-of-Module Assessment Class Comparison*

Although I wanted to compare the mid-module and end-of-module test results to those of other classrooms, I learned that none of my grade-level colleagues and I administered or graded the assessment in the same manner. Nevertheless, evidence of growth and achievement from my classroom comparisons between the mid-module and end-of-module assessments suggests the coaching techniques, goal setting, and positive intentions made a positive impact. Group X implemented what they had learned by coaching other students, which deepened their own understanding. This new ability to coach other students suggests growth in their ability to implement the math standards by solving problems independently, in alignment with my first research question.

Insights From Observations

Working with six students in a small group versus 26 students in a whole group gave me the advantage of collecting observational data on a personal level. I could listen

to conversations among Group X about their struggles and accomplishments. I was also able to watch how the students solved the math problems using the coaching techniques they were learning. Some of the greatest insight I gained was observing how the students saw themselves. As Figure 4.14 illustrates, students used soft, barely audible tones to express how they were stupid, dumb, never going to get the problem right, etc. This negative self-talk reinforced their or fixed mindsets; demonstrating belief perseverance, they were stuck on the idea that they were not capable of succeeding in math.
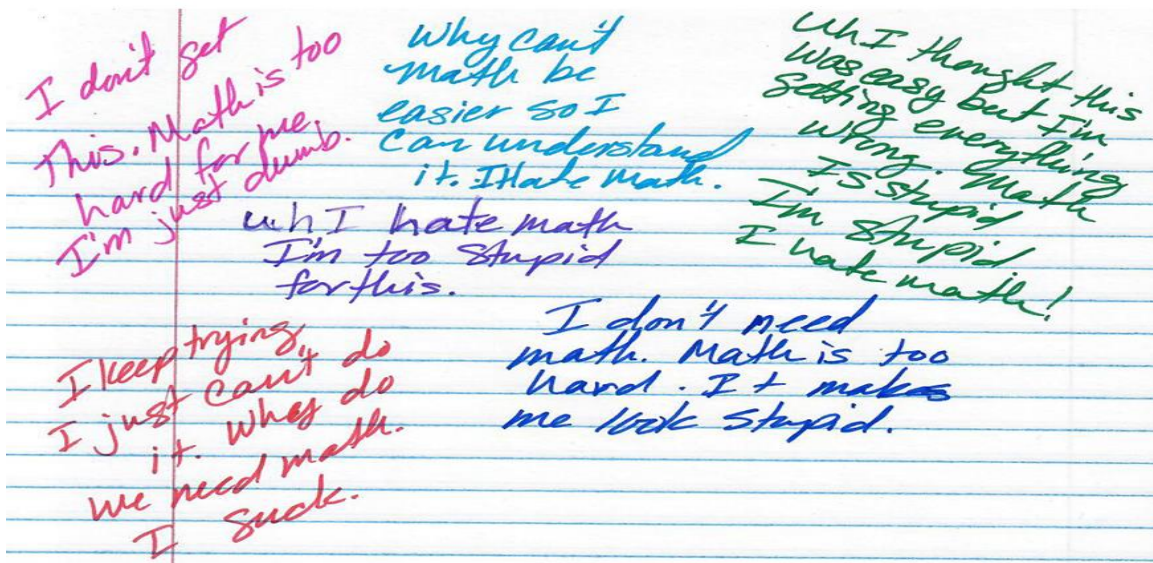
Figure 4.14 *Students' Negative Mindsets*

Another key observation revolved around how students implemented coaching steps, goal setting, and positive intentions. For example, Student 2 was generally a quiet student who always seemed to have low self-esteem, especially in math. Prior to my study, he hid his inability to do math by joking, but during the intervention, he embraced the use of positive intentions, which shifted his set beliefs or fixed mindset toward self-determined growth. When he struggled to solve a problem, he would pause, take a deep breath, and recite his positive intention, as shown in Figure 4.15. This exercise tended to

ground and refocus him. Student 2 would then refer to the coaching steps I provided to break the problem into manageable steps that he could comprehend.

Student Goals and Positive Intention

My Goal
My goal is to do good in math.

3 positive things about myself.
1. I am funny.
2. I am able to make people happy.
3. I am good cooking.

Daily Positive Intention
Say the sentence below twice a day or more as needed.
I am good at math. I will always do my best to answer all questions correctly.

Figure 4.15 *Action Plan for Student 2*

In the small-group setting, I could witness firsthand how Student 2 internalized what he had learned. The student used positive mantras and words to move himself toward thinking he could do the math. This mental shift aligned with my second research question. This small-group time also gave me the ability to record informal observations in my journals as witness to his transformation.

Insights From Journal Entries

The journal I kept was one of the most powerful data collection tools I used. The entries allowed me to reflect on my students' growth and my own. Just as my detailed observation record enabled me to see when students moved toward a self-determined mindset or slid back into belief perseverance and fixed mindsets, I could also see how my perception of myself moved from being a teacher to being a coach, in line with my second research question.

Reflecting on my mindset about using coachable techniques, goal setting, and positive intentions showed how these simple tools were changing the way I saw myself as

66

an educator. When the study began, I was focused on how I was going to help the students move past their set beliefs and fixed mindsets, not realizing my own fixed mindset needed to be shifted. I was stuck in a rut of teaching in a manner that was effective and efficient for moving through a lesson, but not very appealing to students.

As I began to keep notes about the students and how they were progressing, I also began to document my own progress. In terms of Research Question 2, being able to see my mental state grow and shift throughout the intervention period empowered me. I realized I was experiencing many of the same emotions and frustrations as my students. For example, I, too, disliked how the textbook explained solutions. I realized if the explanations did not make sense to me, they likely would not make sense to students. Activating my growth mindset, I had to figure out a way to break the math into small, bite-size coachable steps. By developing this mindset and reflecting on my notes, I was able to assess whether my coaching techniques were effective. Any evidence to the contrary gave me an opportunity to reevaluate my process and keep trying.

Insights From Artifacts

While working with students on their action plans, I witnessed significant growth in all of us. When we started with the exercise in Week 3, we did not understand how the simple action of surrounding ourselves with positivity would change the way we think and function. That first week was difficult because students struggled to express clear goals or find positive aspects about themselves. As the weeks progressed, students gained a better understanding of my expectations for the template and began to dig deeper into who they are and how they feel about themselves.

For example, they started choosing more meaningful goals, focusing on small, easily attainable aims or future goals that kept them motivated. The positive aspects they identified also seemed more meaningful—and therefore more likely to increase how they saw and presented themselves. To illustrate, Figure 4.16 shows how Student 5 chose a goal of becoming a real estate agent. He explained, "This is what I want to be when I grow up. If I focus and work hard in school, I will be able to reach my ultimate goal of being a real estate agent when I grow up." I liked how he looked past the small goals of school to see the larger picture of goal setting. In terms of Research Question 2, this example shows how over time, the student was able to apply what he learned about goal setting to life goals.

Student Goals and Positive Intention

My Goal

I want to be a realeste ageuht

3 positive things about myself.
1. I'm smart
2. I'm loving
3. I'm king

Daily Positive Intention
Say the sentence below twice a day or more as needed.

I am beutiful and full of love with no worries. I'm going to have a great day!

Figure 4.16 *Action Plan for Student 5*

Summary

This chapter expressed how coaching techniques helped students move past their belief perseverance and toward self-determination to improve their education and lives. Breaking math problems into coachable steps enabled students to build confidence in

themselves and their abilities, and the action plan exercise gave them a chance to see positive characteristics about themselves. Presenting these results also gave me an opportunity to reflect on the progress I made with the coaching techniques. At the same time, I was able to see where my research fell short. In Chapter 5, I use these insights to express my next steps as a practitioner.

CHAPTER 5

IMPLICATIONS

During this study, I attempted to shift my students' belief perseverance in math, ultimately hoping to see an increase in their self-determination to excel in math, school, and life. To make this shift a reality, I used coaching techniques to break math problems into easy steps that the students could replicate independently. While gaining a new understanding of the math standards through this coaching, the students also learned how to incorporate goals and positive intentions in their daily routines to foster self-confidence and motivation.

In this chapter, I reflect on the research that helped me build a foundation for my study and how my implementation of specific insights influenced student achievement and growth during the intervention period. I also discuss how conducting action research influenced me as a teacher in the learning environment. Finally, I share thoughts about how to improve my research design and recommend some next steps for myself and other teacher researchers.

Reflection on Existing Literature

The research I reviewed in Chapter 2 established the road map of my study. On reflection, my findings, for the most part, followed patterns that appeared in many of the articles I read. If given the chance, "students tend to learn better and are more creative when intrinsically motivated" (Niemiec & Ryan, 2009). Intrinsic motivation makes students more independent and willing to make mistakes that will lead to clarifying

learning opportunities. For example, when Student 3 struggled to solve a problem and became extremely frustrated about not understanding where he went wrong, instead of giving up and stopping working, Student 3 turned to Student 4 and asked him to walk him through how to solve the problem.

However, one unexpected issue I encountered was students' backsliding—reverting to belief perseverance and fixed mindsets. The students were able to shift their mindsets as long as I continued to provide external stimulation. While I implemented the coaching tools and techniques, the students made step-by-step progress toward intrinsic motivation through self-determination, yet some students were unable to maintain this progress on their own. For example, some students seemed to find comfort in reverting to their old thought processes. During some small-group lessons, students expressed negative self-talk when they found a difficult problem that they did not remember how to solve, thus leading to a self-defeating mindset. Struggling to accomplish tasks on their own suggested the students were externally motivated (Deci, 1971). Working independently to solve the math problems caused them to question their abilities again. The students needed external rewards from me in the form of praise and reassurance that they were performing tasks correctly.

Additional scholarship provides insight into how to diminish such backsliding, specifically discussing growth mindset strategies for perseverance in math classrooms. Toney (2019) defined perseverance as "the drive to accomplish goals or solve challenging problems in the face of challenges and setbacks" (p. 4). Further, Toney (2019) argued, "students with a fixed mindset tend to conceive everything as a measurement of their ability and intellect" (p. 4). Seeing my students' struggles from this

71

perspective gave me new insight and understanding that the students would need to overcome cognitive difficulties attached to their emotions (Barnes, 2019). This realization reaffirmed my use of the action plan exercise to help students move past their self-manufactured roadblocks. Developing a deeper appreciation and love for who they are helped students engage in positive actions that were "inherently interesting and satisfying" (Shin & Johnson, 2021, p. 367).

Recent research also validated my approach by confirming that using coaching techniques in the classroom can enhance student learning. Tanjung and Permana (2020) expressed that coaching allows teachers to improvise, giving them a chance to uncover "students' characteristics" and giving students the "opportunity to develop their individual learning style" (p. 2). For example, after I suggested a candy bar analogy to help Student 1 solve a math problem, she realized thinking of math problems in terms of food, specifically candy, made solving them easier. Student 1 began using her snacks that she brought from home to help her solve the math problems.

Even beyond the intervention period, I saw evidence that confirmed the coaching techniques were effective. When I was trying to help Student 6 understand a word problem by using a football metaphor and actually acted out the play, she looked at me and said, "Ms. Ramirez, If you could do that with every problem, I'd be golden." Student 6 recognized that relating the work to sports (i.e., connecting to her individual characteristics and style) made understanding it much easier.

Recommendations for Practice

Having worked with students for 23 years, I have witnessed a countless number of them enter the classroom with set beliefs about their abilities to succeed. Over the years

leading up to sixth grade, students build up a lack of confidence due to past failures. In this study, discussing Group X's past failures and feelings with them gave me a deeper understanding of how much they disliked math due to believing they were incapable of understanding how to do it. Learning their thought process informed my actions.

As the action research study progressed and the students began to use the coachable math steps, I observed increased confidence in Group X. Their set beliefs began to shift from negativity to possibility, and I saw evidence of their self-determination. The students realized they might not get every question correct but always had a chance to succeed, and if they made a mistake, they knew they could go back and check for errors. They had a road map to help them successfully navigate math. I would encourage any teacher who is looking to coach their students from a fixed mindset to a growth mindset to break the lesson into easy steps.

However, during the intervention period, I noticed my susceptibility to teacher burnout, leading to "an overwhelming exhaustion" (Maslach & Leiter, 2016, p. 160). Implementing the study required more preparation than day-to-day teaching. To ensure everything ran smoothly, I had to run through possible situations that could arise for each child and envision how I would counteract any problems. I also felt like I was planning for two separate classes: Group X versus everyone else. In the future, I intend to implement the same coaching strategies of preplanning with the entire class as I did with Group X. Using the same strategies of preplanning will have a direct effect on how I introduce the process to a whole class and maintaining a routine with such a large group will require strategic planning. To avoid burnout I would encourage teachers to know their limits and understand this process will take time to implement.

Implementation Plan

Conducting this research taught me a lot of valuable information about the students and myself. I learned that we both want to be acknowledged and appreciated for our strengths. We also want to know we can mess up and be vulnerable without being attacked for our mistakes. I believe this understanding should be common among teachers and start at the lower grade levels.

Because students can be firmly set in their negative beliefs in sixth grade, I recommend starting to promote positive belief perseverance in kindergarten. Kindergarten teachers could invite their students to recognize positive aspects about themselves, from their skin color or eyes to their ability to write a sentence or locate the number 5. Celebrating small victories will give students confidence in themselves and make them want to do more to continue to feel the positive energy around them.

By first grade, students could begin to incorporate the positive intentions aspect of my intervention, putting positive vibes about themselves out into the world. The more the students recite these positive intentions, the more their brains will hear and begin to believe and incorporate it such positive thoughts. Increasing their confidence in this way would make them feel comfortable making a mistake.

Second and third grade would be an ideal time to incorporate goal setting. Students would be at the point of seeing the positive aspects of who they are, so the next step would be to focus on where they would like to go (i.e., how they would like to improve themselves) and making a plan to get there. Goal setting can be a difficult process for students to understand, so I recommend moving slowly through this part of

the plan. If a student sets a goal and does not reach it, providing time to digest how and why, as well as emphasizing the possibility of trying again, will be important.

With a solid foundation in forming positive intentions and setting goals, students would be ready to experience additional coaching techniques in Grade 4–6. They should have moved past belief perseverance or fixed mindset to self-determination, yet they may begin to struggle with harder subjects. Teaching students how to break obstacles into manageable pieces would enable them to maintain a growth mindset and solve problems for themselves as they continue in school and life.

As Figure 5.1 illustrates, I ultimately envision incorporating families and community members into this process. Incorporating these techniques at home could improve family dynamics and behavior issues. During the intervention period, parent–teacher conferences gave me additional insight into Group X that I normally would not have been able to see. Many of their parents and guardians wanted to know how to modify their student's behavior from playing in class, being uninterested, and being unfocused to actively participating in the classroom and their education. Discussing growth mindset, positive intentions, and coaching techniques during conferences and suggesting how to incorporate such strategies at home gave students an added layer of support. Similarly, inviting community members such as small business owners, firefighters, police officers, and state representatives to interact with students on a regular basis could deepen students' understanding of how they fit into their community. This interaction and understanding could help students envision goals they had not thought of before and motivate them to set goals for their future and determine the steps to attain those goals.
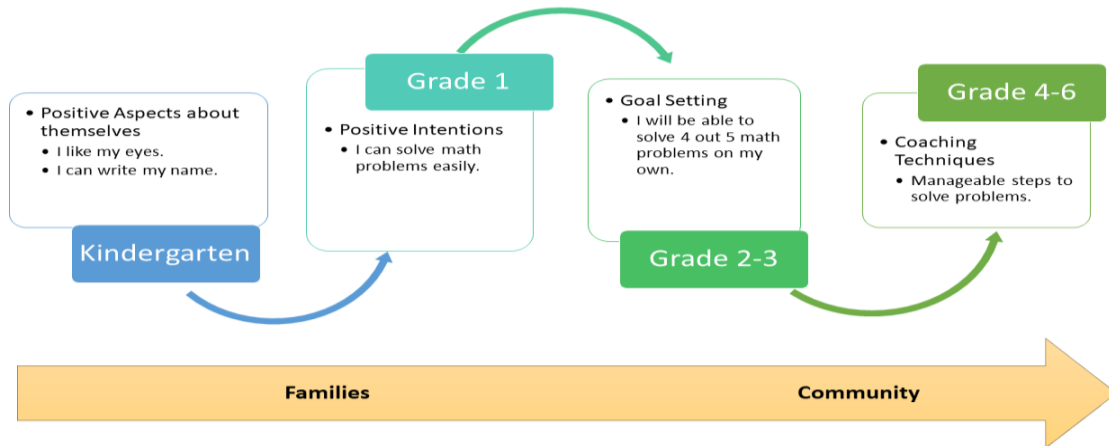
Figure 5.1 *School, Family, and Community Action Plan*

Reflection on Methodology

My study occurred in the Fall 2022 semester. I felt conducting action research at the beginning of the year would be beneficial. Students would be walking in fresh from summer vacation and learning back-to-school routines. Unfortunately, my request for district permission went unanswered for many months. When the district finally responded toward the end of September, I had to go through additional steps to finalize the paperwork, which frustrated me. I finally received approval on October 19 and began my study on October 24. This timing was not ideal, giving me limited time to process the data and truly internalize the information, but it did give me added time to get to know my students and which ones needed added support as explained in Chapter 3.

This added time also gave me a chance to review my research plan and prepare for possible challenges. Even though I imagined many different simulations and how I might respond, I was not completely ready for how the study unfolded. While collecting data, I realized I had not anticipated how fast I would have to write to take notes on each student in Group X or how messy and disheveled—almost unreadable—those notes would be at times.

76

Another oversight was how I introduced the goal setting and positive intention form. I did not realize the students would have such a difficult time understanding how to create goals or positive intentions. In hindsight, I should have created a prefilled form as an example. I also could have created a list of goals and positive intentions for students to use as inspiration. Moreover, I did not anticipate what I would do if the students were absent for parts of the lessons, coaching techniques, or assessments. Upon reflection, I should have worked out a policy of when and how to make up these lessons and assessments so students did not fall behind or miss out on anything.

Though the study did not go completely the way I envisioned it, it did work out in the end. The challenges I faced as a researcher gave me a chance to implement some of the positive intentions and growth mindset strategies with myself. Ultimately, I was able to collect and evaluate a lot of valuable information.

Recommendations for Future Research

Conducting this research gave me such valuable insight into my students and myself that I see no need to stop implementing the coaching techniques and positive intentions just because the study is over. Moving students past belief perseverance or fixed mindsets to self-determination and growth mindsets could be a game changer in schools. Incorporating coaching, goal setting, and positive intentions in a school-wide plan could foster students' self-determination mindset from the beginning of their education, reinforcing their resolution to succeed in school and in life. Continuing the research on a larger scale by incorporating several grade levels along with classified staff could change the environment of schools as a whole. Specifically, I wonder whether starting the interventions at a younger age would reduce students' struggles in school,

including behavior issues. Additionally, I wonder whether bringing families into the study could improve relations between children and their guardians and between families and school staff.

Final Thoughts

Many of my colleagues have watched me work my way through my doctoral degree, asking me why I would put myself through all the work, stress, and frustration for little or no reward. Indeed, this study pushed me to my educational, emotional, and physical limits at times. I was not sure I would make it to the end, but what my colleagues did not understand is this degree is about so much more than me.

As an action researcher, I was able to develop a coaching technique that will aid students in their educational careers for years to come. As I continue to work with all my students, not just Group X, they will continue to develop an understanding of what they need—how they need to process information—to succeed in school and hopefully in life. These students will also continue to develop a sense of who they are and create a positive belief system they can pass to future generations.

At the same time, action research was simply a way of formalizing some practices I embraced long ago. Over the years, I have had the privilege to remain in contact or reconnect with former students to see how they are progressing through school and life. The student who inspired my introductory anecdote in Chapter 1 graduated high school after losing both parents and having to move in with family members. He is currently attending a junior college in Southern California and looking into attending a Historically Black College or University. This student still contacts me to help him break assignments into manageable tasks and invites me to review his writing.

Another student contacted me on social media to express what an impact I had on her life as a child and continue to have as an adult (Figure 5.2). She mentioned that she struggled through a lot of her childhood trying to figure out who she was but I helped her push through to who she has become. This student is now in Arizona studying to become a nurse. After being part of this study, I envision similar success for Group X.
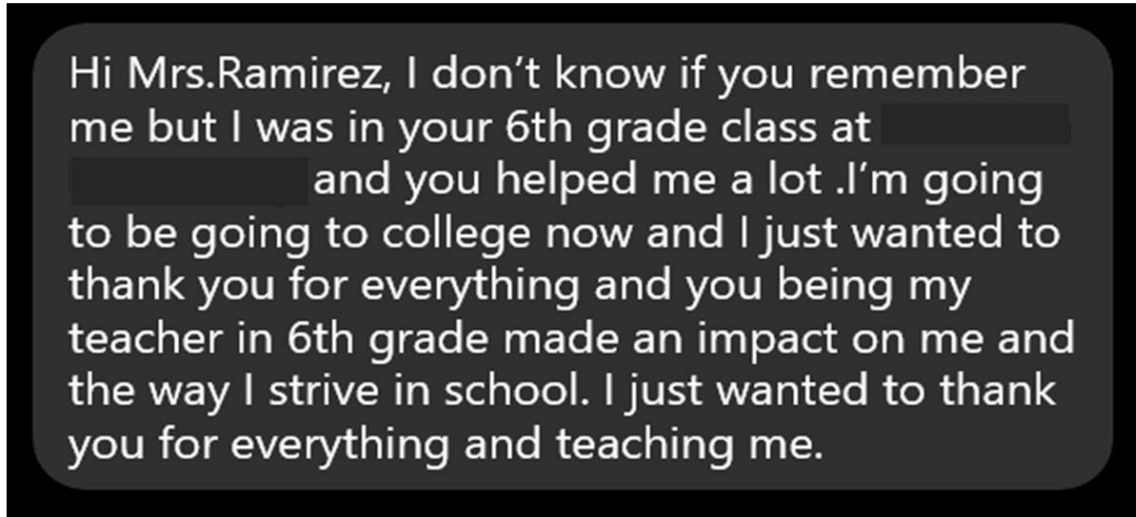
Figure 5.2 *Message From a Former Student*

Beyond Group X's experience with the interventions, watching me develop and implement this study and attain this degree has inspired students throughout my 3-year journey. They have watched me work in school right along with them, using the same techniques on myself that I use with them. They see that I am both a teacher and a student. I hope they will understand that education is never over. It continues in everything we see and do. Ultimately, like everything in my teaching career, I do this to inspire my students to be more.

REFERENCES

Anderson, C. A. (2007). Belief perseverance. *Encyclopedia of Social Psychology*, *1*, 109–
110. https://doi.org/10.4135/9781412956253.n62

Anderson, C. A., & Lindsay, J. J. (1998). The development, perseverance, and change of
naive theories. *Social Cognition*, *16*(1), 8–30.
https://doi.org/10.1521/soco.1998.16.1.8

Anderson, C. A., Lepper, M. R., & Ross, L. (1980). Perseverance of social theories: The
role of explanation in the persistence of discredited information. *Journal of
Personality and Social Psychology*, *39*(6), 1037–1049.
https://doi.org/10.1037/h0077720

Barnes, A. (2019). Perseverance in mathematical reasoning: The role of children's
conative focus in the productive interplay between cognition and affect. *Research
in Mathematics Education*, *21*(3), 271–294.
https://doi.org/10.1080/14794802.2019.1590229

Bellibas, M. S. (2016). Who are the most disadvantaged? Factors associated with the
achievement of students with low socioeconomic backgrounds. *Educational
Sciences: Theory & Practice*, *16*(2), 691–710.
https://doi.org/10.12738/estp.2016.2.0257

Brown, A., & Wilson, E. K. (2020). Classroom teaching and athletic coaching:
Connecting social positions through interrole symbiosis. *Journal for the Study of*

Sports and Athletes in Education, *15*(1), 1–26.

https://doi.org/10.1080/19357397.2020.1840239

Cascio, C. N., O'Donnell, M. B., Tinney, F. J., Lieberman, M. D., Taylor, S. E., Strecher,

V. J., & Falk, E. B. (2015). Self-affirmation activates brain systems associated

with self-related processing and reward and is reinforced by future orientation.

Social Cognitive and Affective Neuroscience, *11*(4), 621–629.

https://doi.org/10.1093/scan/nsv136

Claro, S., Paunesku, D., & Dweck, C. S. (2016). Growth mindset tempers the effects of

poverty on academic achievement. *Proceedings of the National Academy of

Sciences*, *113*(31), 8664–8668. https://doi.org/10.1073/pnas.1608207113

Curtis, R. C. (1989). *Self-defeating behaviors: Experimental research, clinical

impressions, and practical implications*. Plenum.

Dana, N. F. (2015). Understanding inquiry as stance: Illustration and analysis of one

teacher researcher's work. *LEARNing Landscapes*, *8*(2), 161–171.

https://doi.org/10.36510/learnland.v8i2.702

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation.

Journal of Personality and Social Psychology, *18*(1), 105–115.

https://doi.org/10.1037/h0030644

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human

behavior*. Plenum.

Deci, E. L., & Ryan, R. M. (2011). Self-determination theory. In P. A. M. Van Lange, A.

W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social

psychology* (Vol. 1, pp. 416–437). SAGE.

Devine, M., Meyers, R., & Houssemand, C. (2013). How can coaching make a positive

impact within educational settings? *Procedia - Social and Behavioral Sciences*,

93, 1382–1389. https://doi.org/10.1016/j.sbspro.2013.10.048

Dweck, C. S. (2010). Even geniuses work hard. *Educational Leadership*, *68*(1), 16–20.

https://www.ascd.org/el/articles/even-geniuses-work-hard

Efron, S. E., & Ravid, R. (2013). *Action research in education: A practical guide*. The

Guilford Press.

Evans, R. (2001). *The human side of school change: Reform, resistance, and the real-life

problems of Innovation*. Jossey-Bass.

Festinger, L., Riecken, H. W., & Schachter, S. (1956). *When prophecy fails*. University of

Minnesota Press.

Froiland, J. M., Oros, E., Smith, L., & Hirchert, T. (2014, January 13). Intrinsic

motivation to learn: The nexus between psychological health and academic

success. *Contemporary School Psychology*, 16, 91–100.

https://doi.org/10.1007/BF03340978

Gallimore, R., & Tharp, R. (2004). What a coach can teach a teacher, 1975–2004:

Reflections and reanalysis of John Wooden's teaching practices. *The Sport

Psychologist*, *18*(2), 119–137. https://doi.org/10.1123/tsp.18.2.119

Gee, J. P. (1989). Literacy, discourse, and linguistics: Introduction. *Journal of Education*,

171(1), 5–17. https://doi.org/10.1177/002205748917100101

Gervais, M. (Host). (2021, July 21). Dawn Staley on discipline and mental fortitude (No.

286) [Audio podcast episode]. In *Finding mastery*.

https://findingmastery.com/podcasts/dawn-staley/

Ginneh. A, (2019). Thinking critically about self-determination: A literature review.

 Journal of Social Work Values and Ethics, *16*(2), 9–17.

 https://jswve.org/download/fall_2019_volume_16_no._2/articles/9-Thinking-

 critically-re-self-determination-16-2-Fall-2019-JSWVE.pdf

Glasgow, B., & Reys, B. J. (1998). The authority of the calculator in the minds of college

 students. *School Science and Mathematics*, *98*(7), 383–388.

 https://doi.org/10.1111/j.1949-8594.1998.tb17309.x

Great Minds. (2015). *Eureka math, a story of ratios: Grade 6, Module 2*. Jossey-Bass.

Guenther, C. L., & Alicke, M. D. (2008). Self-enhancement and belief perseverance.

 Journal of Experimental Social Psychology, *44*(3), 706–712.

 https://doi.org/10.1016/j.jesp.2007.04.010

Haimovitz, K., & Dweck, C. S. (2017). The origins of children's growth and fixed

 mindsets: New research and a new proposal. *Child Development*, *88*(6), 1849–

 1859. https://doi.org/10.1111/cdev.12955

Herr, K., & Anderson, G. L. (2015). *The action research dissertation: A guide for*

 students and faculty (2nd ed.). SAGE.

Hochanadel, A., & Finamore, D. (2015). Fixed And growth mindset in education and

 how grit helps students persist in the face of adversity. *Journal of International*

 Education Research, *11*(1), 47–50. https://doi.org/10.19030/jier.v11i1.9099

Hooijberg, R., & Lane, N. (2009). Using multisource feedback coaching effectively in

 executive education. *Academy of Management Learning & Education*, *8*(4), 483–

 493. https://doi.org/10.5465/amle.2009.47785468

Lepper, M. R., Ross, L., & Lau, R. R. (1986). Persistence of inaccurate beliefs about the

self: Perseverance effects in the classroom. *Journal of Personality and Social

Psychology*, *50*(3), 482–491. https://doi.org/10.1037/0022-3514.50.3.482

Machi, L. A., & McEvoy, B. T. (2018). *The literature review: Six steps to success*.

Corwin.

Maslach, C., & Leiter, M. P. (2016). New insights into burnout and health care:

Strategies for improving civility and alleviating burnout. *Medical Teacher*, *39*(2),

160–163. https://doi.org/10.1080/0142159x.2016.1248918

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: a guide to design and

implementation*. Jossey-Bass.

Nestler, S. (2010). Belief perseverance. *Social Psychology*, *41*(1), 35–41.

https://doi.org/10.1027/1864-9335/a000006

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the

classroom. *Theory and Research in Education*, *7*(2), 133–144.

https://doi.org/10.1177/1477878509104318

Nissani, M., & Hoefler-Nissani, D. M. (1992). Experimental studies of belief dependence

of observations and of resistance to conceptual change. *Cognition and Instruction*,

9(2), 97–111. https://doi.org/10.1207/s1532690xci0902_1

Perrone-Bertolotti, M., Rapin, L., Lachaux, J.-P., Baciu, M., & Lœvenbruck, H. (2014).

What is that little voice inside my head?: Inner speech phenomenology, its role in

cognitive performance, and its relation to self-monitoring. *Behavioural Brain

Research*, *261*, 220–239. https://doi.org/10.1016/j.bbr.2013.12.034

Pritchard, R. D., Campbell, K. M., & Campbell, D. J. (1977). Effects of extrinsic

    financial rewards on intrinsic motivation. *Journal of Applied Psychology*, *62*(1),

    9–15. https://doi.org/10.1037/0021-9010.62.1.9

Reeves, S., Peller, J., Goldman, J., & Kitto, S. (2013). Ethnography in qualitative

    educational research: AMEE guide no. 80. *Medical Teacher*, *35*(8), e1365–1379.

    https://doi.org/10.3109/0142159x.2013.804977

Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and

    social perception: Biased attributional processes in the debriefing paradigm.

    Journal of Personality and Social Psychology, *32*(5), 880–892.

    https://doi.org/10.1037/0022-3514.32.5.880

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-

    determination theory perspective: Definitions, theory, practices, and future

    directions. *Contemporary Educational Psychology*, *61*, Article 101860.

    https://doi.org/10.1016/j.cedpsych.2020.101860

Ryan, R. M., Ryan, W. S., Di Domenico, S. I., & Deci, E. L. (2019). The nature and the

    conditions of human autonomy and flourishing. In R. M. Ryan (Ed.), *The Oxford*

    handbook of human motivation (pp. 88–110). Oxford.

Savion, L. (2009). Clinging to discredited theories: The larger cognitive story. *Journal of*

    the Scholarship of Teaching and Learning, *9*(1), 81–92.

    https://scholarworks.iu.edu/journals/index.php/josotl/article/view/1714

Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive

    education: Positive psychology and classroom interventions. *Oxford Review of*

    Education, *35*(3), 293–311. https://doi.org/10.1080/03054980902934563

Shen, J., Poppink, S., Cui, Y., & Fan, G. (2007). Lesson planning: A practice of

    professional responsibility and development. *Educational Horizons*, *85*(3), 248–

    260. https://eric.ed.gov/?id=EJ772517

Shin, M., & Johnson, Z. D. (2021). From student-to-student confirmation to students'

    self-determination: An integrated peer-centered model of self-determination

    theory in the classroom. *Communication Education*, *70*(4), 365–383.

    https://doi.org/10.1080/03634523.2021.1912372

Sides, J. D., & Cuevas, J. A. (2020). Effect of goal setting for motivation, self-efficacy,

    and performance in elementary mathematics. *International Journal of Instruction*,

    13(4), 1–16. https://doi.org/10.29333/iji.2020.1341a

Soken-Huberty, E. (2020, October 28). *What is social justice in education?*. Human

    Rights Careers. https://www.humanrightscareers.com/issues/what-is-social-

    justice-in-education/

Spence, G. B., & Oades, L. (2011). Coaching with self-determination in mind: Using

    theory to advance evidence-based coaching practice. *International Journal of*

    Evidence Based Coaching and Mentoring, *9*(2), 37–55.

    https://radar.brookes.ac.uk/radar/items/59c36762-42b9-432e-b070-

    04c193b48f71/1/

Tanjung, S. P., & Permana, D. (2020). Development of mathematics learning tools based

    on coaching technique to create accelerated learning revolution. *Journal of*

    Physics: Conference Series, *1554*(1), Article 012030.

    https://doi.org/10.1088/1742-6596/1554/1/012030

Thompson, G., Mockler, N., & Hogan, A. (2021). Making work private: Autonomy, intensification and accountability. *European Educational Research Journal*, *21*(1), 83–104. https://doi.org/10.1177/1474904121996134

Toney, R. P. (2019). *The effect of growth mindset strategies on perseverance and engagement in middle school math classrooms* (Publication No. 13810298) [Doctoral dissertation, Trevecca Nazarene University]. ProQuest Dissertation & Theses Global.

Vandewalle, D. (2012). A growth and fixed mindset exposition of the value of conceptual clarity. *Industrial and Organizational Psychology*, *5*(3), 301–305. https://doi.org/10.1111/j.1754-9434.2012.01450.x

Vinney, C. (2019, October 31). *What is belief perseverance? Definition and examples*. ThoughtCo. https://www.thoughtco.com/belief-perseverance-4774628

Wang, Q. (2012). Coaching for learning: Exploring coaching psychology in enquiry-based learning and development of learning power in secondary education. *Procedia - Social and Behavioral Sciences*, *69*, 177–186. https://doi.org/10.1016/j.sbspro.2012.11.397

Wei, Q. (2010). *The effects of pedagogical agents on mathematics anxiety and mathematics learning* (Publication No. 3404297) [Doctoral dissertation, Utah State University]. ProQuest Dissertation & Theses Global.

APPENDIX A

NOTIFICATION OF ACTION RESEARCH STUDY

Dear Parent/Guardian,

In addition to being your child's teacher, I am also a doctoral student at the University of South Carolina. I am conducting a self-study as part of the requirements of my degree and want you to be aware of my research aims.

I am studying how to increase student motivation through coaching skills in the classroom. With your permission, I (Shannon Ramirez) will observe your child, along with their classmates, in the classroom over an 8-week period. During this period, I will observe whether your child is self-motivated to complete assignments and participate in classroom activities. If your child is struggling with their self-motivation, I will implement coaching techniques designed to increase their motivation. I will record what I observe in a notebook but will not include any identifying information, so your child's involvement will be confidential. Your child will not be asked any survey or interview questions.

My observation notes will be kept in a secure location at ██████ Elementary School. In addition to appearing in my dissertation, the results of the study may be published or presented at professional meetings, but your child's identity will not be revealed.

I will be happy to answer any questions you have about the study. You may contact me at ███████ ████████████ or my faculty advisor, Dr. Elizabeth Currin at ████████████

Thank you for your consideration. If you would like to your child to be involved, there is nothing further you need to do. If you would prefer that I NOT include your child in my observations, please complete and return this form with your child as soon as possible.

_____

I would prefer that you not observe my child _____ in this research study.

_____
Parent Signature   Date

With kind regards,

Ms. Shannon Ramirez

Ms. Shannon Ramirez

██████████████

APPENDIX B

ACTION PLAN TEMPLATE

Student Goals and Positive Intention

My Goal

3 positive things about myself.
1.
2.
3.

Daily Positive Intention
Say the sentence below twice a day or more as needed.

Student Goals and Positive Intention

My Goal

3 positive things about myself.
1.
2.
3.

Daily Positive Intention
Say the sentence below twice a day or more as needed.