5-2023

The Effect of Goal Setting and Reflection on Student Motivation in High School Classrooms

Jodi Clark

Stephanie Moses

The Effect of Goal Setting and Reflection on Student Motivation in High School Classrooms

Submitted on May 6, 2023

In fulfillment of final requirements for the MAED degree

Jodi Clark and Stephanie Moses

St. Catherine University

St. Paul, Minnesota

Acknowledgments

We would like to thank our action research coach, Megan Olivia Hall, for all her insights, feedback, and support throughout this journey. We would also like to thank each other for holding each other accountable and making this an enjoyable experience.

Jodi would like to thank her school administration, coworkers, students, and their families for their support throughout this action research process. She would like to specifically thank her Precalculus students for their willingness to try new things. Jodi would also like to thank her parents for all their encouragement throughout the years, especially as she pursued her educational goals. Lastly, Jodi would like to thank her dog, Pippa, for being a constant source of joy in her life.

Stephanie would like to thank her administration, colleagues, students, and families for their support and encouragement throughout her action research journey. She would also like to thank her parents for their encouragement and support over the years as she has worked toward her advanced degree. Stephanie would like to thank her cats, Rex and Moe, for always being cute distractions when needed.

Abstract

This action research aimed to investigate the effects of weekly goal setting and reflection on student motivation at the high school level. This six-week intervention took place in a rural Precalculus classroom and a rural Physical Science classroom and consisted of setting goals, reflecting on goal achievement, and rating motivation levels weekly. Data was collected through the use of pre-and post-study surveys, weekly reflective journals, student-teacher check-ins, and teacher observations of off-task behaviors. Average student-rated motivation levels decreased over the course of the study. However, students did have consistently high motivation levels and were consistent in achieving their weekly goals. Research should continue on this topic by focusing on direct instruction for goal setting prior to having students set goals. Additionally, more variety in students, locations, and timing would be beneficial to eliminate confounding variables. This research can help educators better understand different ways to motivate their students.

Keywords: Goal-setting, reflection, motivation, high school

In a society built on productivity, finding the proper motivation is key. Motivation can come in many forms but typically belongs to one of two categories: intrinsic or extrinsic (Lazowski & Hulleman, 2016). Intrinsic motivation comes from within; it is the willingness to do an activity for the joy of it. For example, reading a book for pleasure, volunteering your time to help others, or learning something new for fun. In each case, the goal is not necessarily to produce something but to gain fulfillment from the task. In contrast, outside forces typically yield extrinsic motivation. Some examples of extrinsic motivation include payment for a job, competing for recognition or praise, and earning grades in school. Whether extrinsic or intrinsic, finding motivation can be difficult.

Even more challenging is motivating others. This challenge is one that educators experience frequently. While all students want to learn, many obstacles can derail their learning. No matter the distraction, teachers are responsible for managing students' progress. To promote student growth, teachers often need to find the most effective ways to motivate their students to learn (Lazowski & Hulleman, 2016). In order to motivate students, teachers need to consider the climate and culture of their classroom. There are many things teachers can do in their classrooms to motivate students including giving helpful feedback, providing students with a variety of educational tasks, having a depth of content knowledge, and building a welcoming classroom environment (Astuti, 2016).

While reflecting on current educational challenges with colleagues, we noticed a decrease in student motivation. This decline has especially been evident since the COVID-19 pandemic. While lower expectations were needed at the time, it has been increasingly difficult to return to pre-pandemic expectations. We noticed that our students did not seem as intrinsically motivated as they had been previously. Knowing the importance of student motivation, we wanted to

explore data-driven techniques to see their effects in our classrooms (a rural high school mathematics classroom and a rural high school science classroom). Through reviewing the literature, we found goal-setting and reflection as two strategies to increase student motivation. Previous studies generally looked at either goal-setting or reflection in the high school classroom but typically did not implement both strategies together. While Tucci's 2018 study found generalized goal-setting and reflection interventions helpful in her classroom, she also discussed the need for further research on these practices in a circular manner in the general classroom. By implementing our action research plan, we hope to address the question, how will the weekly process of student-set goals and reflection affect student motivation at the high school level?

Theoretical Framework

The framework of this study is centered around the theory of self-regulated learning. Self-regulated learning involves students proactively owning their learning (Zimmerman, 2008). To do so, Zimmerman (2008) suggests using monitoring techniques such as setting goals and reflection through a three-step, cyclical process. The first step has students set a goal and plan of action, the second step has students use specific strategies to track their progress, and the final step has students reflect on their achievements (Zimmerman, 2008). Zimmerman (2008) found that students who properly followed this three-step process enhanced their motivation which then carried them into a new cycle of learning.

Another theory that frames this study is Jerome Bruner's Spiral Curriculum, which is a Constructivist Theory of Learning and Cognitive Development. Spiral Curriculum involves readdressing ideas, concepts, or theories several times throughout a course, with the cognitive complexity increasing each time the content is revisited (Harden, 1999). Through this structure, Burner (1977) hypothesized that students can learn any subject at any age.

Both of these theories go hand in hand with our action research plan to answer the question: How will the weekly process of student-set goals and reflection affect student motivation at the high school level? The cyclical process described by Zimmerman (2008) is also evident in Burner's (1977) Spiral Curriculum. The nature of setting goals and reflecting weekly is also a cyclical process that requires students to self monitor and revisit their own learning and progress. This weekly process should also impact students' motivation levels throughout the study.

Review of Literature

One of the most significant educational challenges of our time is motivating students to engage with what adults consider to be valuable knowledge and essential curriculum (Hattie et al., 2020). Given the COVID-19 pandemic, Smith et al. (2021) have found limited evidence showing its effect on student motivation. As various demands seem to pull teachers' attention elsewhere, Hardré (2012) argues that educators cannot afford to undervalue the significance of supporting students' motivation to learn. Goal-setting and reflection are two approaches teachers can use to increase motivation in the classroom. Goal-setting can give value to learning tasks and connect those activities to students' purposes (Moeller et al., 2012; Cheng et al., 2019). Cavilla's 2017 study found a positive correlation between student reflection, educational performance, and motivation. By combining student-set goals and self-reflection, teachers can hope to improve their students' motivation. In this paper, we will examine the literature on how implementing student-set goals and reflection in the classroom can help to improve student motivation at the high school level.

Motivation

Definition and Purpose

Motivation is a complicated concept; however, most educators understand its importance. Hardré (2012) explains motivation as a complex, multidimensional characteristic instead of a simple, unitary phenomenon. Motivation is the driving force behind a person's actions toward their dreams, goals, needs, values, and emotions (Muenks et al., 2018). Motivation, when used effectively, can be the tool that bridges the gap between what students can achieve and what they do achieve (Hardré, 2012). By understanding and using motivational teaching practices, Astuti (2016) claims that educators can influence their students' motivation, learning, and behaviors. Hardré (2012) takes this idea further by stating that adopting student-motivational strategies can be the most rewarding investment an educator can make, having long-lasting effects on the student, the school, and the community.

A Teacher's Role in the Classroom

Many components encourage motivation in students. Some of these elements include teacher classroom behaviors, an inclusive classroom environment, content knowledge and value, various educational resources and activities, and supportive feedback (Astuti, 2016). Another technique that helps to motivate is having many different ways to connect with the students (Hardré, 2012). According to Astuti (2016), the classroom teacher plays the most crucial role in motivating students. Astuti (2016) also found that to motivate students, teachers need to have positive behaviors and relationships with students, an enjoyable and encouraging environment, and a close-knit group of learners with appropriate norms. One strategy that appears to motivate is competition; however, Wolters (2004) warns that while competition may initially increase student engagement, it will not last if the task becomes too difficult for individuals. While

considering these strategies, Moeller et al. (2012) suggest that teachers strive to direct their students toward increased independence.

A Student's Role in the Classroom

In order to increase students' independence, teachers should focus on the student's role within the classroom. When students are not invested in a learning task or lack ownership of that task, the educational exercise's worth decreases, affecting a student's motivation to engage (Moeller et al., 2012). To address this lack of investment, Astuti (2016) found that students enjoy learning experiences that involve jokes, games, fun stories, the internet, body movement through role-play, and learning in relaxed environments. Independent of what type of learning activity takes place, a student's attitude about the goals in the classroom has meaningful connections to their motivation, cognition, and achievement (Wolters, 2004). Tucci's 2018 research found that having students create their own personal goals and reflect on them leads to increased student autonomy. Cheng et al. (2019) support this finding when claiming that goal-setting is a crucial part of motivation during self-regulated learning.

Goals

Definition and Purpose

Given the role that goals can play in increasing student independence and motivation, it is vital to understand their definition and purpose. According to Travers et al. (2015), the theory of setting goals is one of the most favored and prominent theories of motivation and performance. Despite its popularity, influence, and research, goal-setting is a learning strategy often overlooked in classrooms (Moeller et al., 2012). However, Nordengren (2019) argues that well-executed goal-setting practices positively impact student results and school environments. Setting goals is defined as establishing explicit and functional objectives for performance and

learning (Moeller et al., 2012; Cheng et al., 2019). Goals help individuals be more dedicated, tenacious, and concentrated in pursuing their goals (Cheng, 2019). An effective way of setting goals is by being precise rather than indistinct, as with "do your best" goals (Travers et al., 2015; Bendikson et al., 2020).

Types of Goals

Goals come in many different forms; however, they can fall into two categories: performance or mastery goals. Goal theory suggests that students can adopt either a task-focused or an ability-focused approach depending on whether their goal is intrinsic or extrinsic (Moeller et al., 2012). Muenks et al. (2018) describe mastery-approach goals as goals that entail investigation and skill development versus performance-approach goals that show one's current abilities. Performance goals encourage a cycle of motivation based on avoiding failure since students concentrate on how their reputation will change based on their results (Moeller et al., 2012). One type of performance goal is known as personal best (PB) goals. By design, PB goals are challenging to the individual since they center around outperforming oneself (Burns et al., 2019). These goals allow students to routinely reevaluate where they are and where they would like to be (Burns et al., 2019). On the other hand, mastery goals encourage a cycle of motivation based on a deeper level of involvement that continues achievement behavior (Moeller et al., 2012).

Despite the differences between performance and mastery goals, Smith et al. (2021) highlight that both types of goals can overlap as some students may find ways to demonstrate their comprehension while increasing their understanding. A term used for performance and mastery goals when overlapping is a growth goal (Travers et al., 2015). Setting growth goals is a

way to pursue distinct, demanding, and ambitious self-referenced goals that meet or exceed a person's prior personal best (Martin et al., 2022).

Student-Set Growth Goals

According to Moeller et al. (2012), for goal setting to increase student performance, learners need to be a part of setting their own goals. In doing so, students evaluate their assessments for feedback, collaborate with their instructors to formulate aspirational yet achievable growth goals, and continually push their learning by constantly reviewing their goals (Nordengren, 2019). Student-set goals are essential since they tend to differ from teacher-set goals or objectives, even when referencing the same class (Moeller et al., 2012).

Teachers can help students set their own growth goals in many different ways. Nordengren (2019) suggests starting by having students identify their goals and set a final date for meeting them. Then, teachers can provide worksheets to students that detail the following action steps to reach their goals. The final step Nordengren (2019) recommends is having students provide evidence that they have met their goals. Similarly, Martin et al. (2022) propose that students start with clear targets that help them aim toward outperforming their previous best. Next, students should use these targets to find tasks related to their goals to keep them focused and on schedule. Finally, students should set goals within their standards and merit (Martin et al., 2022). Regardless of the process, teachers must foster a culture where goal-setting is habitual for students to be more successful in reaching their goals and learning (Nordengren, 2019).

Reflection

While setting and striving toward meeting goals, one must also monitor their progress (Nordengren, 2019). According to Cavilla (2017), reflection is a proper self-monitoring aid for students of all ages. Studies have shown explicit evidence for incorporating reflection in the

classroom (Cavilla, 2017). The reflective process can help students identify personal characteristics and growth areas (Travers et al., 2015). Specifically, in setting growth goals, students can use reflection to ensure that their goals are pertinent and distinct while guaranteeing their behaviors match their desired outcomes (Travers et al., 2015). Additionally, if students use self-reflection before setting their goals, they will help themselves set goals that allow them to progress, grow, and achieve (Travers et al., 2015).

Results of Student-Set Goals and Reflection

On Motivation

While time and resources are limited, teachers must strategically choose the most worthwhile strategies for motivating their students (Hardré, 2012). According to Hattie et al. (2020), after 37 meta-analysis studies on motivation and achievement, the best results come from mastery goals. By relating educational tasks to student-set goals, Moeller et al. (2012) saw an increase in the usefulness of the task and an overall increase in student motivation. Goal orientation theory research reinforces those findings when discovering that students who have control over their learning or feel they have power over their studies are more motivated and skilled (Tucci, 2018; Nordengren, 2019). Burns et al. (2019) also found goal setting to be a crucial motiving step between student desired goals and student achievement of said goals.

In addition to goal-setting in the classroom, reflection plays an integral part in a student-led learning environment, leading to higher levels of motivation (Cheng et al., 2019). Cavilla (2017) found reflection a robust process to help students structurally transform how they think and understand their effort and motivation. Specifically, Tucci (2018) claims that when students reflect on their educational work, their motivation, achievement, and development are

supported. Cavilla (2017) supports this claim when finding a positive correlation between reflection, motivation, and academic achievement.

On Achievement

Along with motivation, another positive outcome of student-set goals is increased student learning accomplishments (Cheng et al., 2019). According to Moeller et al. (2012), studies have shown that goal-setting affects student performance and increases achievement. In Nordengren's 2019 study, goal-setting generated gains between 18 and 41 percentile points in student learning. Cheng et al. (2019) attribute these increases in performance to goal-setting since it motivates students to allocate more time and effort to accomplishing tasks with fewer interruptions. On the other hand, when teaching reflection explicitly, students are often more motivated in their work and sustain higher levels of achievement (Cavilla, 2017). In either case, reflection and student-set goals lead to increased motivation, which promotes student performance (Hardré, 2012; Travers, 2015).

Conclusion

Future Research

Even though goal-setting and reflection go hand-in-hand, there is a gap in the research on their impacts on student motivation when combined (Tucci, 2018). It is also essential to look at how the teacher implements the goal-setting and reflection process in the classroom to find the best approach (Moeller et al., 2012). Another area for further consideration would be younger learners since researchers know less about whether goal-setting and reflection affect their motivation (Wolters, 2004).

Discussion

In order to best serve their students, teachers need to identify how to motivate them (Hardré, 2012). Research shows that despite many different approaches for motivating students, student-set goals and reflection are among the best since they require students to actively participate in their learning. As students take ownership of their educational goals and achieve them through reflection, their overall motivation and academic achievement increase. By implementing student-set goals and reflection in the classroom, teachers can aim to boost their students' motivation and achievement.

Methodology

The participants of this study came from two different teachers' classrooms. The first classroom is made up of 10th, 11th, and 12th-grade students in a Precalculus class in a rural public school. There were four different sections studied, with a total of 80 students. Of those students, 47 were female, and 33 were male. One student was in 10th grade, 60 in 11th, and 19 in 12th. There were zero students on IEPs and four students on 504 plans. The second classroom consisted of 9th-grade students in a Physical Science class in a rural public school. There were four different sections studied, with a total of 112 students. Of those students, 56 were female, and 56 were male. There were eight students on IEPs and two students on 504 plans.

This action research study used a combination of qualitative and quantitative data. The data collection tools included a pre- and post-study survey (Appendix A and B), Student Weekly Reflective Journals (Appendix C), Student-Teacher Check-in meetings where notes were taken on Student-Teacher Check-In Form (Appendix D), and Teacher Observations tallied on Teacher Observations of Student Behavior Form (Appendix E). We measured students' attitudes on motivation, goal-setting, reflection, and overall grade goal for the trimester through the pre- and

post-study surveys (Appendix A and B). At the end of each week, students reflected on their past week by answering various questions about their weekly goals and motivation level in their Student Weekly Reflective Journals (Appendix C). After reading the journals, we met with students who needed additional help with their weekly goals and kept a record of these check-in meetings on the Student-Teacher Check-In Form (Appendix D). Throughout the study, we weekly observed five minutes of student work time to see if students were displaying motivated, on-task behaviors by tallying how many off-task behaviors occurred via the Teacher Observations of Student Behavior Form (Appendix E). We did this for two weeks prior to the study, 6 weeks during the study, and two weeks after the study.

At the beginning of this action research, we first observed students for five minutes, looking for off-task behaviors. Off-task behaviors included inappropriate cell phone or Chromebook use, socializing with peers, working on something other than the assigned task, or other distracting activities. We tallied these behaviors on the Teacher Observations of Student Behavior Form (Appendix E) and noted the time and date of each observation. We completed these observations weekly for two weeks prior, six weeks during, and two weeks after the intervention.

After our initial behavior observations and prior to our intervention, we had students complete the Pre-Study Survey (Appendix A). This study included 12 questions using Google Forms. The survey was not anonymous (since we collected email addresses) because we needed the opportunity to exclude students that opted out of our data collection. We told students to be open and honest with their answers as well as our reasoning behind collecting their email addresses. The first three survey questions required students to select their hour, grade level, and teacher name. The next question required students to choose a grade goal for the trimester. Next,

students selected whether or not they had ever set grade goals. The next two questions had students share their opinions on whether setting grade goals would increase their motivation and help them achieve their grade goals. The next three questions were open-ended. The first asked students how they reflected on their learning and gave two examples to guide students. The next asked how often they reflected on their learning. The last question asked students what motivates them to try their best in class. The final survey question had students evaluate their current level of motivation on a scale from one (extremely unmotivated) to ten (extremely motivated). This survey was given during class time.

The main intervention of our study was to have students fill out their Student Weekly Reflective Journals (Appendix C). These journals were completed digitally via Google Slides at the end of each week during class time for the duration of six weeks. Each slide had questions for students to answer regarding their weekly goals and how motivated they felt. The Week One slide asked students what grade they hoped to earn this trimester, how motivated they felt in class, what their goal was for the upcoming week, what they planned to do in order to reach said goal, and how their teacher could help them achieve that goal. The slides for weeks two through six asked students if they met last week's goal, how motivated they felt last week, their goal for the next week, what they plan to do to reach their goal, and how their teacher can help. We encouraged students to relate their weekly goals to the class as they were filling out their journals in.

After each time students reflected in their weekly journals, we read their responses. We looked for students who needed additional help with their weekly goals. Whenever we found a student who needed help, we filled out a Student-Teacher Check-In Form (Appendix D) and met with the student. We tracked student information such as name, grade goal, and weekly goal

prior to the check-in meeting. During the meeting, we discussed the reason for the check-in and the next steps. Post check-in, we recorded what we, as teachers, needed to do next and what the student needed to do next. These check-in meetings were informal and often short. Many times the meeting's agenda was to remind students to set their weekly goals around class content. Other times the agenda was to address specific needs requested by the student of their teacher.

At the end of the six weeks, students completed the post-study survey (Appendix B). This survey asked for the same demographic information as the pre-study survey (Appendix A), including hour, grade level, teacher, and grade goal. The next questions asked students if they had changed their grade goal from the beginning of the study and why. The following two questions asked students their opinions on whether grade goals helped increase motivation and achieve their grade goals. The next set of questions asked students about their experience with the weekly reflective journals (Appendix C). The final two questions asked students what motivated them to try their best and how motivated they felt in this class on a scale from one (extremely unmotivated) to ten (extremely motivated). Again, this survey was given during class time, and results were collected via Google Forms.

After the study concluded, we compiled and analyzed the data in Google Sheets. Throughout the study, we compared motivation levels, goal completion, and off-task behavior counts throughout the study. We used the technology built into Google Sheets to make our figures.

Analysis of Data

This action research investigated how implementing student-set goals and reflection in the classroom affects student motivation at the high school level. The participants in this study were 80 10th, 11th, and 12th-grade students in a Precalculus class and 112 9th-grade students in

a Physical Science class. The data collected in this study included both quantitative and qualitative methods, including pre- and post-study surveys, weekly student reflective journals, teacher-student check-ins, and off-task behavior tallies. It is important to note that week three of this study was a three-day week due to fall break, with students only attending school Monday, Tuesday, and Wednesday. The following week, week four, was a four-day week, where the students attended Tuesday, Wednesday, Thursday, and Friday.

Pre-Study Survey

The Pre-Study Survey (Appendix A) acted as a baseline for our data since students took it prior to the intervention. One of the first questions asks students to set a grade goal for the course. In Precalculus, 60 students selected their grade goal to be an A (80%), 12 selected B (16%), one selected C (1.33%), and two selected D (2.67%). In Physical Science, 88 students chose their grade goal to be an A (82.24%), 18 chose B (16.82%), one chose C (0.94%), and none chose D (0%). Students could add a "+" or "-" to their grade goal; however, such additions were filed into the single letter grade for the purpose of this study.

Students were then asked if they had previously set goals around grades. For Precalculus, 70 students (93.33%) had previously set goals, but five (6.67%) had not. In Physical Science, 85 students (79.44%) had previously set goals, but 22 (29.56%) had not. After, students were asked if they thought setting a grade goal for the class would help motivate them in the class. In Precalculus, 56 students (74.67%) said "Yes," 15 (20%) said "Maybe," and four (5.33%) said "No." In Physical Science, 74 students (69.16%) said "Yes," 22 (20.56%) said "Maybe," and 11 (10.28%) said "No." Then, students were asked if they thought setting a grade goal for the class would help them achieve that grade. In Precalculus, 54 students (72%) said "Yes," 14 (18.67%)

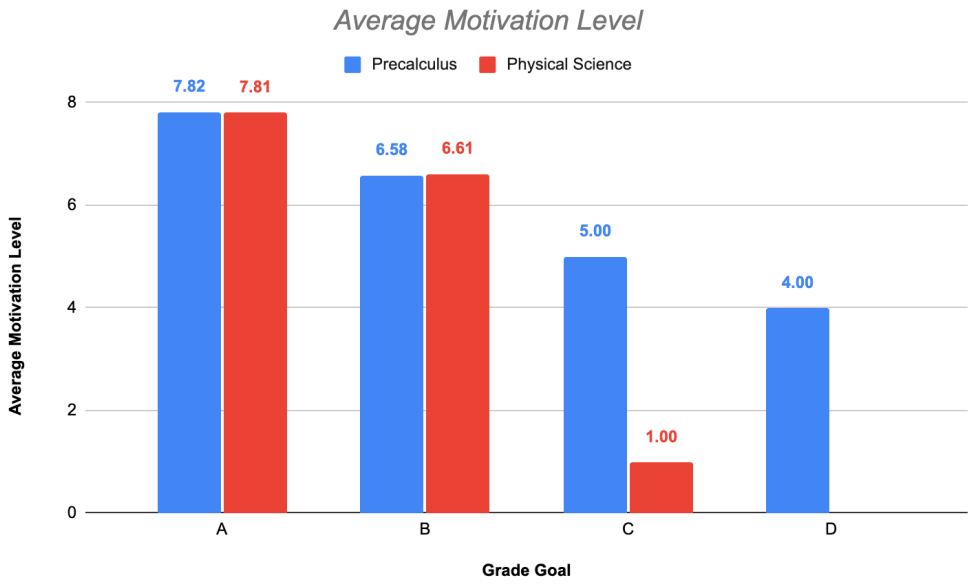
said “Maybe,” and seven (9.33%) said “No.” In Physical Science, 70 students (65.42%) said “Yes,” 28 (26.17%) said “Maybe,” and nine (8.41%) said “No.”

Students were then asked how they reflect on their learning, and the majority said by checking their grades. When asked how often students reflect on their learning, the answers varied from daily to never. Responses also varied when students were asked what motivates them to try their best in class. Some of the more common answers included: meeting a certain grade goal/GPA, family pressure, participating in sports, and on-time graduation/college acceptance.

The final survey question asked students to rate their current motivation level on a scale from one to 10. The average motivation level for Precalculus students was 7.48, and 7.54 for Physical Science students. The overall average motivation level for all students was 7.52. Figure 1 shows the average motivation level by grade goal and separated by class. Trends show that in each class, the higher the grade goal, the higher the student ranked their motivation level. It is important to note that each class had only one student set their grade goal as a “C,” therefore setting the average in this grade goal category. Likewise, only two students set a grade goal of “D” in Precalculus, and none in this category in Physical Science. Therefore, it is difficult to see the full picture of the data since the majority of students set high grade goals for themselves.

Figure 1

Average Motivation Level by Grade Goal (Pre-Study)



Student Weekly Reflective Journals

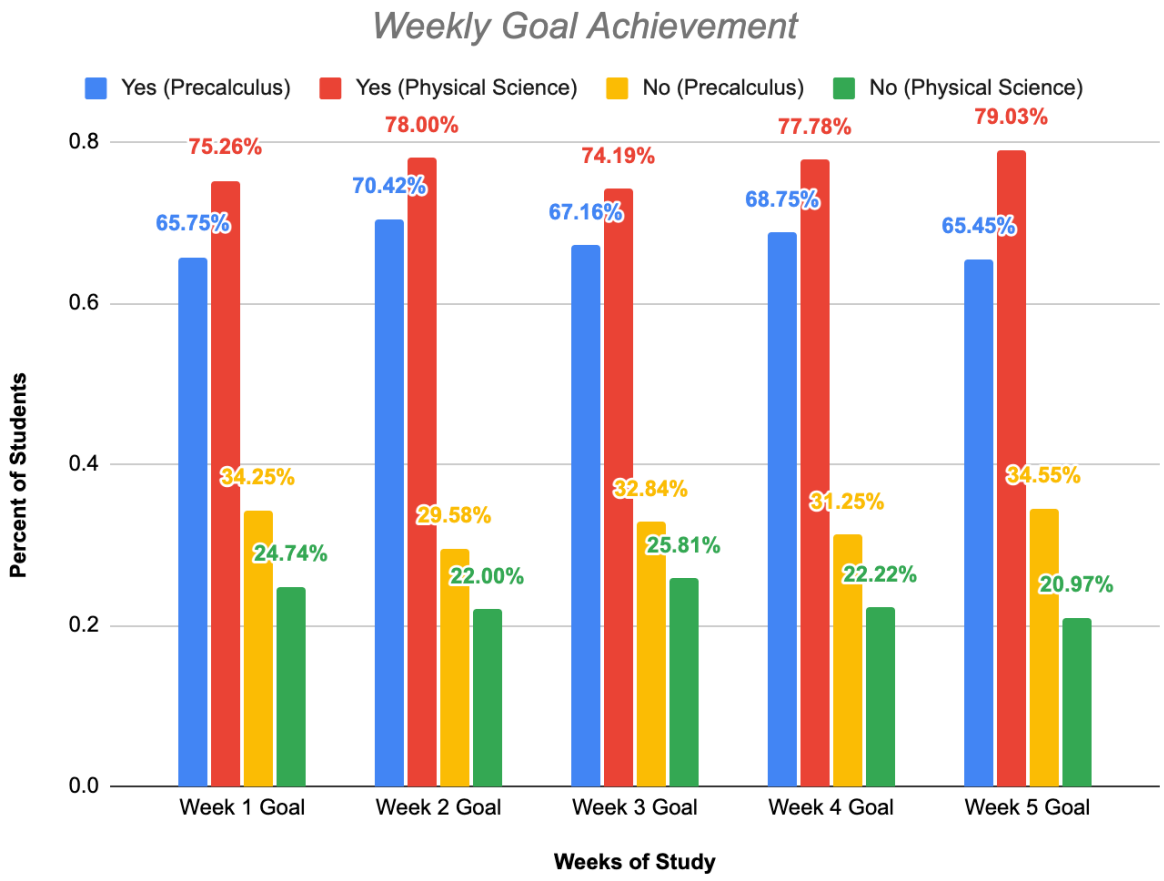
One week after students took the pre-study survey, they began the intervention of setting goals and reflecting in their Student Weekly Reflective Journals (Appendix C). Each week provided data on three main topics: achievement of the previous week's goal, determining current motivation level, and setting a goal for the next week. Data were collected at the end of each week for six weeks. It should be noted that not all students completed each week's journal entry due to absences.

The first question of each week's journal entry asked students if they met their previous week's goal, with the exception of Week one since they didn't have a previous goal set. Most students answered this question with either a "Yes" or a "No." However, some students replied with other variations that were categorized as "No," such as "Kinda," "Not Yet," and "Almost." Figure 2 shows the percentage of students that did and did not meet their weekly goals by class and the week of the intervention. Percentages were calculated based on how many students filled

in that question each week and better compared the data by classes due to the different numbers of respondents in each class. Students were overall consistent in goal achievement, or lack thereof, throughout the intervention in both classes.

Figure 2

Goal Achievement by Week of Study (from Student Weekly Reflective Journals Entries)

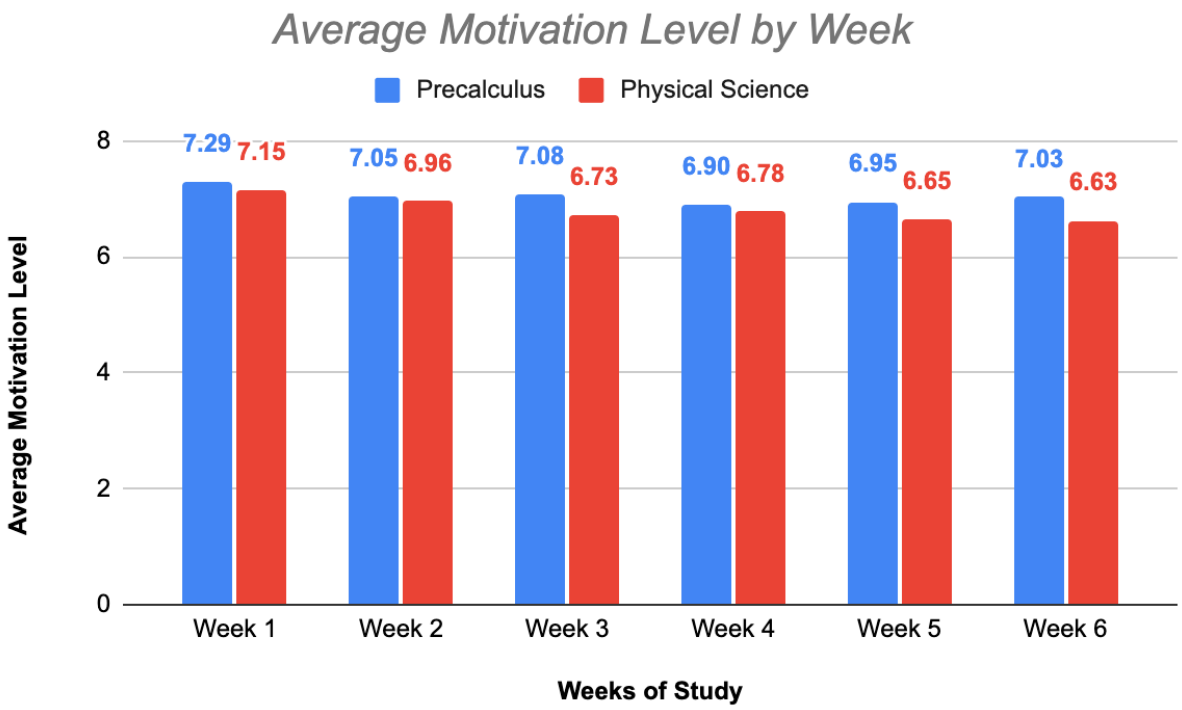


The second question of each week's journal entry asked students to rate their current motivation level on a scale from one to 10. This question was consistent in all of the journal entries, including week one. Most students put just one number for their motivation level, but some students put a range. In this case, we took the average of the range for their motivation level. Figure 3 displays the average motivation level each week of the study by class. The levels

stayed relatively consistent throughout the weeks, with a slight decrease in motivation for the Physical Science students. The Precalculus students also had a slight decrease in motivation but then increased the final week.

Figure 3

Average Motivation Level by Week of Study (from Student Weekly Reflective Journals Entries)



The third question of each week's journal entry asked students to set a goal for the upcoming week. This question was consistent in all of the journal entries, including week one. The goals were categorized into several areas by class. The most frequent goals for Precalculus were: Formative Goals, Grade on Test Goals, and Qualified Stamp Goals. Formative Goals included students wanting to do well on upcoming formative assessments or get a certain score on one. Grade on Test Goals were students setting goals around them getting a particular grade on an upcoming test. Qualified Stamp Goals involved getting above a perfect score on a formative assessment by making no mistakes and earning a special stamp. The most frequent

goals for Physical Science were: No Missing Work Goals, Increase Grade Goals, and Summative Goals. No Missing Work Goals involved students having no missing assignments for the week. Increase Grade Goals included students that wanted to improve their grade for the class. Summative Goals were about doing well on an upcoming summative assessment. Overall, many of the goals were similar in nature in both classes.

Student-Teacher Check-In

The Student-Teacher Check-In Forms (Appendix D) were filled in to collect data for any formal or informal meetings between students and the teacher regarding the weekly journals. There were three instances in Precalculus where students met with the teacher to discuss taking or retaking assessments. For the two students who were missing assessments, both made a plan and got their assessments taken. To address the students wanting to retake their assessments, there was a general reminder made about the process and deadline for retaking assessments, and 10 students chose to do so. There was one Precalculus meeting and one Physical Science meeting to remind the individuals to set appropriate goals for the class. After each meeting, both students set appropriate goals the following week. All of these meetings were short in time and happened during classwork time. In all cases, the students progressed after the meeting with the teacher.

Teacher Observations of Student Behavior

The Teacher Observations of Student Behavior Forms (Appendix E) were used to collect data on off-task behaviors. Behaviors were tallied before, during, and after the intervention for a total of 10 weeks. Figure 4 shows the number of off-task behaviors in Precalculus throughout the study. Figure 5 shows the same information for Physical Science. Both figures are broken down by week and class period, with the totals above each bar. It is important to note that there are more students in the Physical Science classes than there are in the Precalculus classes. The

figures show that the number of off-task behaviors in Precalculus is much more inconsistent compared to those in Physical Science. There was a spike in off-task behaviors in week three of Precalculus due to students having too much work time. When compared to week 10 in Precalculus, the students were very focused as it was the end of the trimester. Physical Science had very consistent numbers of off-task behaviors throughout the weeks due to having less work time, in general.

Figure 4

Precalculus Off-Task Behavior by Week and Hour

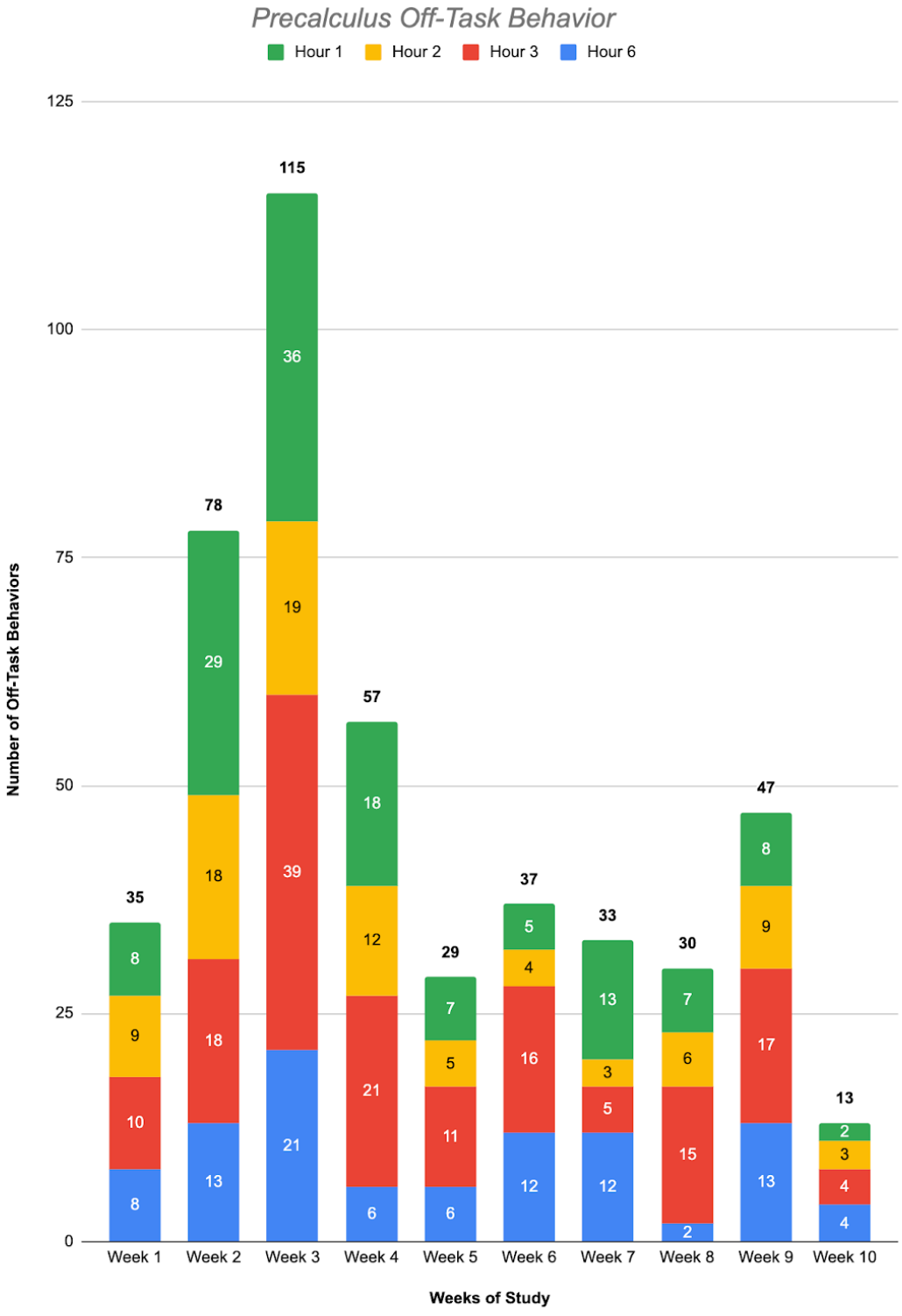
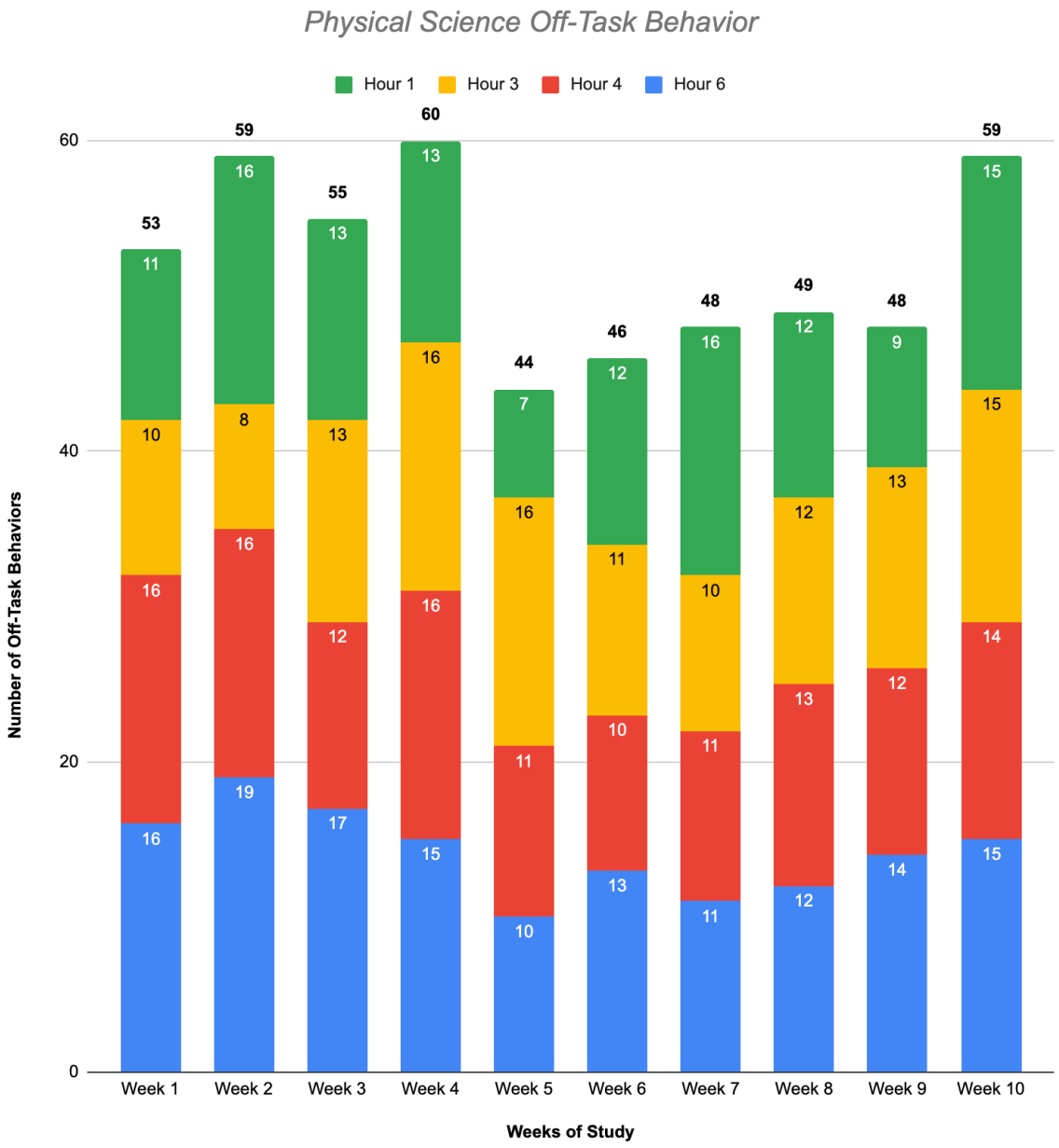


Figure 5
Physical Science Off-Task Behavior by Week and Hour



Post-Study Survey

The students took the Post-Study Survey (Appendix B) after the six-week intervention period. The first question asked students what grade they hoped to earn in the class. In

Precalculus, 47 students selected their grade goal to be an A (74.60%), 12 selected B (19.05%), two selected C (3.17%), and two selected D (3.17%). In Physical Science, 53 students chose their grade goal to be an A (65.43%), 22 chose B (27.16%), three chose C (3.70%), and three chose D (3.70%). Again, students could add a "+" or "-" to their grade goal; however, such additions were filed into the single letter grade for the purpose of this study.

The next two post-study survey questions asked students if they changed their grade goal from the beginning of the year and, if they did, why. In Precalculus, 53 students said "No," and 10 said "Yes." In Physical Science, 54 students said "No," and 27 said "Yes." However, looking at all of the data, we found that more students had changed their grade goal than reported doing so. This could be due to misremembering their original grade goal.

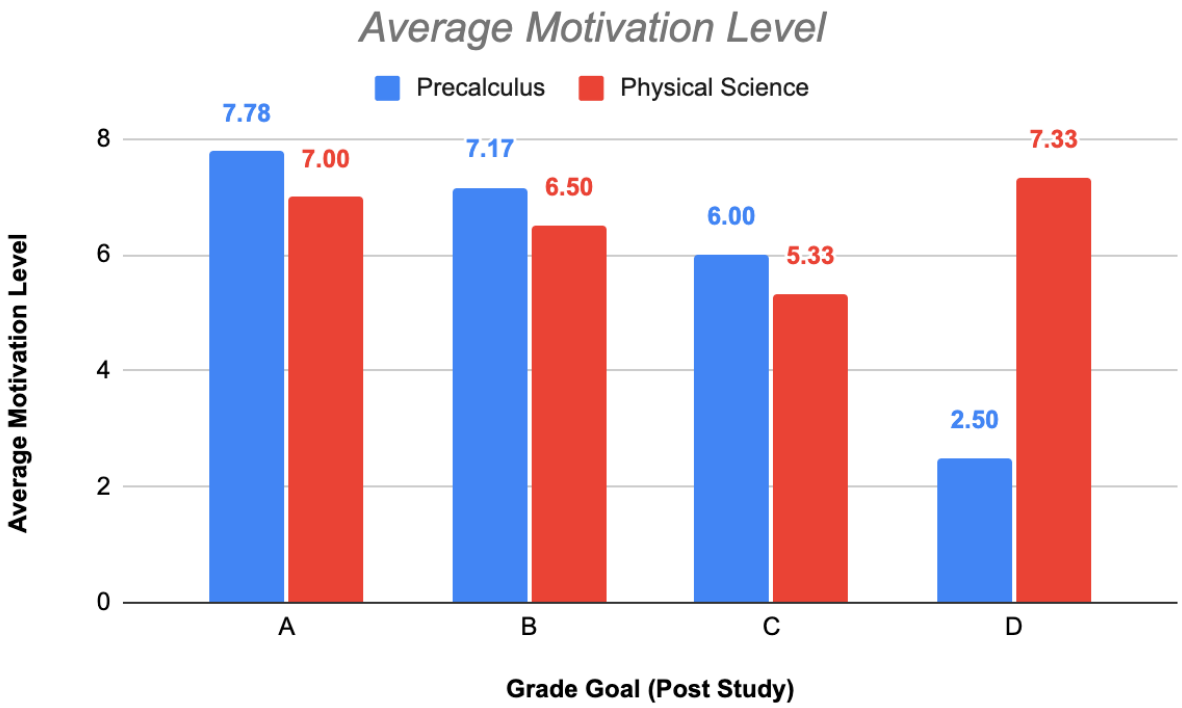
Next, students were asked if they thought setting a grade goal for the class would help motivate them in the class. In Precalculus, 34 students (53.97%) said "Yes," 13 (20.63%) said "Maybe," and 16 (25.40%) said "No." In Physical Science, 44 students (54.32%) said "Yes," 18 (22.22%) said "Maybe," and 19 (23.46%) said "No." Students were also asked if they thought setting a grade goal for this class would help them achieve that grade. In Precalculus, 40 students (63.49%) said "Yes," 15 (23.81%) said "Maybe," and 8 (12.70%) said "No." In Physical Science, 47 students (58.02%) said "Yes," 20 (24.70%) said "Maybe," and 14 (17.28%) said "No."

The final survey question asked students to rate their current motivation level on a scale from one to 10. The average motivation level for Precalculus students was 7.47, and 6.81 for Physical Science students. The overall average motivation level for all students was 7.10. Figure 6 shows the average motivation level by grade goal and separated by class. Trends show that the higher the grade goal in Precalculus, the higher the student ranked their motivation level. However, the same is not said for Physical Science students since some highly motivated

students were striving towards a “D.” This might be explained by the fact that the post-study survey was taken one week before the end of the trimester when grades were finalized. These students were most likely very motivated to pass the class. It should also be noted that low amounts of students set their grade goals as “C” or “D” in both classes.

Figure 6

Average Motivation Level by Grade Goal (Post-Study)



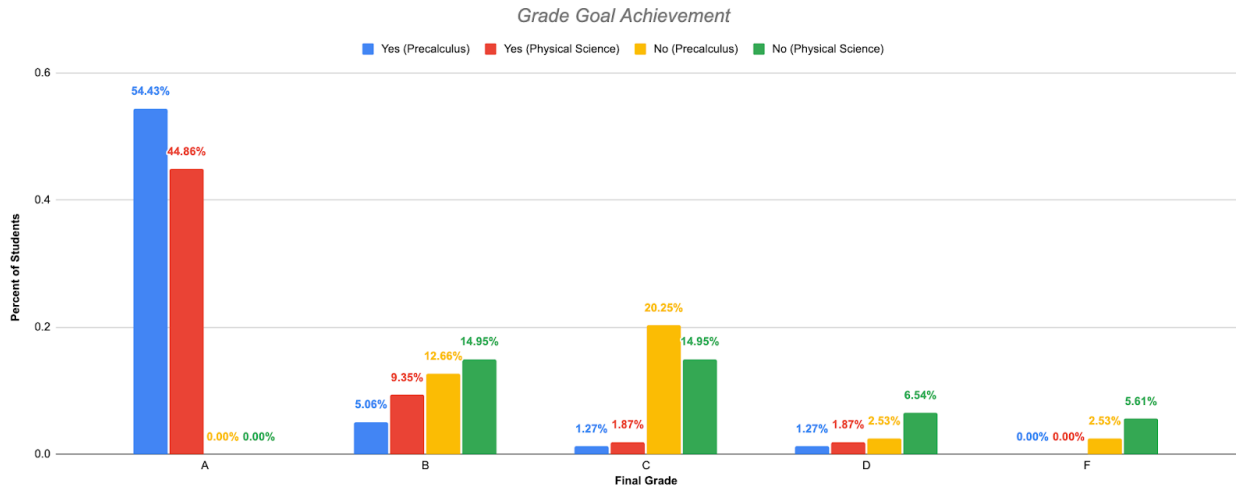
Final Grades

The last type of data we collected was the final grades students earned in each class and whether or not they reached their grade goal. Figure 7 shows the percentage of students that did and did not meet their overall grade goal by class and by final letter grade. To determine if a student met their grade goal, we compared their final letter grade with their post-study survey grade goal. If a student did not fill out the post-study survey, we then compared their final letter grade with their pre-study survey grade goal. Overall, it is difficult to see trends in the data.

However, one trend that can be seen is that the percentage of students that did not meet their grade goal increased as the final letter grade decreased.

Figure 7

Grade Goal Achievement by Final Grade Earned (Post-Study)



Action Plan

This action research study was designed to investigate how the weekly process of student-set goals and reflection affect student motivation at the high school level. In order to assess the influence of weekly student-set goals and reflection on student motivation, we collected data from a variety of sources, both quantitative and qualitative. Students completed a pre- and post-study survey (Appendix A and B) and used their Student Weekly Reflective Journals (Appendix C) to set goals, reflect, and rate their motivation level. We took note of each student-teacher check in meeting using the Student-Teacher Check-In Form (Appendix D) and tallied the number of off-task behaviors on the Teacher Observations of Student Behavior Form (Appendix E).

In contrast to the literature review, this action research study did not find evidence that student-set goals and reflection increase motivation. We found the student motivation levels

decreased throughout the study, starting with an overall average motivation level of 7.52 and ending with 7.10. There are a variety of possible reasons for this decrease in motivation levels such as the timing of the study, student attendance, and lack of understanding of motivation.

The first possible reason for the decreased level in student motivation is the timing of the study. This study started at the beginning of the school year, when students are typically excited to be back in the classroom. This excitement could explain the higher overall student motivation level in the pre-study survey results. Additionally, the study concluded at the end of the first trimester, when students are typically overwhelmed by final deadlines and tests, which could have led to the lower overall student motivation level in the post-study survey results.

Student attendance is another possible reason for the decline in student motivation levels throughout the study. While analyzing the data, we noticed that there were many students that missed one or more weeks in their Student Weekly Reflective Journals (Appendix C). We also had students not complete the pre- or post-study surveys (Appendix A and B). These missing responses could be due to absences or students choosing not to participate and affected our overall data collection.

Another possible reason for the reduction in student motivation levels could be from a misunderstanding of motivation. The pinnacle of this study is students rating their motivation level on a scale from one to 10, which can be challenging. Some students were better at estimating their motivation levels compared to others. However, it is difficult to get an accurate motivation level without some personal bias, since it is relative to each student.

Despite the lack of evidence showing that student-set goals and reflection increase motivation, there are still positive takeaways from this action research. Students had consistent, high motivation levels throughout the study. Students were also consistent in achieving their

weekly goals. When comparing the two classes, Precalculus students had higher average motivation levels over the Physical Science students. However, the percentage of Physical Science students who achieved their weekly goals was higher than the Precalculus students.

There were two main limitations in this action research study. The first limitation is the make up of our student populations. The Physical Science class is a graduation requirement for all students and typically taken freshman year. In contrast, the Precalculus class is only a graduation requirement for students on the advanced math pathway, making it an elective course for all other students and typically taken by juniors and seniors. The requirement and age differences in the students taking each class may have played a role in their motivation levels. Overall, the students in the Precalculus class were older and generally elected to take the course and thus may have had higher levels of motivation to begin with. On the other hand, the students in the Physical Science class were younger, new to high school, and required to take the course which could explain lower levels of motivation. Despite theses differences, both classrooms had students with similar backgrounds since both classrooms were in rural high schools. This limits us from generalizing our findings to other high schools with students that have more diverse backgrounds and are not in rural settings.

The second limitation of this study was its lack of explicit instruction on how to set goals. Prior to collecting data, we decided against a formal lesson on goal setting since we wanted our students to be able to freely set their own goals. We soon realized that such freedom in goal setting may have led to poor quality goals. Some student-set goals were too vague such as “study” or “do better” while others were too unrealistic such as a student with a low grade aiming to raise their grade to an A in one week. While we did remind students that the goals they were setting should be about the class they were in, some students still set goals related to

activities outside of class. We feel that these issues could have been eliminated had we given our students direct instruction on how to set goals prior to their first attempt at goal setting.

Due to these limitations, we recommend further study on how student-set goals and reflection can affect motivation in high school students. One recommendation for further study is including more diverse students and locations to see if the results can be generalized across populations. It would also be beneficial to include different aged high school students taking different types of classes. Another recommendation for future research would be to include direct instruction on how to set high quality goals prior to asking students to set them. We would also recommend studying how different times of the school year play a role in student motivation.

This action research study shows that there is still uncertainty in how to increase student motivation. While previous research found student-set goals and reflection to increase motivation, this study does not add to these claims. While the motivation levels of our students decreased throughout the study, we do not assume that weekly goal setting and reflection can not lead to an increase in motivation among high school students. Motivation is not a simple concept to understand, yet it can be key to promoting student achievement (Hardré, 2012). Given the importance and enigma of motivation, we suggest that teachers continue to explore different techniques until they find what motivates the students in their classrooms.

References

Astuti, S. P. (2016). Exploring motivational strategies of successful teachers. *TEFLIN Journal, 27*(1), 1-22. https://doi-org.pearl.stkate.edu/10.15639/teflinjournal.v27i1/1-22

Bendikson, L., Broadwith, M., Zhu, T., & Meyer, F. (2020). Goal pursuit practices in high schools: Hitting the target? *Journal of Educational Administration, 58*(6), 713-728. https://doi-org.pearl.stkate.edu/10.1108/JEA-01-2020-0020

Bruner, J. S. (1977). *The process of education*. Harvard University Press.

Burns, E. C., Martin, A. J., & Collie, R. J. (2019). Understanding the role of personal best (PB) goal setting in students' declining engagement: A latent growth model. *Journal of Educational Psychology, 111*(4), 557-572. https://doi.org/10.1037/edu0000291

Cavilla, D. (2017). The effects of student reflection on academic performance and motivation. *SAGE Open, 7*(3), 1-13. https://doi-org.pearl.stkate.edu/10.1177/2158244017733790

Cheng, Z., Richardson, J. C., & Newby, T. J. (2019). Using digital badges as goal-setting facilitators: A multiple case study. *Journal of Computing in Higher Education, 32*(2), 406-428. https://doi.org/10.1007/s12528-019-09240-z

Hardré, P. L. (2012). Standing in the gap: Research that informs strategies for motivating and retaining rural high school students. *The Rural Educator, 34*(1), 12-18. https://pearl.stkate.edu/login?url=https://www.proquest.com/scholarly-journals/standing-gap-research-that-informs-strategies/docview/1319473332/se-2?accountid=26879

Harden, R.M. (1999). What is a spiral curriculum? *Medical Teacher, 21*(2), 141-143. https://doi.org/10.1080/01421599979752

Hattie, J., Hodis, F. A., & Kang, S. H. K. (2020). Theories of motivation: Integration and ways forward. *Contemporary Educational Psychology, 61*, 101865.

https://doi.org/10.1016/j.cedpsych.2020.101865

Lazowski, R.A. & Hulleman, C.S. (2016). Motivation interventions in education: A meta-analytic review. *Review of Educational Research*, *86*(2), 602-640. http://doi.org/10.3102/0034654315617832

Martin, A. J., Burns, E. C., Collie, R. J., Bostwick, K. C., Flesken, A., & McCarthy, I. (2022). Growth goal setting in high school: A large-scale study of perceived instructional support, personal background attributes, and engagement outcomes. *Journal of Educational Psychology, 114*(4), 752-771. https://doi.org/10.1037/edu0000682

Moeller, A. J., Theiler, J. M., & Wu, C. (2012). Goal setting and student achievement: A longitudinal study. *The Modern Language Journal, 96*(2), 153–169. https://doi.org/10.1111/j.1540-4781.2011.01231.x

Muenks, K., Yang, J. S., & Wigfield, A. (2018). Associations between grit, motivation, and achievement in high school students. *Motivation Science, 4*(2), 158-176. https://doi-org.pearl.stkate.edu/10.1037/mot0000076

Nordengren, C. (2019). Goal-setting practices that support a learning culture. *Phi Delta Kappan, 101*(1), 18-23. https://doi.org/10.1177/0031721719871558

Smith, J., Guimond, F., Bergeron, J., St-Amand, J., Fitzpatrick, C., & Gagnon, M. (2021). Changes in students' achievement motivation in the context of the COVID-19 pandemic: A function of extraversion/introversion? *Education Sciences, 11*(1), 30. https://doi-org.pearl.stkate.edu/10.3390/educsci11010030

Travers, C. J., Morisano, D., & Locke, E. A. (2014). Self-reflection, growth goals, and academic outcomes: A qualitative study. *British Journal of Educational Psychology, 85*(2), 224-241. https://doi.org/10.1111/bjep.12059

Tucci, A. E. (2018). Self-regulation through goal setting and reflective practice: Impact on students' perceived scholastic competency and motivation in ninth-grade mathematics classrooms (Order No. 10840396). Available from Education Database. (2075063309). https://pearl.stkate.edu/login?url=https://www.proquest.com/dissertations-theses/self-regulation-through-goal-setting-reflective/docview/2075063309/se-2?accountid=26879

Wolters, C. A. (2004). Advancing achievement goal theory: Using goal structures and goal orientations to predict students' motivation, cognition, and achievement. *Journal of Educational Psychology, 96*(2), 236-250. https://doi.org/10.1037/0022-0663.96.2.236

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, *45*(1), 166–183. https://doi.org/10.3102/0002831207312909

Appendix A
Pre-study Survey

Pre-Study Student Survey

Please answer open and honestly.

* Required

1. Email *

2. Hour: *

Mark only one oval.

- Hour 1
- Hour 2
- Hour 3
- Hour 4
- Hour 5
- Hour 6

3. Grade: *

Mark only one oval.

- 9th
- 10th
- 11th
- 12th

4. Teacher Name: *

Mark only one oval.

- ◯ Ms. Clark
- ◯ Ms. Moses

5. What grade do you hope to earn in this class this trimester? *

Mark only one oval.

- ◯ A
- ◯ A-
- ◯ B+
- ◯ B
- ◯ B-
- ◯ C+
- ◯ C
- ◯ C-
- ◯ D+
- ◯ D
- ◯ D-
- ◯ F

6. Have you previously set goals around your grades? *

Mark only one oval.

- ◯ Yes
- ◯ No

7. Do you think setting a grade goal for this class will help motivate you more in this class? *

Mark only one oval.

- Yes
- No
- Maybe

8. Do you think setting a grade goal for this class will help you achieve that grade? *

Mark only one oval.

- Yes
- No
- Maybe

9. How do you reflect on your learning? (For example: checking your grade, emailing/talking to your teacher, etc.) *

10. How often do you reflect on your learning? *

11. What motivates you to try your best in this class? *

12. On a scale from 1 - 10, how motivated do you feel in this class? *

Mark only one oval.

extremely unmotivated

1
2
3
4
5
6
7
8
9
10

extremely motivated

Appendix B
Post-study Survey

Post-Study Student Survey

Please answer open and honestly.

The respondent's email (**null**) was recorded on submission of this form.

* Required

1. Email *

2. Hour: *

Mark only one oval.

- ◯ Hour 1
- ◯ Hour 2
- ◯ Hour 3
- ◯ Hour 4
- ◯ Hour 5
- ◯ Hour 6

3. Grade: *

Mark only one oval.

- ◯ 9th
- ◯ 10th
- ◯ 11th
- ◯ 12th

4. Teacher Name: *

Mark only one oval.

- ◯ Ms. Clark
- ◯ Ms. Moses

5. What grade do you hope to earn in this class this trimester? *

Mark only one oval.

- A
- A-
- B+
- B
- B-
- C+
- C
- C-
- D+
- D
- D-
- F

6. Did this grade goal change from the beginning of the year? *

Mark only one oval.

- Yes
- No

7. If your grade goal has changed, please explain why.

8. Do you think setting a grade goal for this class has helped motivate you more in this class? *

Mark only one oval.

- Yes
- No
- Maybe

9. Do you think setting a grade goal for this class will help you achieve that grade? *

Mark only one oval.

- Yes
- No
- Maybe

10. All about student digital journals: *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I liked setting weekly goals in my journal.					
My journal helped me track my progress in this class.					
I felt motivated to meet my weekly goals.					
My weekly goals motivated me to do better in this class.					
I feel I can set better goals for myself.					
I will continue to set goals for myself.					

11. What other feedback do you have about the digital journals? *

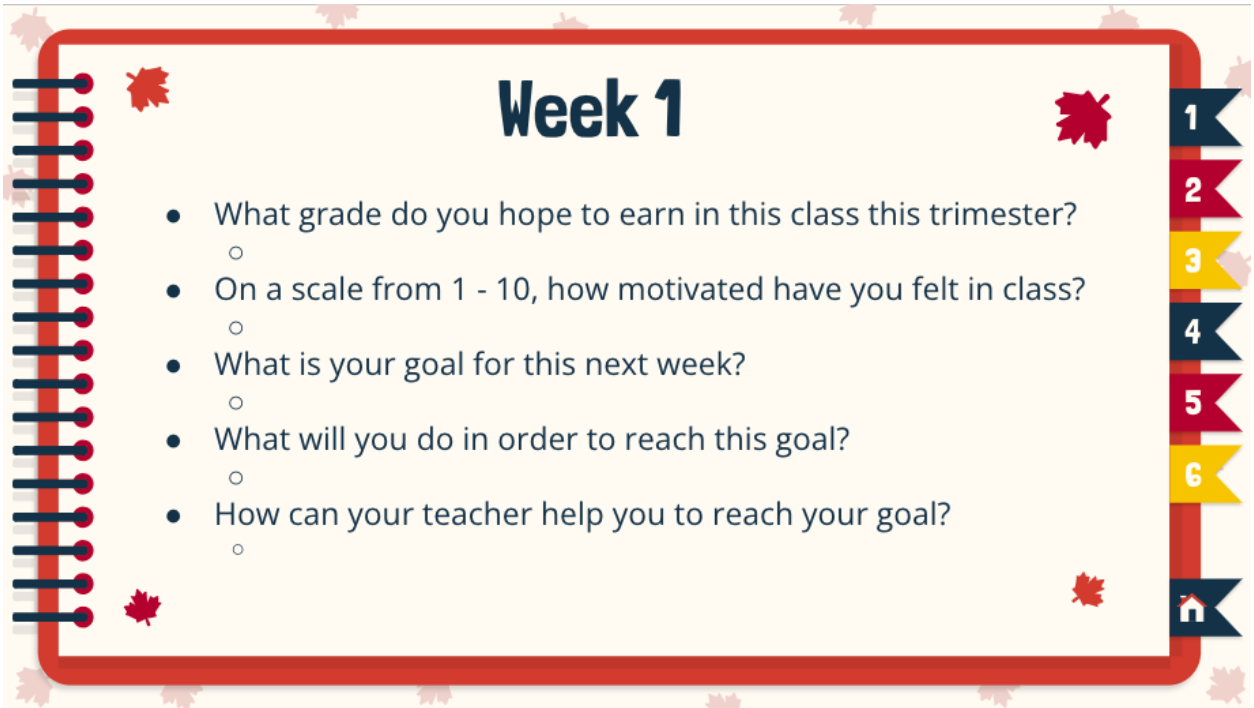
12. What motivates you to try your best in this class? *

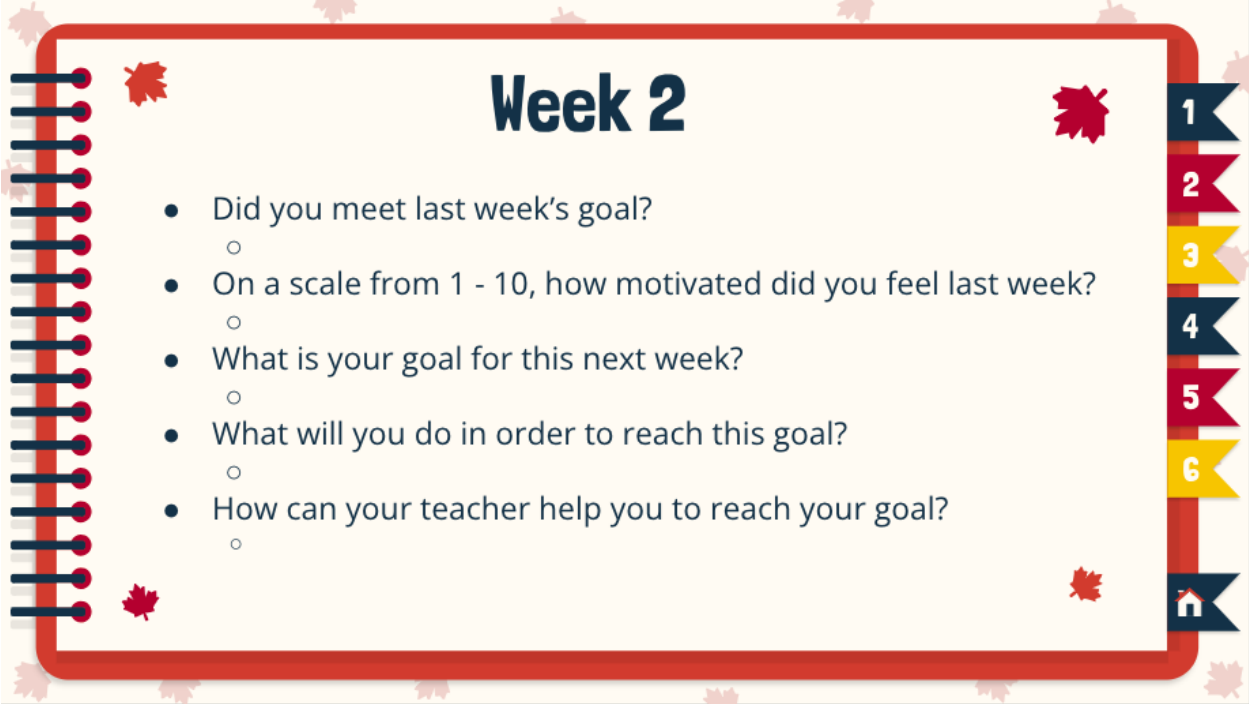
13. On a scale from 1 - 10, how motivated do you feel in this class? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
extremely unmotivated	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	extremely motivated

Appendix C
Student Weekly Reflective Journals





Week 3

- Did you meet last week's goal?
  -
- On a scale from 1 - 10, how motivated did you feel last week?
  -
- What is your goal for this next week?
  -
- What will you do in order to reach this goal?
  -
- How can your teacher help you to reach your goal?
  -

Week 4

- Did you meet last week's goal?
  -
- On a scale from 1 - 10, how motivated did you feel last week?
  -
- What is your goal for this next week?
  -
- What will you do in order to reach this goal?
  -
- How can your teacher help you to reach your goal?
  -

Week 5

- Did you meet last week's goal?
  -
- On a scale from 1 - 10, how motivated did you feel last week?
  -
- What is your goal for this next week?
  -
- What will you do in order to reach this goal?
  -
- How can your teacher help you to reach your goal?
  -

1 2 3 4 5 6

Week 6

- Did you meet last week's goal?
  -
- On a scale from 1 - 10, how motivated did you feel last week?
  -
- What is your goal for this next week?
  -
- What will you do in order to reach this goal?
  -
- How can your teacher help you to reach your goal?
  -

1 2 3 4 5 6

Appendix D
Student-Teacher Check-In Form

Student Name:		Date:	

Reason for Check-In:	

Student's Grade Goal:		Student's Weekly Goal:	

Next Steps Discussed:	

Student Next Steps:	Teacher Next Steps:

Appendix E

Teacher Observations of Student Behavior Form

Hour ___ Observations

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					

Date:		Hour:		Time:	
Off Task Behavior:					