

Action Research:

*How Might I Increase Success for Third Grade Students Achieving their Math Goal by
Increasing both Student Awareness and a Growth Mindset in Relation to their Goal?*

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Table of Contents

Acknowledgments..... 3

Abstract..... 4

Chapter 1: Introduction..... 5

Chapter 2: Method of Study..... 7

Chapter 3: Results of Study..... 9

Chapter 4: Conclusion and Recommendations..... 12

References..... 14

Appendix A: *IRB Parent/Guardian Signed Consent* 15

Appendix B: *1st Trimester Student Survey*..... 16

Appendix C: *2nd Trimester Student Survey*..... 23

Acknowledgments

It is both a privilege and honor to serve the students, parents, and staff of Fraser Public Schools by conducting action research at Walt Disney Elementary. I appreciate the support of Mrs. Filip and Mrs. Newell for their assistance in administering growth mindset curriculum as well as coaching students through developing trimester math goals. A special thanks to Mrs. Stephanie Collins for taking hours of her time and presenting growth mindset to our third grade students. A very special thanks and a great deal of appreciate for the direction and guidance of Joyce Fouts, Ph.D., provided during this challenging task. Last, but surely not least, I am eternally grateful for my beautiful wife and two lovely daughters who not only sacrificed their time spent with me, but gave me unconditional support.

Abstract

Teachers are expected to help students create learning goals for each trimester. The challenge is trying to make this task meaningful rather than completed out of compliancy. The purpose of this study was to identify a meaningful relationship between success for third grade students achieving their math goal by increasing both student awareness and a growth mindset in relation to their goal?

Disney Elementary's population consist of 80% caucasian, 10% African-American, and 10% other population. There are 42% of students participating on free-and-reduced lunch. This study has one researcher, a 21st Century Teacher/Coach who is collecting information from two third grade educators and one third-grade classroom with a total sample size of 30 participating students. A teacher survey was used to determine the array of strategies being used to help students become aware of their math goals. A student survey was given to all the participating students to gather quantitative and qualitative data measuring their perceptions on learning and perceived achievement.

Although implemented strategies did significantly increase student awareness of their math goals, that awareness did not necessarily correlate with student achievement of those goals. Growth Mindset curriculum did positively impact student's perception of learning. Three principal findings were as follows:

1. Teacher implemented strategies designed to help students select a goal and to help them monitor progress of that goal did significantly increased student awareness of their trimester math goal.

2. However, increasing student awareness of their goal and where they stand in relation to that goal alone is not an indicator that the student will actually achieve their goal.
3. Teaching a 'Growth Mindset' had a powerful impact on students believing they can become smarter when they accept new challenges as well as increasing their love and interest for learning.

The faculty is developing a continuum of the 'Growth Mindset' curriculum to help all grade level students increase their love for learning and welcoming challenging goals ahead of them. We are currently investigating the relationship of increasing descriptive feedback and how it may increase achievement in student learning goals.

Chapter 1

Introduction

Background

Fraser Public Schools is a leading district which is undergoing a shift in re-structuring learning. With any change, comes frustration and insecurities as we challenge ourselves by moving forward in uncharted territory. One initiative required by teachers in 2015-2106 was creating student learning goals for English Language Arts and for Math. Teachers had to help their students create these and record them in the district's new learning management system (LMS). This action research was an opportunity to make this task meaningful and purposeful rather than an item to check off the compliance list. In Black and Wiliam's review of research on formative assessment (Inside the Black Box, 1998), they concluded that a culture of success along with a belief that all can achieve was one of the most powerful ways to assist all students to be successful. In particular, students who were typically low achievers produced higher gains

when they had a clear understanding of what was achievable and what they could do to improve their work. In other words, when students were made aware and reminded of their goals as well as strategies to reach them, they were more likely to achieve them. To answer the question, *How Might I Increase Success for Third Grade Students Achieving their Math Goal by Increasing both Student Awareness and a Growth Mindset in Relation to their Goal?*, would help teachers to adopt strategies, make time for specific and descriptive feedback, and build confidence in goal setting.

Assumptions and Limitations

It is of course assumed that all students did choose one of four math goal options consisting of: Trimester Essentials Test, Easy CMB, M-Comp, and Mad Minutes Test (Multiplication). It was also assumed that all the students of the selected third grade class was given the opportunity to participate in this study as well as the survey. It was assumed that all participating students responded accurately and honestly to all survey questions.

The research was limited to both scheduling conflicts, district testing, and primarily the lack of time the researcher had with the participating students during the study. The greatest limitation was the fact our third grade teachers chose to deviate from our trimester math goals and create first half and second semester math goals. This decision was based on the time frame the District testing was scheduled.

Research Questions

The driving question of this action research is ‘How might I increase success for third grade students achieving their math goal by increasing both student awareness as well as a ‘Growth Mindset’ in relation to that goal? In order to answer this, we first had to ask a few other

research questions: “What assessments are the teachers using to create their math goal options?”, “How will teachers and students monitor their progress of reaching their goal?”, and “How will students know if they were successful in achieving their goal?”. One last question that will drive this research is, “What curriculum will be used to instruct students on developing a ‘Growth Mindset’?”.

Three additional generic questions, otherwise known as ACR questions for Action, Change, and Relationships are as follows: 1) What did we actually do? 2) What changes occurred regarding performance on the achievement targets? and 3) What were the relationships, if any, between the actions taken and any noted changes in performance.

Chapter 2

Method of the Study

Overview

The purpose of this study was to identify a meaningful relationship between success for third grade students achieving their math goal by increasing both student awareness and a growth mindset in relation to their goal?

Teacher expectations were to create learning goals for each individual student each trimester. Teachers used the beginning of the year district assessments to help students identify areas of improvement, ultimately shifting the data points into Tier one. For example, if a student scored in Tier Two on their CBM:Geometry district assessment, then that student would be encouraged by the teacher to choose the goal, “Improve my CBM Math Score”. There were four options all together: “Easy CBM”, “Trimester Essentials”, “M-Comp”, and Mad Minutes (Multiplication Facts Quiz). A survey was administered to the teachers to capture these various

math goal options as well as their actual achievement data. Each participating third grader was surveyed at the end of both, the first trimester and the second trimester.

Selection of Subjects

This research involved convenience sampling just because it as easy to recruit them for this study in a very short window of six weeks. Ideally, the entire elementary school would have been studied as they all are required to complete student learning goals, however, the population is just too large making it impossible to include every individual.

Research Design

The first trimester student survey (Appendix B) was administer at the end of trimester one which was the beginning of this research. It was used to capture student perception of data that the teacher already had in addition to the student's perception of learning which will be used as our baseline to determine if their is a relationship between 'Growth Mindset' curriculum and a positive impact on student perception of learning. This will be important as we will challenge students to accept new challenging goals. The second trimester student survey (Appendix C) will be used to capture the same information. The difference is that the student perceived achievement of his or her goals on the second trimester survey must be interpreted as 'anticipated results' as those students had not yet completed their second trimester goal by end of this study.

Description of Instruments

During the design of the survey questions, the researcher mad sure to follow three main points: (1) the most important, "Keep the question simple", (3) "Avoid using hypothetical questions", and (3) Strategically place a qualitative question to validate the response to the

previous question. (Appendix C) Fraser Public Schools provides 1:1 devices for all their students and therefore allowing a fast and convenient method of administering an electronic survey.

Data Analysis

Our descriptive statistics (primarily the mode) and bar and line graphs can only be used to describe the group that is being studied. That is, the results cannot be generalized to any larger group, such as other classrooms or other buildings within Fraser Public Schools.

Chapter 3

Results of the Study

Overview

Although implemented strategies did significantly increase student awareness of their math goals, that awareness did not necessarily correlate with student achievement of those goals. Growth Mindset curriculum did positively impact student's perception of learning. Three principal findings were as follows:

1. Teacher implemented strategies designed to help students select a goal and to help them monitor progress of that goal did significantly increased student awareness of their trimester math goal.
2. However, increasing student awareness of their goal and where they stand in relation to that goal alone is not an indicator that the student will actually achieve their goal.
3. Teaching a 'Growth Mindset' had a powerful impact on students believing they can become smarter when they accept new challenges as well as increasing their love and interest for learning.

The following chart contains the data used to infer the findings below. Additional data that was solicited from the survey, however, not used due to unreliability and perhaps unnecessary includes: student grade level, student gender, and number of days descriptive feedback was provided by the teacher.

Results

	1st Trimester (NO-Strategy)	2nd Trimester (Strategy)
Student Awareness of Goal:		
I know my math Goal	3%	45%
I think I know my math goal	13%	17%
I Do Not know my math goal	84%	38%
Student's perceived achievement:		
I reached my goal	40%	31%
I did NOT reach my goal	7%	7%
I do not know if I reached my goal	53%	62%
Student's actual achievement:		
I reached my goal	33%	n/a
I did NOT reach my goal	67%	n/a
Growth Mindset:		
I love Learning	50%	76%
I love learning, but I never get any smarter	13%	0%
I don't like learning, but I get smarter everyday	25%	24%
I don't like learning, because I never get any smarter	12%	0%

Student Awareness of Goal

Survey finding: First Trimester post-survey results supports that creating a student math goal without a strategy to create awareness and monitor progress resulted in a significantly low percentage of students who actually knew their math goal at the end of Trimester one.

Survey finding: Second Trimester post-survey results support that implementing a strategy to promote awareness of their learning goal resulted in a significant increase in student awareness of their math goal.

Survey finding: Although overall student awareness increased, the percentage of overall students who achieved their math goal did not significantly increase. Therefore there is no correlation that increasing awareness of that goal increases academic achievement.

Student's Perceived and Actual Achievement

Survey finding: First Trimester post-survey results indicates that 40% of students felt they did not complete their goal, where as, 33% actually did achieve their goal.

Survey finding: First Trimester post-survey results indicates that 62% of students felt they did not complete their goal, where as, 67% actually did not achieve their goal.

Survey finding: Therefore, it can be concluded that increasing student awareness of their goal will have an impact on their achieving that goal.

Growth Mindset

Survey finding: Growth Mindset curriculum had a significant increase on student's feeling towards learning, but had no significant increase on student awareness or perceived academic achievement.

Survey finding: Students who love learning increased from 50% to 72%.

Survey finding: Students who love learning, but feel they never get any smarter decreased from 13% to 3%.

Survey finding: Students who dislike learning, because they never get any smarter decreased from 12% to 7%.

Chapter 4

Conclusions and Recommendations

Conclusions

Although important, it can be concluded that increasing the awareness for students of their trimester math goal may not determine whether or not they will achieve those goals. It can be further concluded that developing a ‘Growth Mindset’ will have a significant and positive impact on students accepting new challenges and their overall perception of learning.

Descriptive feedback was only provided a few times during both trimesters, so the question that remains is whether or not providing more descriptive feedback during and after the trimester ends, will result in a higher level of achieving student goals. The information obtained during this action research invaluable as it will help drive powerful conversations during teacher coaching sessions, parent-teacher conferences, and advocating for student learning.

Recommendations

The following recommendations have been made to both participating teachers as well as the building administrator:

- Shift the focus (90%) of teachers and students creating math goals and reviewing self-monitoring strategies towards providing descriptive feedback during the formative process as

well as feedback after the summative assessment. In other words, working on your goal and knowing what you are working on are two different things.

- Create a student reflection sheet where students can explain what they know and what they don't know in relation to their goal.
- Continue and elaborate upon 'Growth Mindset' instruction. Consider an actual curriculum such as 'Brainology', from www.mindsetworks.com. Share the powerful impact this mindset has on children learning and make available to all grade levels.
- 1/3 Deep Feedback: provides an opportunity for the teacher to give specific feedback to the student to assist them in knowing what's working and next steps. Give students deep feedback on assignments and tasks that are essential to learning.
- 1/3 Impression Feedback: Use Impression feedback on tasks that don't require specific feedback on all of the criteria but where you want to get an impression as to where the class is at on one aspect of the criteria.
- 1/3 Self or Peer Feedback: Peer and self feedback provide a starting point for conversations that help students find proof of their learning and take responsibility for it. When students are actively involved in the learning process, and identify what they know and don't know, they are able to review and spend more time on areas of need.

Implications for future research

Further research will be required to investigate the effects of descriptive feedback. When surveying third grade students, it may be helpful to model what 'Descriptive Feedback' looks like so children better understand what they are addressing in the survey question.

References

Ricci, M.K. (2013). *Mindsets in the Classroom: Building a Culture of Success and Student Achievement in Schools*. Waco: Prufrock Press Inc.

Brown, P.S. and Aldridge J. *Feedback for Learning: Building Connections*. Retrieved, April 19, 2016 from http://standardstoolkit.k12.hi.us/wp-content/uploads/2013/01/CCR.Protocol_1.Descriptive_Feedback_Strategies.pdf

Appendices

Appendix A - Consent form

(Next page)

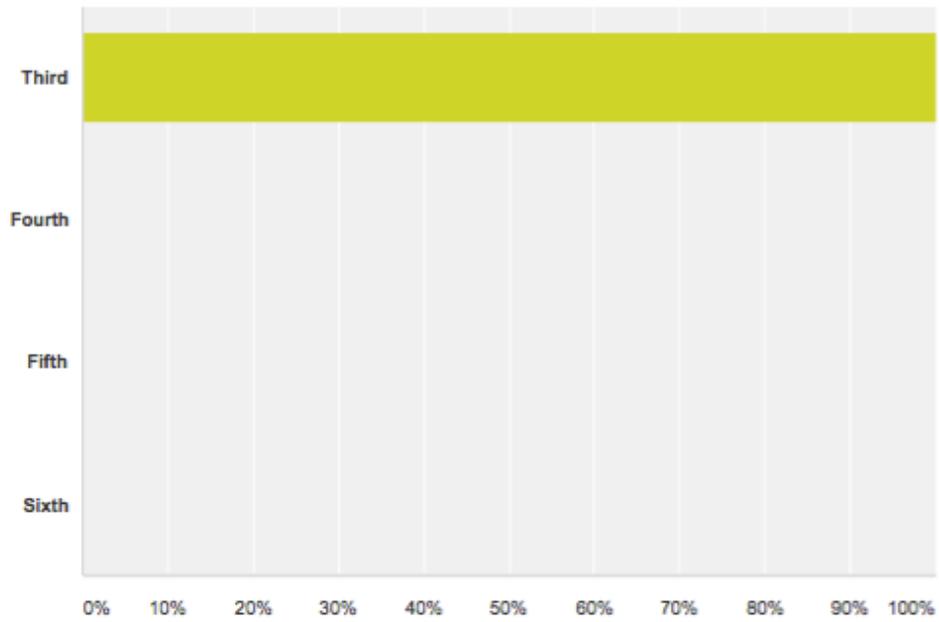
Appendix B - First Trimester Post-Student Survey

Disney Student's Trimester 1 Math Goal Survey

SurveyMonkey

Q1 What grade are you in?

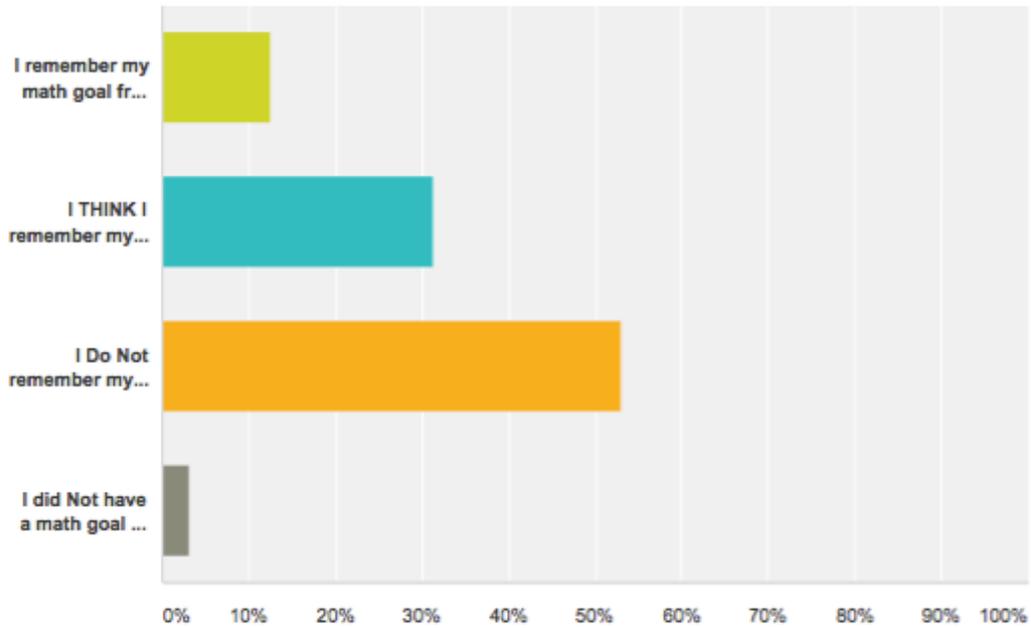
Answered: 32 Skipped: 0



Answer Choices	Responses
Third	100.00% 32
Fourth	0.00% 0
Fifth	0.00% 0
Sixth	0.00% 0
Total	32

Q2 First (1) Trimester Math Goal

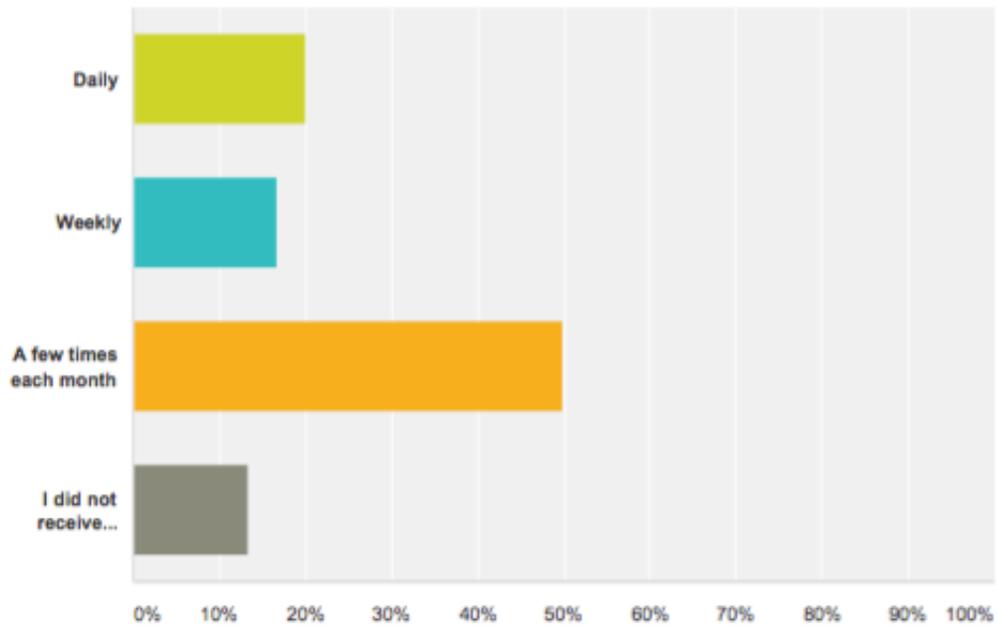
Answered: 32 Skipped: 0



Answer Choices	Responses
I remember my math goal from Trimester 1	12.50% 4
I THINK I remember my math goal from Trimester 1	31.25% 10
I Do Not remember my math goal from Trimester 1	53.13% 17
I did Not have a math goal for Trimester 1	3.13% 1
Total	32

Q3 How often did you receive Descriptive Feedback from your teacher on your First (1) Trimester Math Goal? (Descriptive Feedback is specific information from your teacher in form of written comments or conversations that help you understand what you need to do in order to improve.)

Answered: 30 Skipped: 2



Answer Choices	Responses	Count
Daily	20.00%	6
Weekly	16.67%	5
A few times each month	50.00%	15
I did not receive descriptive feedback at all regarding my math goal.	13.33%	4
Total		30

Disney Student's Trimester 1 Math Goal Survey

SurveyMonkey

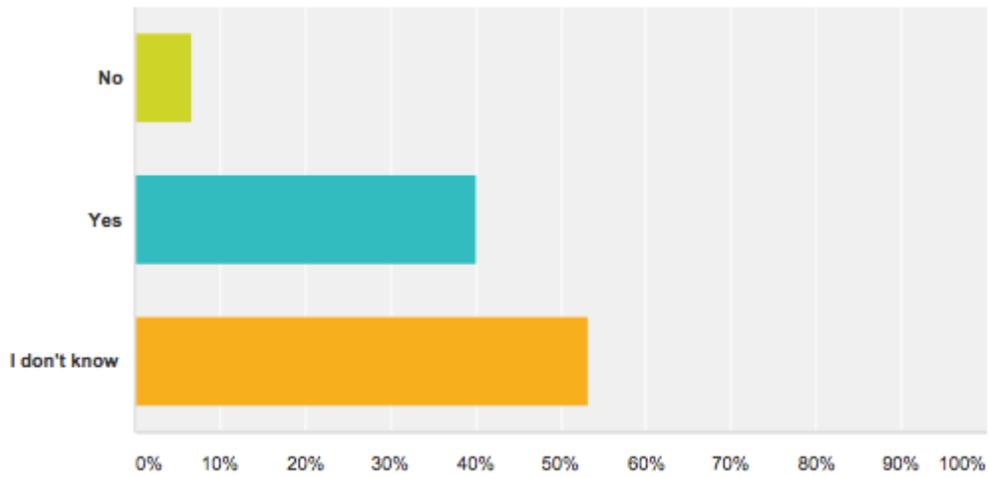
Q4 What was your math goal from the First Trimester (1)?

Answered: 29 Skipped: 3

#	Responses	Date
1	My math goal was to learn my times tables	2/16/2016 2:51 PM
2	To do place value chart	2/12/2016 2:44 PM
3	I do not remember my math goal	2/12/2016 10:29 AM
4	I do not no ??????????	2/12/2016 10:28 AM
5	I'm not so sure.	2/12/2016 10:28 AM
6	I don't no	2/12/2016 10:28 AM
7	I don't know	2/12/2016 10:28 AM
8	I'm not so sure.	2/12/2016 10:28 AM
9	I don't know	2/12/2016 10:28 AM
10	I don't know	2/12/2016 10:28 AM
11	I do not know	2/12/2016 10:28 AM
12	I don't rember it	2/12/2016 10:28 AM
13	I do not remember my math goal	2/12/2016 10:28 AM
14	The mcomp	2/12/2016 10:27 AM
15	I don't know what my math goal was	2/12/2016 10:27 AM
16	I don't know	2/12/2016 10:27 AM
17	I don't know	2/12/2016 10:27 AM
18	I don't know.	2/12/2016 10:27 AM
19	I don't know	2/12/2016 10:27 AM
20	I do not know	2/12/2016 10:27 AM
21	Algebra	2/12/2016 10:27 AM
22	I do not know	2/12/2016 10:27 AM
23	I don't know.	2/12/2016 10:27 AM
24	I don't know	2/12/2016 10:27 AM
25	I don't know	2/12/2016 10:27 AM
26	I DONT NO!	2/12/2016 10:26 AM
27	I do I remember	2/12/2016 9:43 AM
28	to get my math grade to a b	2/12/2016 9:42 AM
29	ldk	2/12/2016 9:42 AM

Q5 Did you achieve your math goal from the First (1) Trimester?

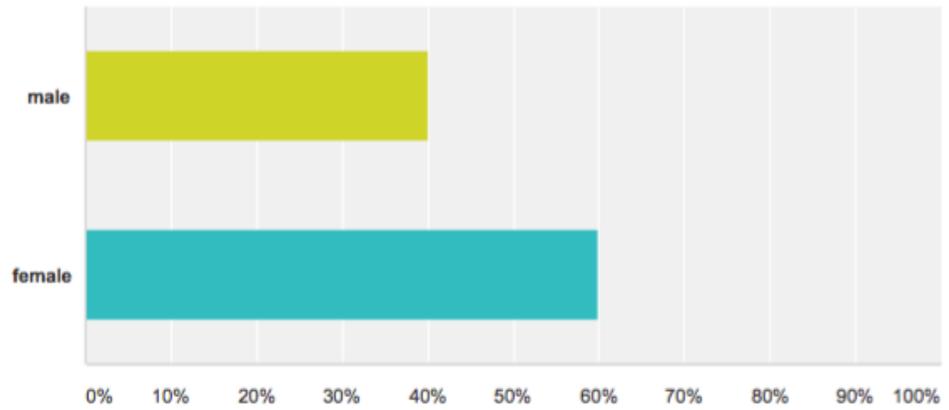
Answered: 30 Skipped: 2



Answer Choices	Responses
No	6.67% 2
Yes	40.00% 12
I don't know	53.33% 16
Total	30

Q6 Are you male or female?

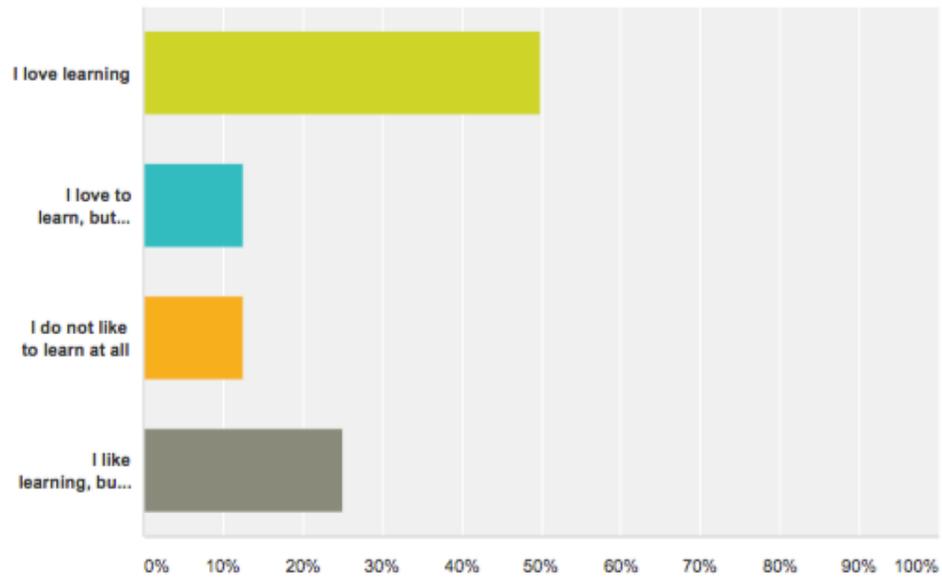
Answered: 30 Skipped: 2



Answer Choices	Responses
male	40.00% 12
female	60.00% 18
Total	30

Q7 How do you feel about learning

Answered: 32 Skipped: 0



Answer Choices	Responses
I love learning	50.00% 16
I love to learn, but don't think I am very smart	12.50% 4
I do not like to learn at all	12.50% 4
I like learning, but learning is boring	25.00% 8
Total	32

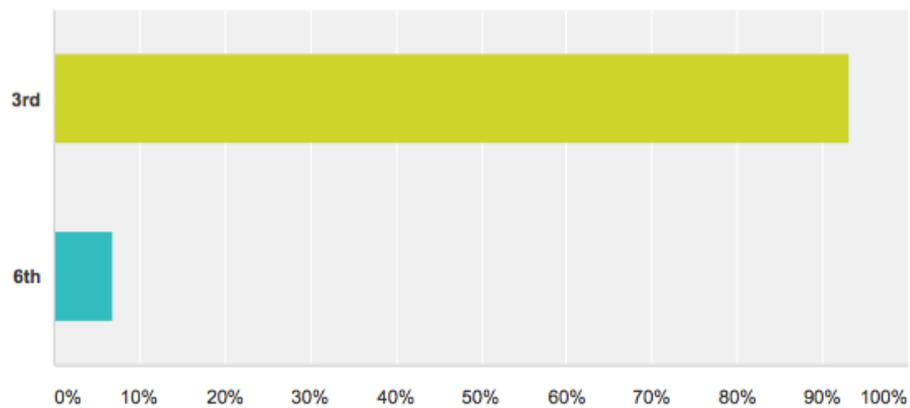
Appendix C - Second Trimester Post-Student Survey

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q1 What grade are you in?

Answered: 29 Skipped: 0



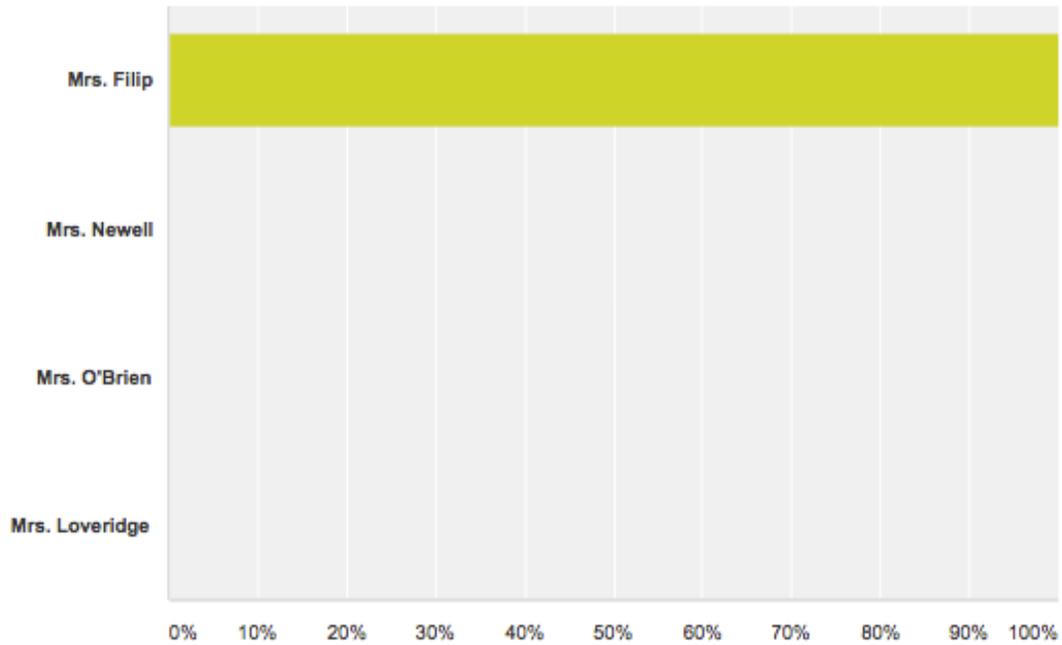
Answer Choices	Responses
3rd	93.10% 27
6th	6.90% 2
Total	29

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q2 Who is your homeroom teacher?

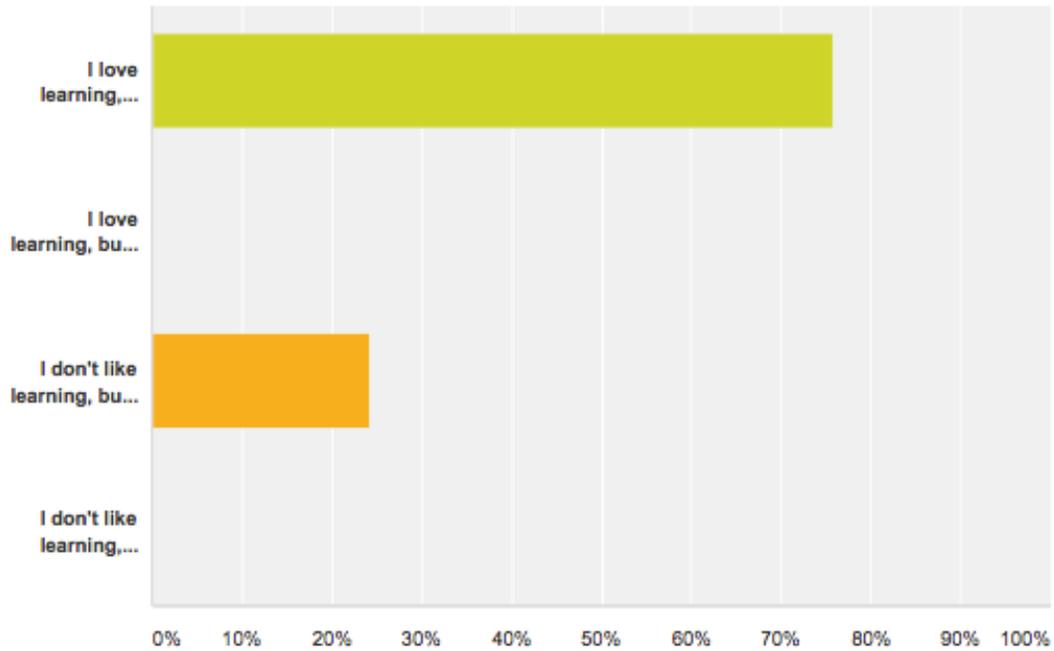
Answered: 29 Skipped: 0



Answer Choices	Responses
Mrs. Filip	100.00% 29
Mrs. Newell	0.00% 0
Mrs. O'Brien	0.00% 0
Mrs. Loveridge	0.00% 0
Total	29

Q3 How do you feel about learning?

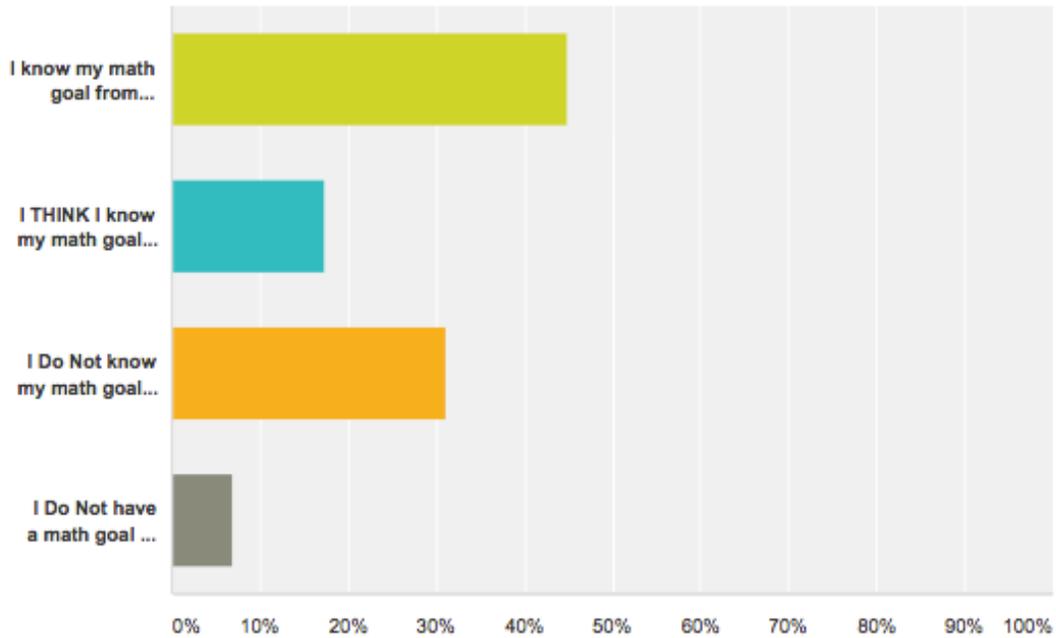
Answered: 29 Skipped: 0



Answer Choices	Responses
I love learning, because I get smarter everyday	75.86% 22
I love learning, but I never get smarter	0.00% 0
I don't like learning, but I get smarter everyday	24.14% 7
I don't like learning, because I never get any smarter	0.00% 0
Total	29

Q4 Second (2) Trimester Math Goal

Answered: 29 Skipped: 0



Answer Choices	Responses	Count
I know my math goal from Trimester 2	44.83%	13
I THINK I know my math goal from Trimester 2	17.24%	5
I Do Not know my math goal from Trimester 2	31.03%	9
I Do Not have a math goal for Trimester 2	6.90%	2
Total		29

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q5 If you know your math goal, please write it below.

Answered: 17 Skipped: 12

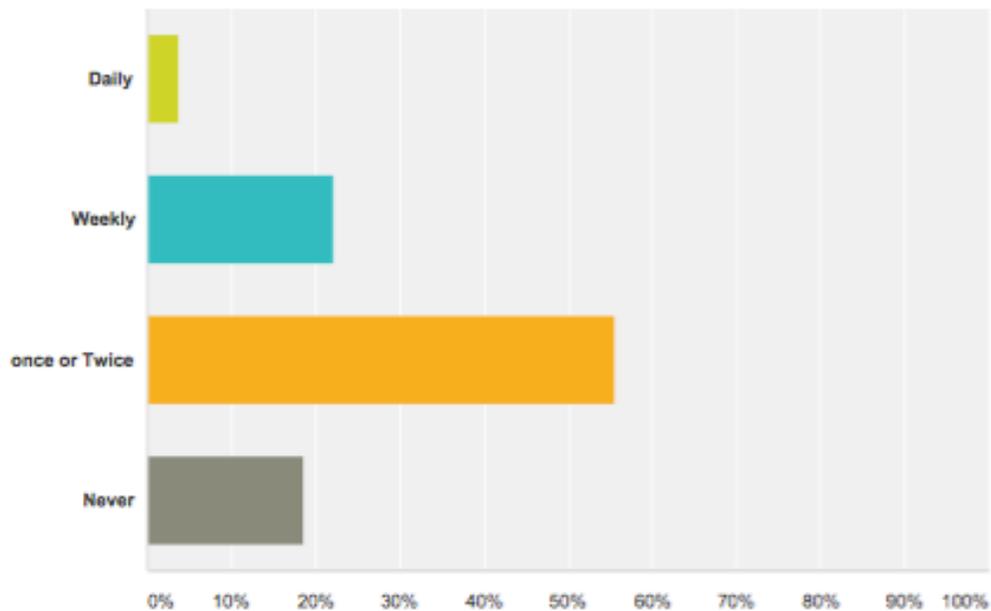
#	Responses	Date
1	I will practice algebraic expressions	4/1/2016 1:56 PM
2	I would like to to reach my end of the year goal.	4/1/2016 12:39 PM
3	Have at lest over 12 ponts at the end of the year for algebra.	4/1/2016 12:38 PM
4	Goup 3 points by the end of the year for numbers and operations	4/1/2016 12:38 PM
5	I would like to move up 2 points on my geometry to get 16	4/1/2016 12:38 PM
6	I don't know	4/1/2016 12:37 PM
7	Go up 3 points on my algebra	4/1/2016 12:37 PM
8	Dont have 1	4/1/2016 12:36 PM
9	Geometry	4/1/2016 12:36 PM
10	To go up 2 points in geometry from 14 to 16	4/1/2016 12:36 PM
11	I dont no	4/1/2016 12:36 PM
12	To go up two points in my geometry test	4/1/2016 12:36 PM
13	Mcomp test	4/1/2016 12:36 PM
14	Mcomp	4/1/2016 12:35 PM
15	Geomentry	4/1/2016 12:35 PM
16	To get up 30 or more points on my dibbles	4/1/2016 12:35 PM
17	?	4/1/2016 12:35 PM

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q6 During the 2nd Trimester (2), how often did you receive Descriptive Feedback from your teacher regarding where you are in relation to your trimester math goal? (Descriptive Feedback is specific information from the teacher in form of written comments or conversations that helps the student understand how to improve.)

Answered: 27 Skipped: 2



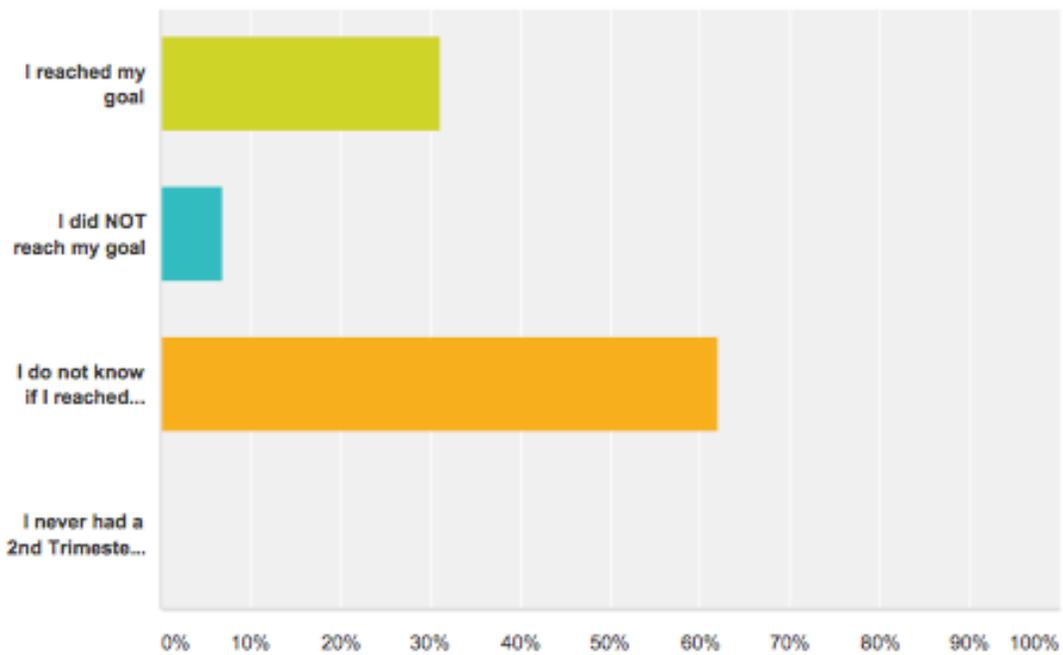
Answer Choices	Responses
Daily	3.70% 1
Weekly	22.22% 6
once or Twice	55.56% 15
Never	18.52% 5
Total	27

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q7 Did you reach your 2nd Trimester Math Goal?

Answered: 29 Skipped: 0



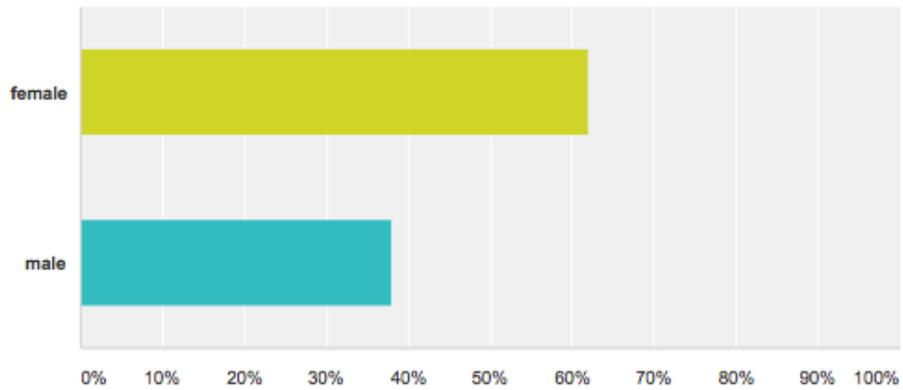
Answer Choices	Responses
I reached my goal	31.03% 9
I did NOT reach my goal	6.90% 2
I do not know if I reached my goal	62.07% 18
I never had a 2nd Trimester math goal	0.00% 0
Total	29

Disney Student Trimester 2 Math Goal (Post)

SurveyMonkey

Q8 Are you female or male?

Answered: 29 Skipped: 0



Answer Choices	Responses
female	62.07% 18
male	37.93% 11
Total	29