

You Have a Choice: The Power of Options in the Intrinsic Motivation of Kindergarten Students

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Abstract: Previous studies have shown that increasing students' intrinsic motivation can lead to greater academic achievement and enhance students' general interest in learning. I wanted to see if providing choice during a math lesson could increase kindergarten students' intrinsic motivation. In my study, I observed the behaviors of 23 kindergarten students during their independent math station before and after they were given activity choices. Students completed a questionnaire to measure an increase in intrinsic motivation. Students' off-task behavior significantly decreased after they had a choice regarding their math activity. Specifically, the off-task behavior of students talking about topics other than the math activity significantly decreased. Implications for future research and improvements of the study are discussed.

Introduction

Most teachers want their students to succeed academically, and many teachers go out of their way in order to give their students a good education. However, in order to receive a good education, a student also needs to be inspired to learn. Education is not a one-way street. There are at least two people who are responsible for making a quality education possible: the teacher and the student. Many teachers and parents struggle with getting their students motivated to learn. Some students do not seem to be motivated to learn, which will make it difficult for the teachers to get their students to be academically successful. Thus, one of the teachers' main priorities should be to ensure that students have a desire to learn.

Most educators agree that students need to be motivated in order to get the best from their education (Grolnick & Ryan, 1987). However, there are children who do not seem as interested in learning and some students might even lose their interest in learning over time, or so it may seem. When students lose their intrinsic motivation to learn, the question of causation arises. How, when, and why did these students lose their interest in learning? If teachers want all students to have the best education possible from the day they start preschool to the day they begin their careers, it is the teachers' responsibility to keep those students motivated throughout these years in order for them to be able to succeed academically.

Most people would agree that hard work leads to success. However, there needs to be some type of motivation for the student to want to learn. Motivation can be conceptualized as intrinsic or extrinsic. Whereas intrinsic motivation comes from within and is the actual desire to learn, extrinsic motivation comes from an outside force, usually in the form of reinforcement or punishment. In other words, a person who is intrinsically motivated is actually interested in

learning, while the extrinsic motivated person is more interested in the reward or in avoiding punishment (Deci & Ryan, 2012).

Many forms of intrinsic as well as extrinsic tools are being used in classrooms today. Teachers try everything from motivational speeches to stickers in order to get students inspired to do their best.

In spite of the fact that both forms of motivation can lead to the desired outcome, several studies have shown that having greater intrinsic motivation may lead to significantly higher school achievement, lower academic anxiety, and more favorable perceptions of academic competence. Therefore, intrinsic motivation appears more desirable than extrinsic motivation (Gottfried, 1990). Even though it is not realistic to expect teachers to fully banish rewards that might lead to extrinsic motivation, there are ways in which teachers can incorporate other methods in order to motivate students intrinsically. One of these methods is increasing students' choice in the classroom. By providing the student with a choice, teachers can encourage students' autonomy, which may in turn lead them to be more intrinsically motivated (Deci, Eghrari, Patrick, & Leone, 1994).

My main goal, as an intern in a kindergarten class, is to research whether an increase of choice can make a difference in a kindergarten student. Namely, I want to explore whether an increase in choice during a math lesson will help students become more intrinsically motivated in math and therefore more engaged in the classroom.

Literature review/theoretical framework

Self-determination theory is a theory of motivation. It is the idea that motivation stems from within. Self-determination theory is an individual's ability for self-regulation that can be influenced by the individual's environment (Deci, Eghrari, Patrick, & Leone, 1991).

Self-determination theory distinguishes between two types of motivation: self-determined and controlled. Self-determined types of motivation can be intrinsic as well as extrinsic, but come from within and happen because a student chooses to participate in an activity, like studying for a test. An example for a self-determined type of motivation that is extrinsic would be that that a student studies because he or she is determined to get a college degree. Controlled types of motivation are extrinsic types of motivation. All intrinsic types of motivation are self-determined.

Both of these types of motivation can lead to learning. However, research suggests that these types of motivation are not of equal quality. Vansteenkiste et al. (2004) found that by providing students with intrinsic forms of motivation, students are more likely to develop autonomous motivation, less superficial processing, and better graded performance. Therefore if teachers want their students to get the most of their learning they should increase a student's intrinsic motivation.

Self-determined students are able to regulate themselves, instead of needing an external force that regulates them. Self-determination theory is an individual's ability for self-regulation that can be influenced by the individual's environment. (Deci, Eghrari, Patrick, & Leone, 1991). Self-determination theory describes three needs in order for humans to be able to develop intrinsic motivation: the need for competence, the need for relatedness, and the need for more autonomous motivation for learning. When students experience competence, relatedness, and autonomy, their intrinsic motivation will most likely be maximized (Deci et al. 1991b).

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Competence means that a student feels as if he or she has the ability to accomplish something (e.g., finishing a math problem). Relatedness means that a student feels some form of belonging in the classroom. This feeling can be fostered by a good teacher-parent relationship, or by helping the student feel that he or she is an important part of the classroom community.

Autonomy means that the student has some form of choice in what he or she is learning; this can mean that the student chooses a book to read that he or she is interested in.

Teachers can influence their students' motivation by the kind of environment they create in their classrooms. There are different methods a teacher can use in order to increase a student's motivation. However, some motivational tools might lead students to be more extrinsically motivated than others. Anderson, Manoogian, and Reznick, (1976) found that when they offered preschool students a reward (money or a prize), students' intrinsic motivation would decrease. If a teacher strongly relies on rewards and punishments, the student might learn to be externally controlled. A student will then learn to do something because he or she is expecting a reward or avoiding a punishment instead of concentrating on the learning (Grolnick & Ryan, 1987).

Even though, the most desirable form of motivation would be the intrinsic form of motivation, students will not always be intrinsically motivated for all the materials they will have to learn. When students are not intrinsically motivated, they need extrinsic motivation in order for them to learn necessary materials. Therefore, there is a need for extrinsic motivation.

Though both extrinsic as well as intrinsic motivation can lead to the desired goal of student engagement, there seems to be an important difference in the two motivational styles. Students who are more extrinsically motivated seem to experience more school anxiety, and self-blaming, whereas students who are more intrinsically motivated seem to experience more enjoyment and positive coping with failures, and a general positive attitude towards learning (Ames, 1992; Deci et al., 1991a). Additionally, students who are extrinsically motivated tend to compare themselves with others and establish their self-worth by their rewards and comparison to others (Ames, 1992). Other researchers have found that extrinsic rewards might only be good for short-term motivation that does not lead to positive long-term behaviors (Kohn, 1993). Intrinsic motivation leads students to longer-term concentration on tasks than students who are extrinsically motivated (Ames, 1992). Intrinsic motivation has been found to improve students' interest in challenges and learning. This suggests that teachers should focus on increasing their students' intrinsic motivation.

Self-determination theory suggests that meeting an individual's need for competence, relatedness, and autonomy can improve motivation. However, only if these needs are accompanied by autonomy, will the student develop intrinsic motivation (Deci et al. 1991b). Research has shown that choice can lead to an increase in intrinsic motivation (Albrecht, Haapanen, Hall, & Montonya, 2009; Maehr, 1991; Deci et al., 1991a; Deci et al., 1991b, Gambrell, 1996).

Other studies have shown that providing students with choice, might not only have a positive influence on students' intrinsic motivation, but also on their effort, task performance, and perceived competence, and preference for challenge (Patall, Cooper, & Robinson, 2008).

For example, the benefits of positive feedback can only be reaped when the positive feedback is accompanied by autonomy (Deci et al., 1991b). In other words, if teachers praise a student for a self-determined action, they may increase the student's intrinsic motivation. However, if a teacher praises students for an action that they were supposed to do (controlled by teacher), the student will be more extrinsically motivated (Deci et al., 1991b). Autonomy therefore seems to be the most critical aspect of increasing students' intrinsic motivation.

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However, even though choice seems to be a critical to increasing students' intrinsic motivation, competence and relatedness are equally important factors in order to increase intrinsic motivation (Deci et al, 1991b).

Even though research has shown that choice can improve intrinsic motivation, recent studies have shown that choice can also decrease motivation in some cases (Katz & Assor, 2007). Such findings might confuse teachers and lead them to stop using choice in the classroom altogether (Flowerday & Schraw, 2000). Therefore, it is important to understand what forms of choice can improve students' motivation. Katz and Assor (2007) found that choice seems to be motivating when the options are relevant to the student, there are not too many or complex choices, and the choices value a student's culture.

Furthermore, Flowerday, Schraw, and Stevens (2004) argued that it is not choice in itself, but rather student interest, that improves intrinsic motivation. If students only have the choice to pick one of two books that both have no meaning to the child, it won't have an effect on intrinsic motivation. However, if students can choose something that actually interests them, it will increase their intrinsic motivation. It therefore seems important that teachers not only offer choice, but also make sure that the choice is relevant to the student in order to increase students' intrinsic motivation. In other words, students need to be interested in at least one of the choices, but not necessarily be equally interested in all of them for choice to matter.

In conclusion, it seems that providing choice in the classroom is a good way in order to increase students' intrinsic motivation. However, choice needs to be accompanied with other factors, like relevance, in order to get the best out of a child.

In my study I plan to concentrate on increasing students' motivation through choice, because it seems like the other two components (competence and relatedness) of self-determination theory are already established in the classroom environment. The goal of my study is to answer the following research questions:

Research Questions

1. Do kindergarten students prefer having a choice?
2. Does engagement increase when kindergarten students have a choice?
3. Does off-task behavior decrease when kindergarten students have a choice?
4. Does intrinsic motivation increase when kindergarten students have a choice?

Methods

Intervention

This study took place in a kindergarten classroom of a Title I elementary school in Southern Maryland. The kindergarten class consists of 22 students; 12 girls and 10 boys: eight Caucasian, twelve African American or mixed, one Hispanic (ESOL) and one Asian.

In my study, I gave students the opportunity to choose a math activity with which they were already familiar. During their math lesson time, students rotated between four different stations. Students were in each station for 10 minutes for a total of 40 minutes. There was one station in which students worked independently. There were five different math activities offered in the independent station from which students could choose to be engaged in. Before the study, the teacher chose a single activity that students would be engaged in. I introduced choice in this independent station, and I wanted to see if this choice increased students' intrinsic motivation. After I collected the initial pre-intervention data, I told students that they would

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have a choice of math activities in which to participate during their independent math stations. Because the five activities in the independent station were activities that practice different skills, I wanted students to still go through all of the math activities each week. This is why I let students choose the activity, but not the same activity twice in one week. After the intervention, I collected post-intervention data in order to compare each student's intrinsic motivation before and after having a choice.

Because post-observation data was collected the week after spring break, and the kindergarten students' behavior was somewhat negatively affected by the break, I extended the post-observation for an additional four days. This is why there are two post-observation data sets available that I will examine: Post 1 and Post 2.

I conducted a quantitative study. To collect my data, I used a survey and an observational checklist. I used the survey (see appendix 1) to get a sense of students' opinions and enjoyment of the activity. The survey was composed of Likert-type scale items in which students rated their feelings towards a specific situation. A sample question from the survey is "How much do you like the math activities?" The Likert-type scale student answers ranged from "Don't like it at all" to "Like it very much". Because most kindergarten students were not able to read the questions as well as the answers, I read each question to the students. Additionally, the answers contained face icons that resembled the answer (e.g. a sad face for "Don't like it at all.").

Prior to the survey, I explained the meaning of the faces to the students, and I was available for questions during the survey. This questionnaire was given twice: once before the intervention, and once after the intervention was implemented. The questionnaire allowed me to get a sense of the students' intrinsic motivation toward the math activities before and after they had a choice. The survey helped me discover whether students liked math, enjoyed having a choice, whether they liked the math games, and whether their opinions changed from pre- to post intervention. In addition to the questionnaire, I used a behavioral checklist. My mentor teacher observed the independent math group while I was teaching another group of students. She observed them for four days before my intervention and for four days after my intervention at similar times of the school day. We extended the post-observation for an additional four days, because of the previously mentioned possible "after spring break effect". Therefore, there is Post 1 (week after spring break) data and Post 2 (extended week) data. The behavioral checklist (see Appendix B) helped me to get a sense of student engagement during the math activities before as well as after the intervention. I separated on-task behavior from talking about math, because I wanted to make sure that talking about math was not accidentally confused as an off-task behavior.

I was originally planning to use a daily journal to note how well choices for the independent math activity worked. However, I realized that I never really observed the students during that time because I was busy teaching another group of students. I used the journal for comments and notes on the organizational part of the introduction of choice.

Data collection

In order to compare students' intrinsic motivation toward the math activities before and after providing them with choices, I gave students a questionnaire before and after intervention. The questionnaire consisted of questions to assess student motivation in the math activities. It also contained questions about students' opinion on choice and preferences of the math activities.

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An example of such a question was “How would you like it if you could chose the math activity?”

In addition to the questionnaire, I used a behavioral checklist to evaluate students’ engagement. This checklist was completed once before intervention and once after intervention. The behavioral checklist gave me additional information on the students’ engagement and behavior during the math activities. Because student engagement can reflect students’ intrinsic motivation, engagement was a good indicator of intrinsic motivation. There were four behaviors that I was looking for: two on-task behaviors and two off-task behaviors (see Appendix 2). In order to observe each student equally, the observer started with the first student and observed the student’s engagement for 30 seconds. Whenever the observer noticed one of the four behaviors that were stated on the behavioral checklist, the observer placed a tally mark next to the student’s name and beneath the corresponding behavior. Once the observer went through all five students, the observer started with the first student again. This way, the observer observed each student for a total of two minutes (4 times 30 seconds).

Table 1:

Research questions and data sources

	Survey	Behavioral Checklist
Do kindergarten students prefer having a choice?	Questionnaire will reflect students’ attitudes towards choice	
Does engagement increase when kindergarten students have a choice?		Behavioral checklist will reflect students’ on-task behavior
Does off-task behavior decrease when kindergarten students have a choice?		Behavioral checklist will reflect students' off-task behavior
Does intrinsic motivation increase when kindergarten students have a choice?	Questionnaire will reflect students' attitudes towards math as well as towards the math activities	Behavioral checklist will reflect students' on-task behavior (indicator for intrinsic motivation)

Validity concerns

Some students might not have answered their questionnaire truthfully because they may have wanted to please me. If students answered their survey questions untruthfully and only responded positively towards the math activities, I might not get a significant result from the survey questions. Another problem that might have occurred is that some students may have already been intrinsically motivated to play math games, in which case the ceiling effect may have prevented me from discovering any significant improvement in intrinsic motivation.

Any significant decreases could also be a result of my becoming a more experienced teacher and students getting to know me, and my teaching style better.

Findings and interpretations

In this study, I investigated whether students responded to choice with more engagement in the appropriate activity and less off-task behavior. I tried to answer these questions by using an observation checklist, which allowed me to document my students' on and off-task behavior. Furthermore, I wanted to see if students' attitudes towards math, the math activities, or choice changed after they had a choice in the math activities.

Do kindergarten students prefer having a choice?

My first research question examined whether students generally preferred having a choice, and if having a choice changed their level of intrinsic motivation. I tried to answer this question by gathering student responses to a questionnaire. The specific questions on the questionnaire that were supposed to answer this research question were: "How would you like it if the teacher chose the math activity for you?" and "How would you like it if you could choose the math activity?" I conducted a paired-sampled t-test. If the value of the t-test is bigger than 0.05, the result is said to be non-significant. If the value of the t-test is smaller than 0.05, the result is said to be significant. I could not find that students significantly preferred having a choice over not having a choice. Their preference also did not change significantly after they received choice. However, their difference in opinion on choice trended toward significance. Students' responses trended toward a significant decrease in wanting their teachers to choose for them. This indicates that students seemed to like choices more after they received a choice.

Table 2:

T-Test Results Comparing Students' Pre- and Post Intervention Answers of Question 3 "How would you like it if your teacher chose the math activity for you?"

Measure	n	M	SD	p
Pre	21	3.86	1.46	0.057
Post	21	3.4	1.67	

I also conducted a t-test to see if there was a significant change in response of Question 4: "How would you like it if you could choose the math activity?" before and after intervention. If students answers resulted in an increase in liking choice, it would indicate that students are more interested in choice then they were originally. However, there was not a significant change in the pre compared to the post intervention answers, though the p-value is trending towards significance. Surprisingly, students' responses trended toward a significant decrease in liking having a choice. This indicates that students liked choices less after they received a choice. Results from question 3 and question 4 contradict each other. One result indicates that students like choice more after they received choice, while the other result suggests that students like choice less after they received choice. I explore these results further in my interpretation section.

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Table 3:

T-Test Results Comparing Students' Pre- and Post Intervention Answers of Question 4: "How would you like it if you could choose the math activity?"

Measure	n	M	SD	p
Pre	21	4.2	1.44	0.055
Post	21	3.55	1.64	

Does intrinsic motivation increase when kindergarten students have a choice?

My next research question was concerned with whether students' interest in math increased by having a choice. If so, this would indicate that students' actual intrinsic motivation in math increased. I conducted a t-test to compare the differences between the pre- and post intervention questionnaire of the question "How much do you like math?" Significant data has been found by comparing these two values. Surprisingly, students' interest in math decreased after intervention. If students' actual interest in math decreased after receiving choice, this suggests that their intrinsic motivation also decreased.

Table 4:

T-Test Results Comparing Students' Pre-and Post Intervention Answers of Question 1: "How much do you like math?"

Measure	n	M	SD	p
Pre	21	4.67	0.73	0.01
Post	21	3.55	1.64	

I also conducted a t-test to compare the differences between the pre- and post intervention questionnaire item: "How much do you like the math activities that we do?" There was no significant data found in between the attitudes in students towards the math activities between pre- and post intervention.

Table 5:

T-Test Results Comparing Students' Pre-and Post Intervention Answers of Question 2: "How much do you like the math activities that we do?"

Measure	n	M	SD	p
Pre	21	3.83	1.53	0.86
Post	21	3.85	1.5	

Does engagement increase when kindergarten students have a choice?

My second research question addressed whether engagement increased when students had a choice. I was planning on answering this question with a behavioral checklist. My mentor teacher observed students during their independent math activities and looked for: 1) Students' off-activity behavior, 2) Students' on-activity behavior, 3) Students talking about math, and 4) Students not talking about math. I combined students' off activity behavior with students not talking about math behavior to compare the total off-task behaviors. I also combined students' on-activity behavior with students talking about math to compare the total on-task behaviors. I observed students before they had a choice in their math activity for four days (pre), then I observed students after I introduced choice to them for another four days (post 1). However, because the post-intervention observation was done during the week after spring break, I decided to extend the post-observation and I observed the students for an additional four days (post 2). The observation week after spring break is labeled Post 1 and the additional week was labeled Post 2.

I performed a t-test on pre intervention data and the post 1 intervention data of the students' total on-task behaviors. There was not a significant difference between the total on-task behavior during pre-intervention and total on-task behavior during post 1 intervention.

Table 6:

T-Test Results Comparing Students' Total On-Task Behaviors Between Pre- and Post 1 Intervention

Measure	n	M	SD	p
Pre	21	5.76	2.72	0.42
Post	21	6.33	2.61	

I repeated the t-test with the data of the post 2 (extended week) observations. There was not a significant difference between the total on-task behavior during pre intervention and total on-task behavior during post 2 intervention. These results suggest that choice did not increase engagement.

Table 7:

T-Test Results Comparing Students' Total On-Task Behaviors Between Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	5.76	2.72	0.54
Post 2	21	5.33	2.76	

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I also looked into the single on task-behaviors: actively participating in the activity (on-activity) and also talking about the math activity. I conducted a t-test to compare on-activity behaviors before intervention (pre) and after intervention (post 1). There was not a significant difference between the on-activity behavior during pre intervention and on-activity behavior during post 1 intervention.

Table 8:

T-Test Results Comparing Students' On-Activity Behaviors Pre- and Post 1 Intervention

Measure	n	M	SD	p
Pre	21	4.81	1.78	0.75
Post	21	4.67	1.77	

Additionally, I looked at the single on-task behavior on-activity between pre and post 2 intervention. A t-test was conducted to compare on-activity behavior before intervention (pre) and after intervention (post 2). There was not a significant difference between the on-activity behavior during pre intervention and on-activity behavior during post 2 intervention.

Table 9:

T-Test Results Comparing Students' On-Activity Behaviors Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	4.81	1.78	0.57
Post 2	21	4.48	2.04	

A t-test was also conducted to compare pre-intervention on-task behavior “talking about math” and post-intervention behavior “talking about math”. There was not a significant difference between the on-task behavior “talking about math” during pre intervention and the on task behavior “talking about math” during post 1 intervention.

Table 10:

T-Test Results Comparing Students' "Talking About Math" Behaviors Pre- and Post 1 Intervention

Measure	n	M	SD	p
Pre	21	0.95	1.56	0.12
Post	21	1.67	1.56	

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Additionally, a paired-samples t-test compared pre-intervention on-task behavior “talking about math” and post 2 intervention behavior “talking about math”. There was not a significant difference between the on-task behavior “talking about math during pre intervention and the on task behavior “talking about math” during post 2 intervention. These results suggest that choice does not increase on-task behaviors (engagement).

Table 11:

T-Test Results Comparing Students’ “Talking About Math” Behaviors Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	0.95	1.56	0.78
Post 2	21	0.86	1.2	

Does off-task behavior decrease when kindergarten students have a choice?

I also used a behavioral checklist (Appendix 2) in order to answer my third research question: “Does off-task behavior decrease when kindergarten students have a choice?” A paired-samples t-test was conducted to compare total off-task behavior before intervention (pre) and after intervention (post 1). There was not a significant difference between the total off-task behavior during pre-intervention and total off-task behavior during post 1 intervention. However, the p-value of 0.06 trends toward significance.

Table 12:

T-Test Results Comparing Students’ Total Off-Task Behavior Pre- and Post Intervention

Measure	n	M	SD	p
Pre	21	4.05	3.07	0.06
Post	21	2.62	1.77	

I repeated the t-test with the post 2 data. A t-test was conducted to compare total off-task behavior before intervention (pre) and after intervention (post 2). There was a significant difference between the total off-task behavior during pre-intervention and total off-task behavior during post 2 intervention. These results suggest that students’ off-task behavior might decrease when they are provided with choices.

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Table 13:

T-Test Results Comparing Students' Total Off-Task Behavior Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	4.05	3.07	0.01
Post	21	2.62	1.77	

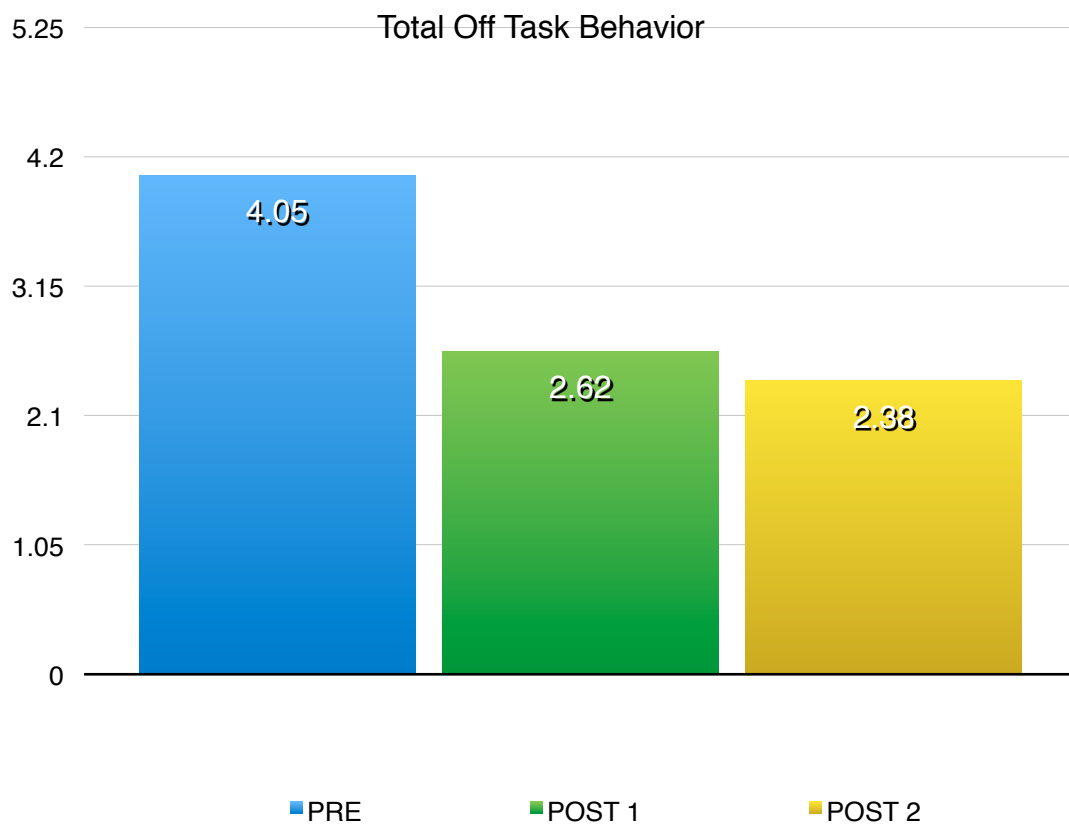


Figure A. Total Off-Task Behavior Pre, Post, and Post 2

Additionally, I looked at the single off-task behaviors: general off-math activity (off-activity) and not talking about the math activity. A paired-samples t-test was conducted to compare pre-intervention off-activity behavior with post 1 intervention off-activity behavior. There was not a significant difference between the off-activity behavior during pre-intervention and post 1 intervention.

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Table 14:

T-Test Results Comparing Students' Off-Activity Behavior Pre- and Post 1 Intervention

Measure	n	M	SD	p
Pre	21	1.67	1.62	0.9
Post	21	2.62	1.07	

A paired-samples t-test was performed to compare pre-intervention off-activity behavior with post 2 intervention off-activity behavior. There was not a significant difference between the off-activity behavior during pre-intervention and post 2 intervention.

Table 15:

T-test Results Comparing Students' Off-Activity Behavior Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	1.67	1.62	0.92
Post	21	1.62	1.91	

I performed a paired-samples t-test on the pre intervention data “not talking about math” and post 1 intervention data “not talking about math”. There was a significant difference between pre-intervention “not talking about math” and post-intervention “not talking about math” conditions. Specifically, there was a significant decrease in “not talking about math” after choice was introduced.

Table 16:

T-test Results Comparing Students' Off-Task Behavior “Not Talking About Math” Pre-and Post 1 Intervention

Measure	n	M	SD	p
Pre	21	2.33	2.15	0.02
Post	21	1	1.05	

I performed a paired-samples t-test to compare pre intervention “not talking about math” with post 2 intervention “not talking about math”. There was a significant difference between pre intervention “not talking about math” and post 2 intervention “not talking about math” conditions. Specifically, there was a significant decrease in “not talking about math” after choice

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was introduced. These findings suggest that choice might decrease students' off-task behaviors. These results suggest that specific off-task behaviors such as off-topic discussions were reduced by providing a choice to students.

Table 17:

T-test Results Comparing Students' Off-Task Behavior "Not Talking About Math" Pre- and Post 2 Intervention

Measure	n	M	SD	p
Pre	21	2.33	2.15	0.02
Post	21	0.76	1.26	

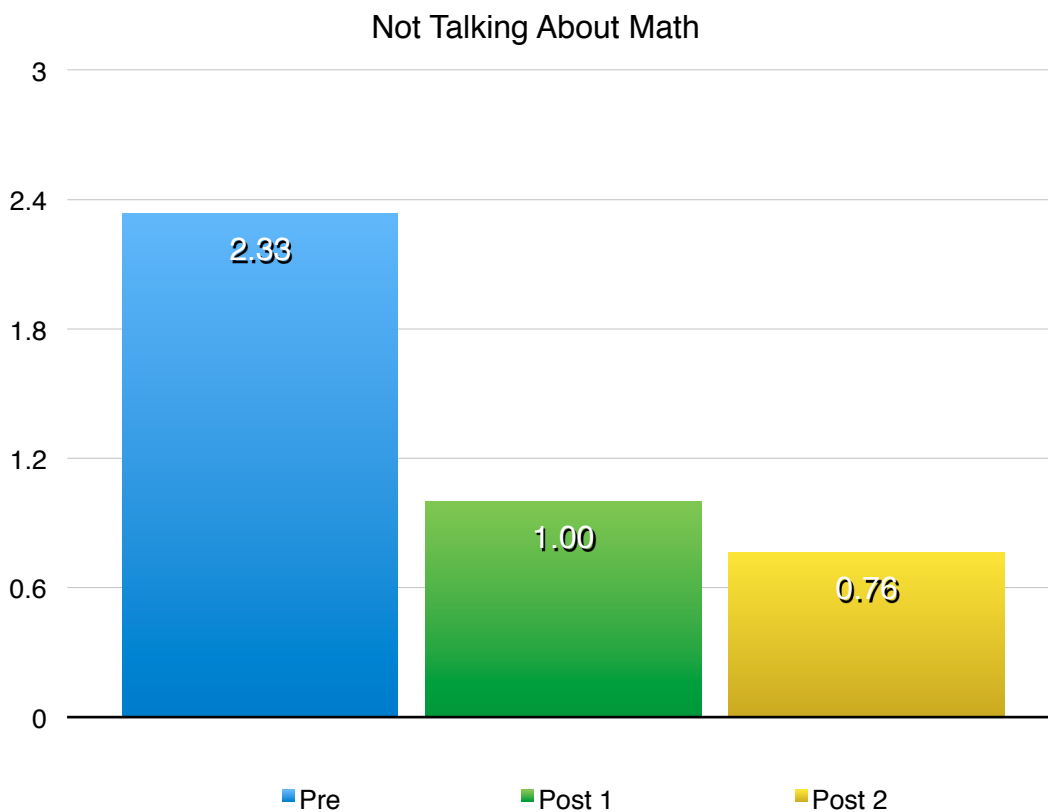


Figure B. "Not Talking About Math" Pre, Post 1, and Post 2

Conclusion

According to Deci, Eghrari, Patrick, & Leone (1994) intrinsic motivation might be increased by providing students with choice. My study did not necessarily suggest that intrinsic motivation increased in students. According to the results of the questionnaire, students' interest in math or the math activities did not significantly increase. The data from the questionnaire even suggests that students' interest in math significantly decreased. This seems like choice actually decreased students' intrinsic motivation in math in my classroom.

However, I have several explanations for why students' responses towards math might have significantly changed. During the first round of data collection (pre), I explained to students what math was. Because my students were kindergarten students, many of them were unclear on what math entailed. I gave students many examples and explained to them what math was. When I repeated the questionnaire for my post data collection, I failed to repeat this explanation to the students. I assumed that students would remember what math was. Maybe some students did not remember what math was, which is why they responded more negatively towards math. I wonder if results would have been different if I had discussed math with students before the post test.

I am also not sure on how much the kindergarten students thought about the questions and answers they gave. Students might have been influenced by their mood when answering these questions. The answers of the students were confusing at times. For question 3 "How would you like it if your teacher chose the math game for you?" and question 4 "How would you like it if you could choose the math activity?", students answers were conflicting. Students answers suggested that their liking in choice decreased and they also liked it less if their teacher chose for them. These answers suggest to me, that students did not really understand the questions. I wonder if students really knew what they were answering or if they just randomly circled face icons.

When I started introducing choice in the classroom, I was not sure if it was the right decision. Introducing choice to kindergarten students is not as easy as it sounds. It took time for students to become accustomed to it, and it took some time out of our day. I also was not sure how helpful choices were in decreasing off-task behavior because while students were engaged in their independent activities, I was teaching another group. I was never able to directly observe whether students' engagement increased and if their off-task behavior decreased. However, after seeing the results of this study, I would introduce as many choices as I could in my classrooms. Even though making a choice might take some time out of the students' day, that time would most likely be won back by decreasing off-task behaviors.

My findings suggest that choice might not necessarily increase engagement or intrinsic motivation, but it might decrease off-task behaviors. There might be several reasons for why off-task behaviors decreased during my study. It might be because students felt like they had more autonomy in the classroom and that might have reflected in their daily choice in what math activity they engaged in. Students also might be more interested in their math activity, which results in fewer off-task behaviors.

My study encouraged me to see how helpful choice can be in a classroom. However, it is not only helpful for the students, but also to the teachers. Student choice gave me visible feedback on what kind of activities in which students were more interested. Students had clear preferences and liked certain math activities better than others. This information can be helpful for teachers to select math activities that students like rather than activities that students do not like.

Limitations

This study found some significances in that off-task behavior might decrease when teachers provide students with choices. I believe that this study could have been improved. Even though I provided students with choices, I still wanted them to practice every math skill every week. This is why I decided to let students choose each independent math activity. Once they selected one math activity, they were not able to choose the same math activity again in that week. The problem with this study was that I only gave students five choices, which means that students did not have a choice on Fridays, because they were not able to choose one activity twice a week. However, I do not think that this negatively affected my study, because most weeks we were not able to participate in our math rotations every day, which resulted in them mostly always having some choice.

One more implication of this study might be that the reason for the significant results might not be due to the provided choices, but rather due to the fact that I became a better teacher. I learned how to keep an eye on all groups while teaching the math rotations, I learned more on classroom management, and students started to respect me more because I began to teach full-time. So the significant findings might not be due to the provided choices, but rather to students getting used to me as a teacher and also my becoming a better teacher.

This study should be repeated with a group of students that is working with their primary teacher instead of a student teacher or new teacher. If I repeat this study, I will provide students with more choices than five in one week in order for them to always have a choice.

Even though these significant findings might be due to factors other than providing choices in the classroom, it seemed as if students enjoyed self-selecting their math activities. On days when I forgot to ask them to make their choices, my students reminded me, because they wanted to make their choice. Students thought about their choices and demonstrated preference for one choice over another. I observed that students enjoyed having more autonomy in the classroom, and they liked taking an active role in their education.

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Appendix

Appendix 1

Attitudes towards Math

1. How much do you like math?



2. How much do you like the math activities that we do?



3. How would you like it if your teacher chose the math game for you?



4. How would you like it if you could choose the math activity?



Appendix 2

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Student name	Student is engaged in appropriate math activity (on-task)	Student is not engaged in appropriate math activity (off-task)	Student is talking about the math activity	Student is not talking about the math activity