

12-2013

Effects of In-Class Formative Assessments and Student Contracts on Homework Completion and Summative Assessments

Brian Robertson
St. Catherine University

Follow this and additional works at: <https://sophia.stkate.edu/maed>

 Part of the [Curriculum and Instruction Commons](#)

Recommended Citation

Robertson, Brian. (2013). Effects of In-Class Formative Assessments and Student Contracts on Homework Completion and Summative Assessments. Retrieved from Sophia, the St. Catherine University repository website: <https://sophia.stkate.edu/maed/21>

This Action Research Project is brought to you for free and open access by the Education at SOPHIA. It has been accepted for inclusion in Masters of Arts in Education Action Research Papers by an authorized administrator of SOPHIA. For more information, please contact amshaw@stkate.edu.

Effects of In-Class Formative Assessments and Student Contracts on Homework Completion and Summative Assessments

An Action Research Report

By Brian Robertson

Effects of In-Class Formative Assessments and Student Contracts on
Homework Completion and Summative Assessments

By Brian Robertson

Submitted on December 18, 2013
in fulfillment of final requirements for the MAED degree
St. Catherine University
St. Paul, MN

Advisor _____

Date _____

Abstract

This study was designed to see the effects of formal formative in-class assessments and student contracts on homework completion and summative assessments. The study took place in a small rural high school in Northeast Minnesota and the participants consisted of three sections of intermediate algebra classes of students from eighth grade through twelfth grade. All three sections used the formative assessments, while one of the sections used student contracts in addition. Data collection included three different surveys taken at different times throughout the study, teacher observations of the study, and results of homework completion and summative assessments. The results of the study showed that a high percentage of the students liked the formative assessments and felt that they were helpful in their homework completion and summative assessments. The student contracts also had a positive effect on homework completion with 100% homework completion in the section that used the student contracts. Both the formative assessments and student contracts will continue to be implemented to keep improving homework completion and summative assessments.

Homework completion can at times become a problem in high school mathematics classes. The reasons for students to not hand in their homework can be many including: do not understand, do not care, lost it, etc. The effects of not finishing homework assignments can be many as well. Assessments can be affected because students do not get the practice that they need by finishing their homework. Students also might not get the appropriate feedback when they do not finish or hand in their homework. According to Sterrett, Fiddner, & Gilman (2010), teachers want to be able to check for understanding in a meaningful way. Formal formative assessments similar to exit slips can be a great tool for teachers to use. Formative assessments can help students with the learning process and can help teachers differentiate among their classes and students. Britton (2011) states that formative assessment involves gathering data from students on their progress and comprehension so that instruction can be adjusted to meet their learning needs.

All students have different backgrounds and reasons for their successes and failures in school. Some students might have disabilities and one of the major reasons why students fail in integrated settings is because of problems with homework completion (Cancio, West, & Young, 2004). Motivation is another factor when it comes to homework completion. The high preference strategy can be used to help increase motivation for students in math (Devender, Rose, & William, 2009). The strategy is quick and easy, flexible for teachers, and provides interest for students. The students solve lower level questions first and after success, they will be able to solve the higher level questions.

Technology has a major impact on education now and it can have both positive and not so positive effects on homework completion and assessments scores. Technology empowers students and teachers to investigate questions that reflect their own interests and can motivate students to learn (Drier, Dawson, & Garofalo, 1999). Although technology may be a good way of enticing students to complete work, research has shown that doing homework online does not guarantee that the completion rate will be higher (Weber & Young, 2005). This research found lower completion rates and test scores for the students that chose to do their assignments online instead of the traditional book work. Weber and Young (2005) did mention that other variables could have affected the results, but it does go to show that technology does not always cure lack of motivation.

Formative assessments can be used in many forms. Pretests are one form used and they allow the teacher to understand what the students already know and what they need to work on when starting a new concept or unit (Britton, 2011). Mathematics games have also been used as an assessment tool in mathematics classes. The games are usually more engaging than regular classroom activities and, according to Delacruz (2011), games are fun, and they persuade students to do academic tasks without realizing it. Mathematics exit slips are also used as an assessment tool. The slips are to be given after some time is spent on a topic in class and the teacher can assess what the students are expected to learn, when the assessment is given, and how the students are performing (Sterrett, Fiddner, & Gilman, 2010). The exit slips allow the teacher to see who is struggling on a certain topic and what part of the topic it is.

The action research takes place in a small rural high school in Northeast MN. The research will be in three different sections of Intermediate Algebra. The first section is made up of 25 eighth graders. The section includes seventeen males and eight females. The class is during first period. This section is using student contracts and in-class formative assessments in the study. The students had to meet requirements to be in this class. The requirements included having an A in third and fourth quarters of seventh grade, meeting the standards with a score of 55 on their MCA exam in seventh grade, no missing assignments second semester in seventh grade, and having a score of 85% on their final exam in seventh grade. The students had to meet four of the five requirements. Eight of the students only met three of the requirements, therefore they had to write a paper on why they wanted to be in the class and understand the expectations that go with the class. The second section is made up of 26 students. The section includes one senior male, four sophomore males, two sophomore females, ten freshmen males, and nine freshmen females. The class meets during second period. This section is using the in-class formative assessments. The third section is made up of 14 students. The section includes one junior male, five freshmen males, and eight freshmen females. The class meets during eighth period which is the last class period of the school day. This section is using the in-class formative assessments.

The students in this study have all types of abilities and backgrounds. The variables involved that affect the learning process include abilities and motivation. Motivation is a topic that will arise when it comes to learning. The goal of the formative assessments and student contracts is to improve motivation among the students in mathematics class. The question that needs to be answered is how will in-class formative

assessments and student contracts affect homework completion and therefore, summative assessments. The feedback provided with the in-class formative assessments can provide a positive impact on learning the content and the student contracts can provide a positive expectation. Data collection and the research process are discussed in the next section.

Description of Research Process

The research process involved collecting data in a number of ways. These data included student surveys and teacher observations. The student surveys took place at three different points in the research process, beginning, middle, and at the end of the study. The surveys all had a focus on attitudes about mathematics, homework completion, and assessments. Teacher observations took place to analyze the day to day process of the research. Observations included keeping track of formative assessment results, students' attitudes with the formative assessments, and whether or not the students were learning from the formative assessments.

The participants are made up of three sections of intermediate algebra classes in a rural school in Northeast Minnesota. One of the sections has a contract (see Appendix A) that the students and teachers signed on the first day of school. This signed contract requires that the students, who are all in eighth grade, have all of their assignments turned in as well as a minimum grade of 82% or B- at the end of the first quarter of the school year. If the students do not meet these requirements they will be transferred back to a basic algebra class with the other eighth grade students. The other two sections in this research process consist of students in grades nine through twelve, and do not have contracts due to the fact that the contracts are only used in the eighth grade section.

The students in all three of the participating sections took a survey (see Appendix B) on the second day of school. The survey was utilized to find out their attitudes toward mathematics, homework completion, and assessments. The students were able to answer all of the questions on this survey by selecting one answer, multiple answers, and/or writing their own answer. The purpose of the survey also gave me a chance to tell the students information and details about my research plan and how it affects them. I told them that they could have their parents communicate with me if they had any questions, and that their surveys and other data were completely anonymous.

Teacher observations took place throughout the whole process; additionally, at the end of every week I wrote in my journal about what I had observed. I made sure to take note of a few items in particular. First, I made notes of the topics that we covered each week. We would spend at least two days on each topic. I would introduce the topic on the first day and the students would spend time working on an assignment that covered that topic. The second day on the topic we would go through any questions that the students have. Then I gave the students a formative assessment that included anywhere from four to six questions and the students worked on those problems on their own and handed them in when they finished.

The students would work on their assignment and I would quickly correct the formative assessments and hand them back to the students to go over. As a class we went through the questions and the students kept them as study guides. I kept track of the results for the students and observed if the students did well as a class and individually. The students that answered all the questions correctly sometimes had less homework because they showed me that they already understood the topics, so they did not have to

do as many basic skills questions on that topic in order to grasp the concept. Sometimes I gave students who answered all the questions correctly more challenging questions in order to challenge them and make them tap into their higher order thinking skills. The students used the formative assessments as a motivator to do well for these reasons. I was also able to check in and give more help to the students that struggled with the formative assessments. At times I even had the students who particularly struggled only do the questions pertaining to basic skills for that topic, so that they made sure to understand the necessary basic skills for that topic. The formative assessment served as a great tool for differentiating assignments and instruction based on student need and skill level.

The students took a second survey (see Appendix C) halfway through the study to see how their attitudes toward math, homework, and assessments had been affected. As a teacher, I wanted to see if the formative assessments had a positive or negative impact on their learning process. I wanted to know if they were helping or if they just took more time away from their learning. I also wanted to know if the contracts for my eighth grade section had a positive or negative impact on their learning as well. I wanted to find out if it motivated them to work hard enough to stay in the advanced class. I was able to compare the results from the survey at the beginning of the class with the survey at the midway point. By having the students take a midpoint survey, it allowed me to make any adjustments to help improve the research.

I kept track of how well each student did on each formative assessment. I wanted to use the results to see if the students were progressing as we covered more material. I also wanted to compare how well the students did on their formative assessments to how well they did on their summative assessments. My goal was to have the students that did

well on their formative assessments do just as well on their summative assessments. In this way I knew that the formative assessments were accurate to what the students should be learning. But I also wanted to see improvements from the students that did not do well on the formative assessments. I wanted to see if the formative assessments were helping the students learn the topics that they struggled with. I wanted to compare and see if the formative assessments only worked for certain students or if they had a positive effect on all types of students.

Lastly the students took a third and final survey (see Appendix D) at the end of the process. The goal of the final survey was to once again gather information about the students' attitudes toward math, homework, and assessments. I was looking for some feedback from the students about how the process went and what they thought worked and what did not work. I also wanted to know if they would want me to keep using the formative assessments in the future or what I could do to make it better and more effective in the learning process. I was able to compare the results of some of the questions from the two earlier surveys to see if there was a change, positively or negatively, in the students' attitudes. Analysis of survey and observation results will be used to answer the question of whether formative assessments and student contracts have an effect on homework completion and summative assessments. In the following section the results from the surveys and teacher observations will be discussed.

Analysis of Data

Data collection included three different student surveys and teacher observations. The surveys were taken at different times; during the first week of the study, midway

through the study, and during the last week of the study. The teacher observations were taken throughout the whole study.

Data were initially collected using a student survey during the first week of school. The survey was to find the students' attitudes about homework completion and summative assessments in mathematics classes. The students' results on this survey were split into three groups separated by class period. Group A is made up of the first hour eighth grade students consisting of 25 students. Group B is made up of the second hour ninth through twelfth grade students consisting of 26 students. Group C is made up of the eighth hour ninth through eleventh grade students consisting of 14 students.

The first question asked the students what motivates them to do their homework (see Figure 1). Good grades seemed to be the most motivating factor for Group A and Group B. I think that this shows that the students were mainly self-motivated, especially Group A.

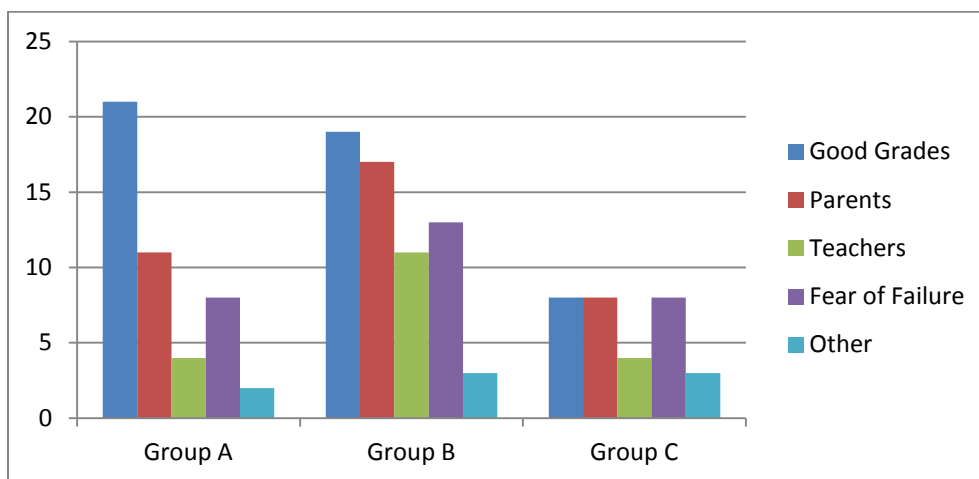


Figure 1. What motivates you to do your homework?

The students were also asked in question two, what reasons would you not do your homework (see Figure 2)? Too busy and do not understand were the two most popular answers. The answer that catches my eye is when the students do not understand and I want to be able to help the students out and make that a less popular answer.

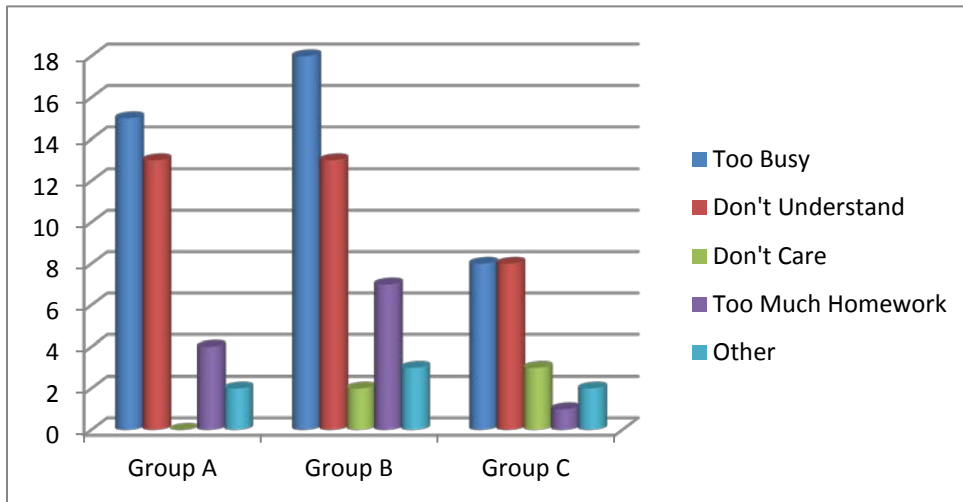


Figure 2. What reasons would you not do your homework?

Additionally I wanted to know what could help the students with their homework completion (see Figure 3). The students responded to this question with more time and less homework as the most popular answers. I understand why these answers would be the most popular and I am sure that the students would want both of these options to take place.

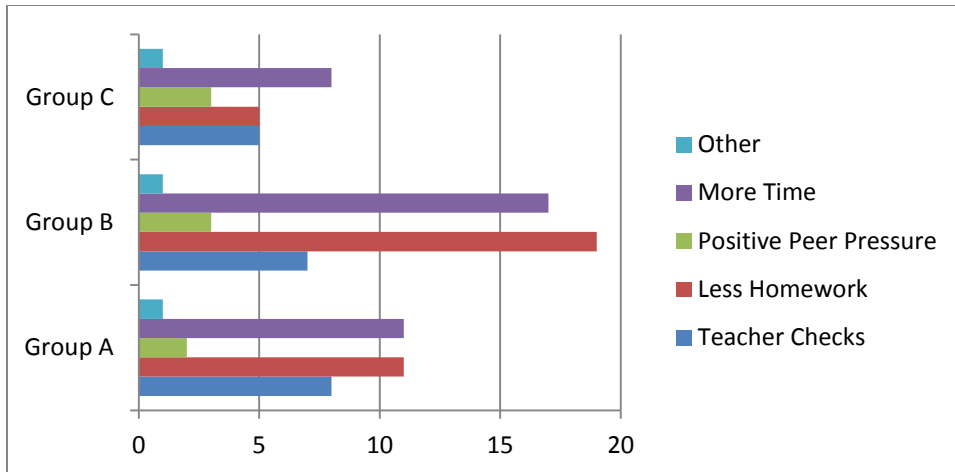


Figure 3. What could help with homework completion for you?

Furthermore I wanted to know more about what effective methods the students preferred when working on their mathematics in class (see Figure 4). The graph will show that working with a partner is the most popular method of working on mathematics.

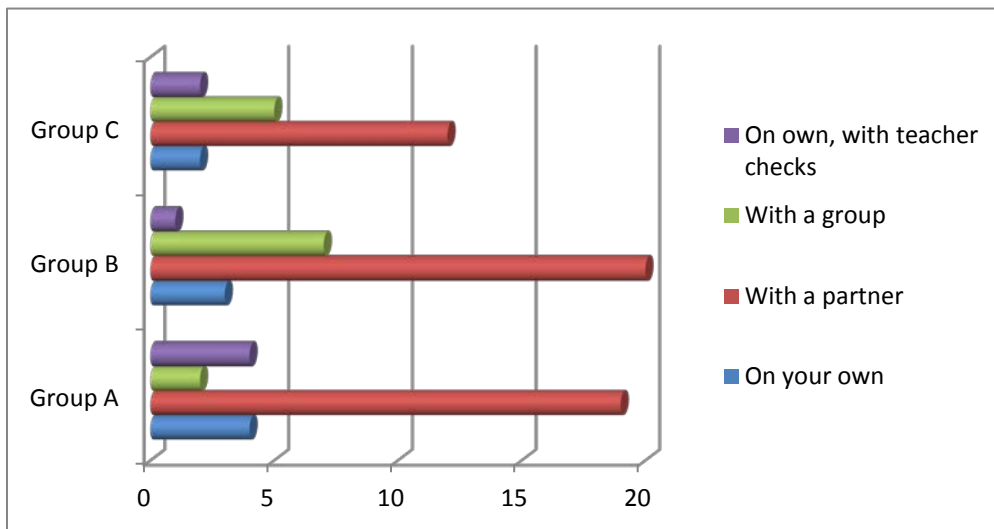


Figure 4. What is the most effective method of working on classwork in mathematics class?

Likewise I wanted to find out what the most effective method of learning mathematics is for the students (see Figure 5). The graph will show that classroom discussion is the most popular answer.

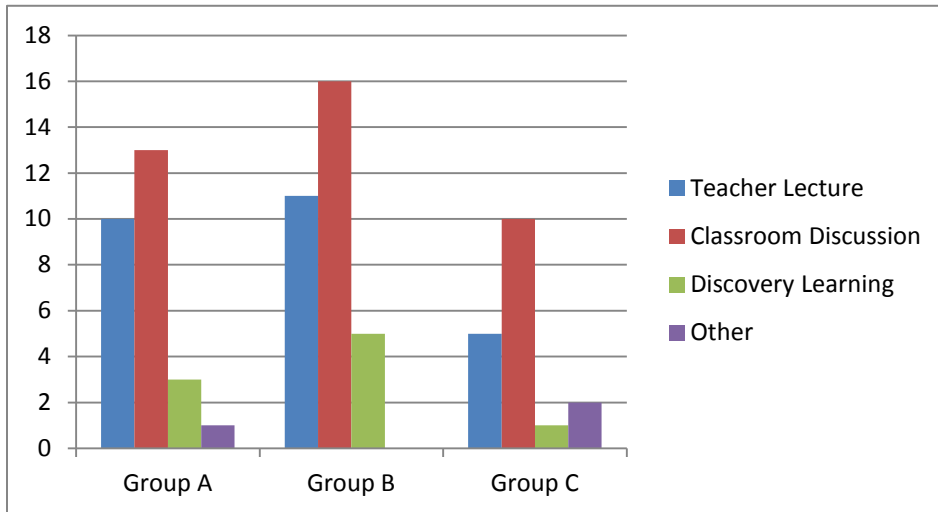


Figure 5. What is the most effective method of learning in mathematics class?

I also wanted to know how much effect doing their homework had on their tests or assessments (see Figure 6). The graph shows that most of the students believe that doing their homework does have a major effect on their test scores.

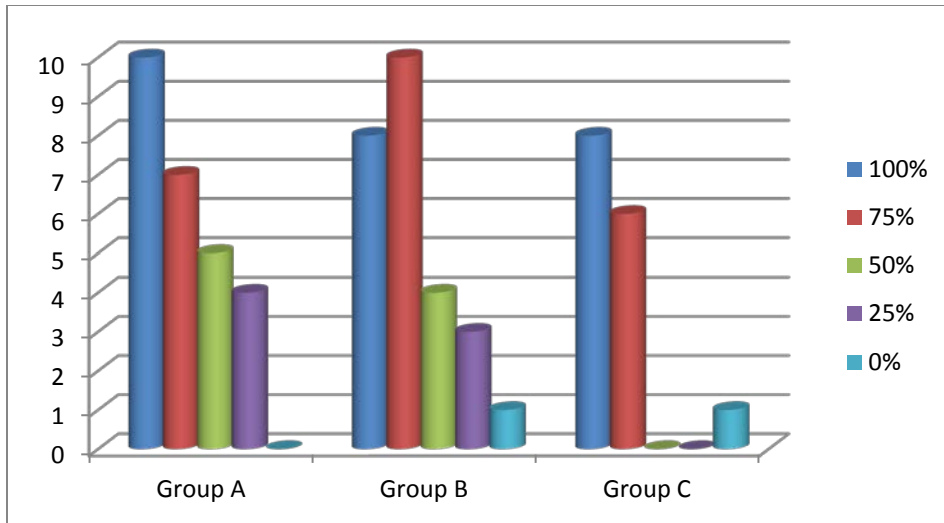


Figure 6. How much of an effect does doing your mathematics homework everyday have on your test scores?

I wanted to know what some of the most effective methods to prepare for mathematics tests were (see Figure 7). The graph will show that homework completion is the most popular answer for two of the groups and study guides was the most popular answer for one of the groups.

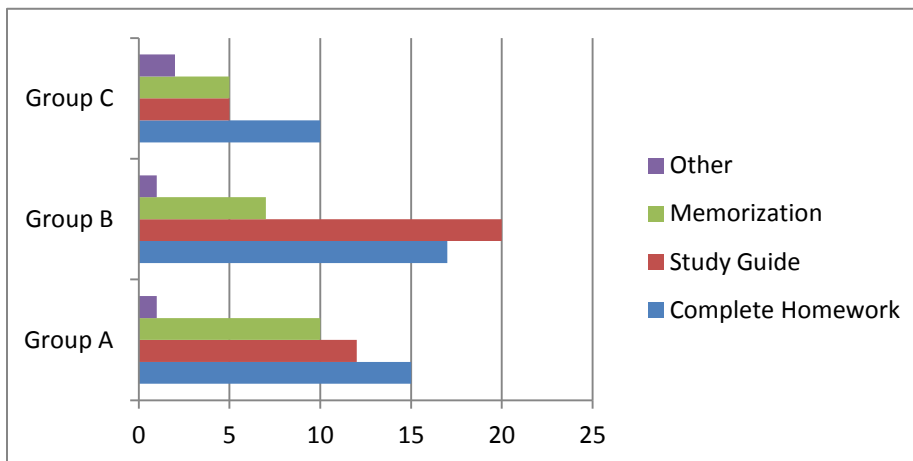


Figure 7. What is the most effective method to prepare for a mathematics test?

Lastly I wanted to find out if the students thought that the in-class formative assessments would improve homework completion and test scores (see Figure 8). The graph will show that the students believe the formative assessments will help homework completion and test scores.

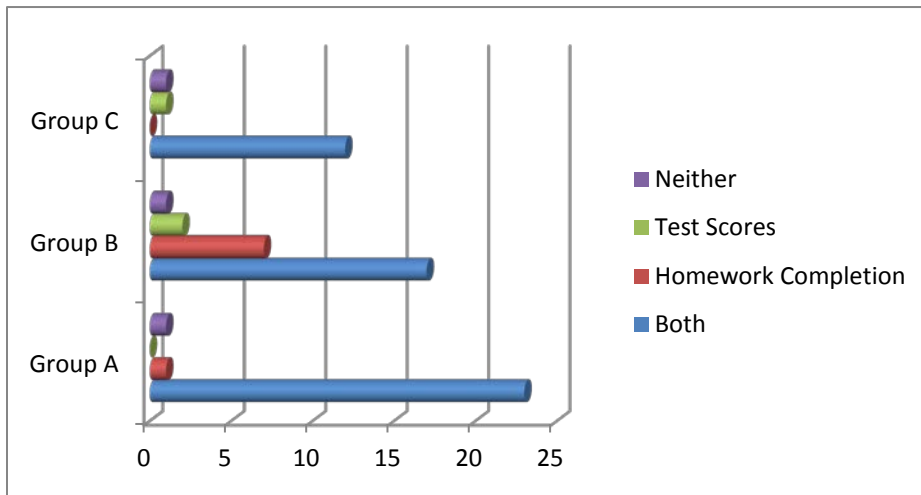


Figure 8. Do you think that in-class assessments (teacher checking your work) will improve your homework completion and test scores?

I also wanted to know if the students in Group A thought that the student contracts would help with homework completion and test scores (see Figure 9). The graph will show that the students believe the contracts will help both homework completion and test scores.

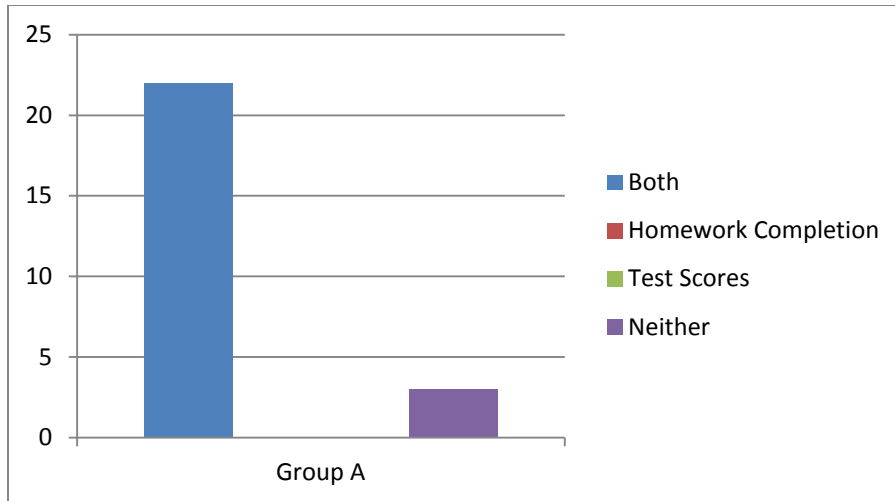


Figure 9. Do you think that the student contract will improve your homework completion and test scores?

The second form of data collected was another survey at the midway point of the study. The survey was used to find the students' attitudes toward the in-class assessments and how they could be improved. The first two questions that I had were whether the in-class assessments were helpful in the learning process (see Figure 10), and if they showed what the students did or did not know (see Figure 11). Both graphs show that the students thought that most of the time the in-class assessments were helpful.

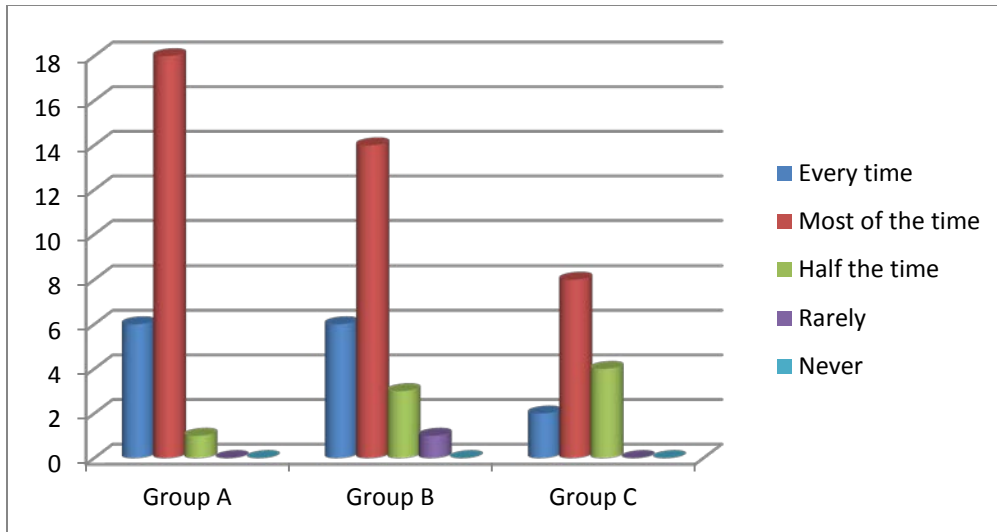


Figure 10. Do you feel that formal formative assessments have been helpful in your learning of the content?

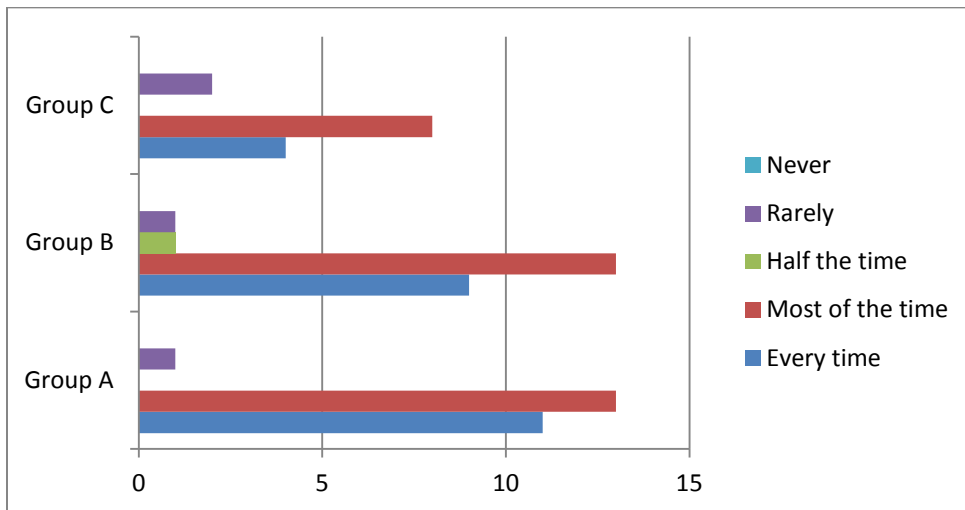


Figure 11. Do you feel that the formal formative assessments show what you know or do not know about the content you are learning about?

The next two questions that I had the students answer were about the effectiveness of the formal formative assessments in helping homework completion (see Figure 12) and summative assessments (see Figure 13). The goal was to have the formative assessments

help with these two areas. Both graphs show that most of the time the formative assessments were helpful.

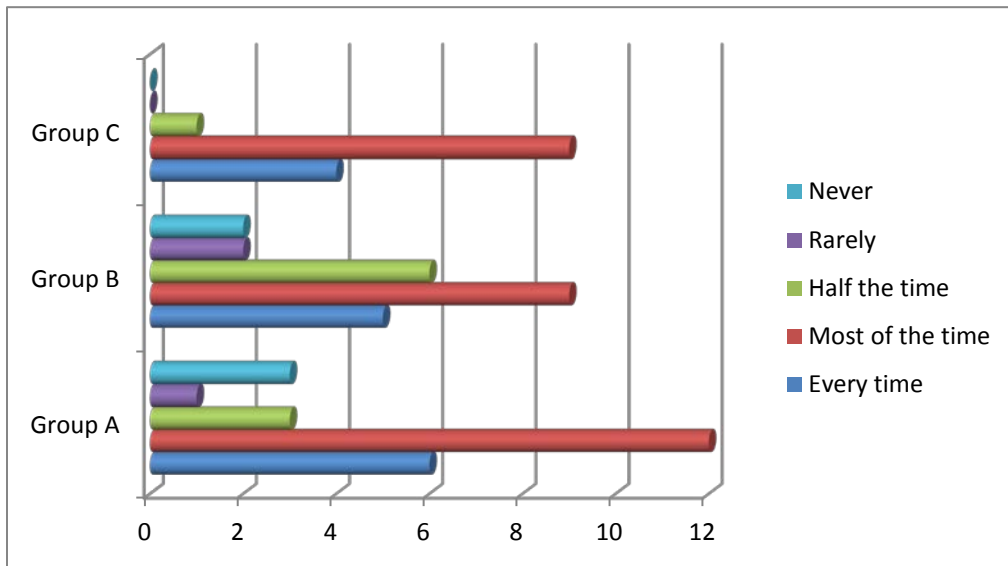


Figure 12. Do you feel that the formal formative assessments help you complete your homework?

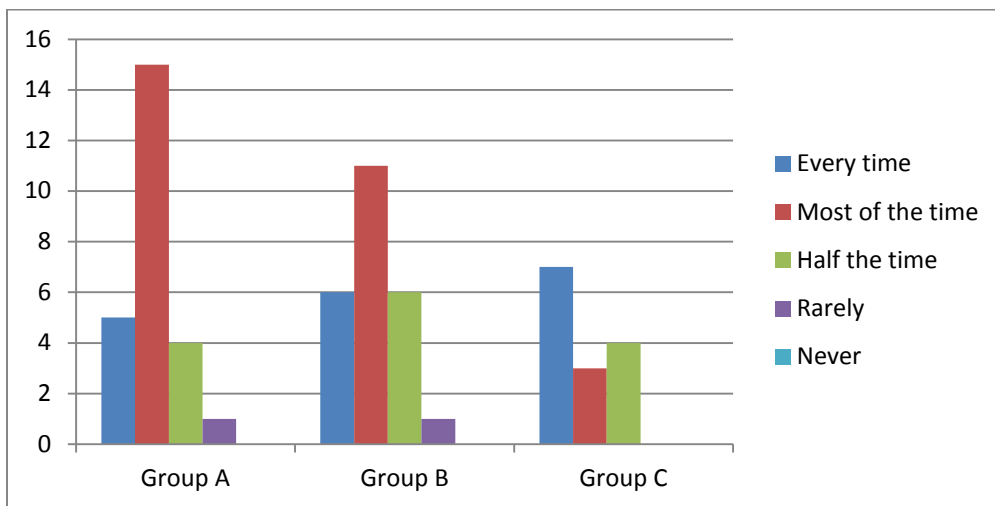


Figure 13. Do you feel that the formal formative assessments help you on your summative assessments?

Additionally on this survey I wanted to know what could be changed to help improve the learning for the students. I wanted to know if I could improve anything with the formal assessments (see Figure 14). The graph shows that the students felt that the formative assessments were helpful the way they were. The most common change was to have less challenging questions on the formative assessments.

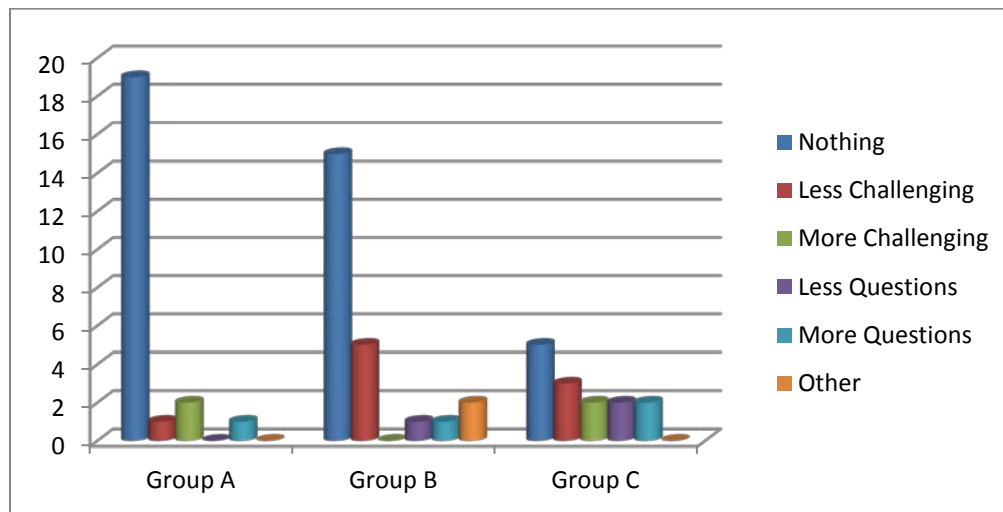


Figure 14. If you could change something about the formal formative assessments, what would you change?

Finally the last question on the midpoint survey was only for Group A. I wanted to know if the student contracts had any impact on their homework completion and/or summative assessments (see Figure 15). The graph shows that the student contracts did help the students with their homework completion and it helped them with their summative assessments. The graph also shows that the student contracts did not affect some of the students.

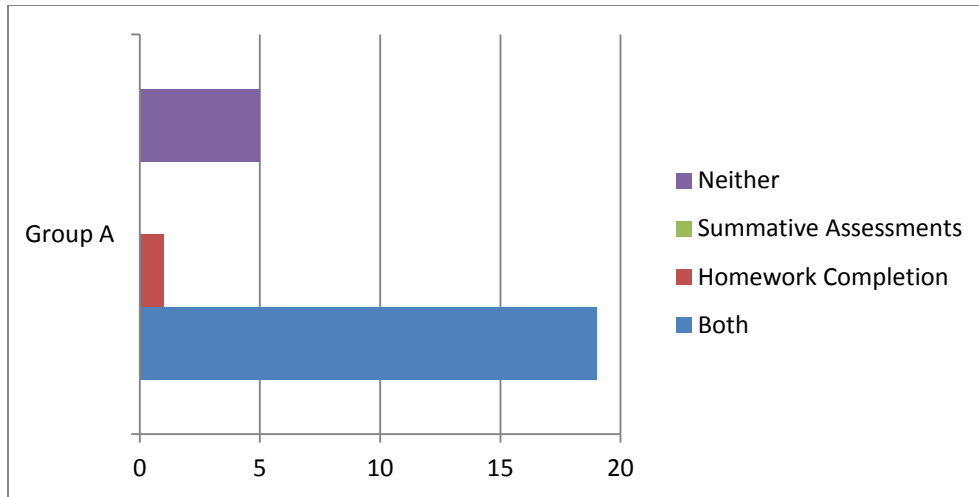


Figure 15. Do you feel that the student contracts have helped you complete your homework and/or do well on your summative assessments?

The third form of data that I collected was an end of study survey. The survey questions were used to find the students' attitudes toward in-class assessments and student contracts. The surveys were also used to see if the students want to keep using the in-class assessments and student contracts and if so, how could they be improved. The first three questions of the survey focused on the effectiveness of the in-class assessments (see Figure 16), if the class should continue using the assessments (see Figure 17), and how the assessments could be changed (see Figure 18). The graph shows that the students felt that most of the time the in-class assessments helped them learn the content.

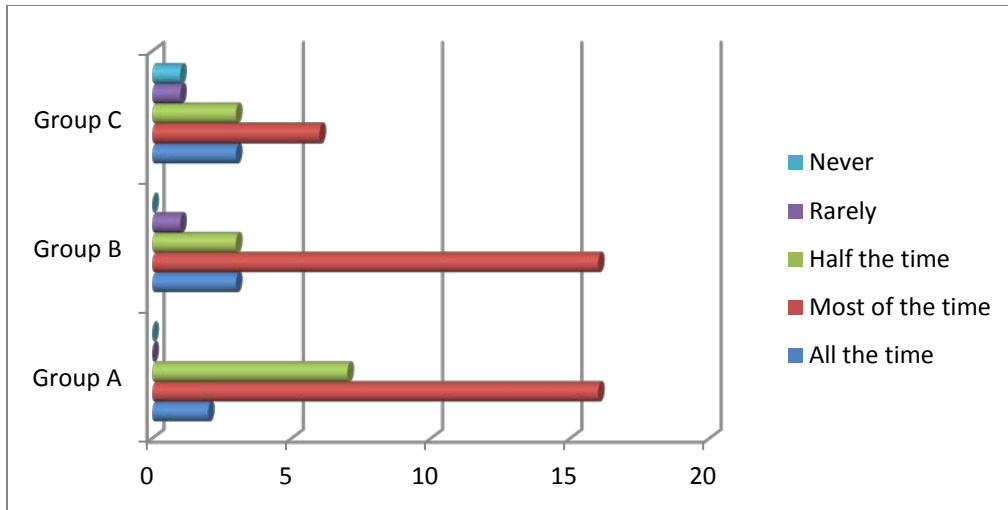


Figure 16. Do you feel that the formal formative assessments (small white sheets) were effective in helping you learn the algebra content?

The graph shows that the students would like to continue using the in-class assessments, even if it might not be used for every section.

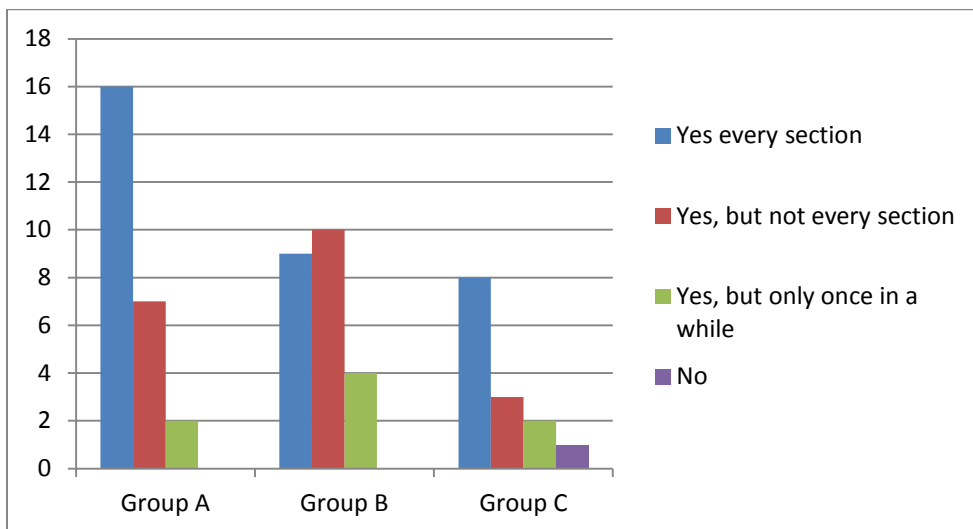


Figure 17. Would you like to keep doing the formal formative assessments throughout the school year?

The graph shows that the students had many different ideas for how the formative assessments could be changed.

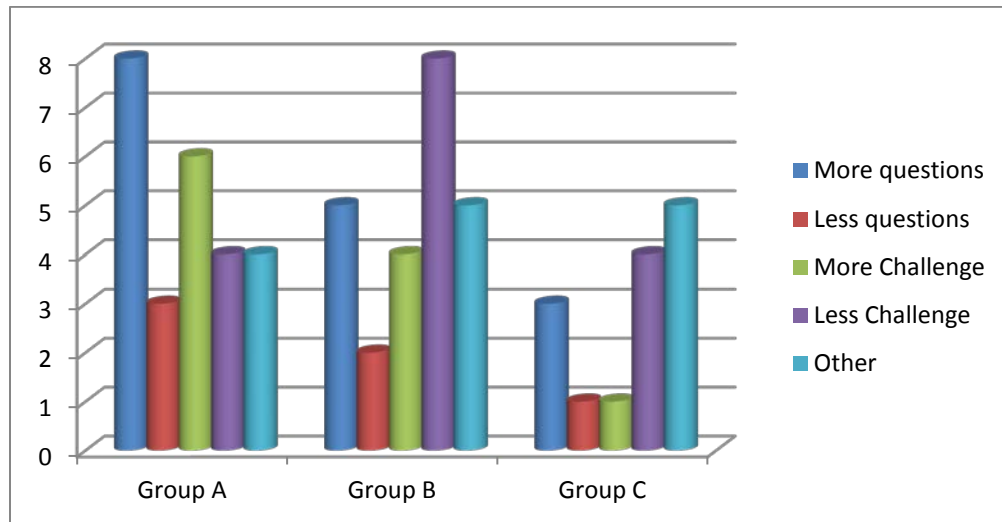


Figure 18. If you could change anything about the formal formative assessments, what would it be?

The next two questions focused on the effectiveness of the formative assessments on homework completion (see Figure 19) and summative assessments (see Figure 20). I had asked similar questions on the midpoint survey and I wanted to see if there would be a change. The data shows that there was not a major change as most of the time or at least sometimes the formative assessments were helpful for homework completion and summative assessments.

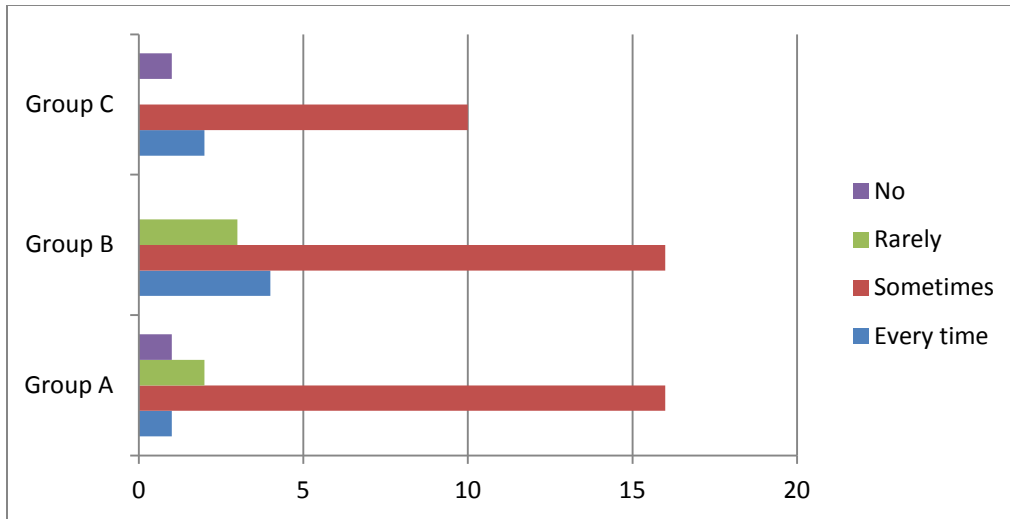


Figure 19. Did you feel that the formal formative assessments helped you to complete your homework?

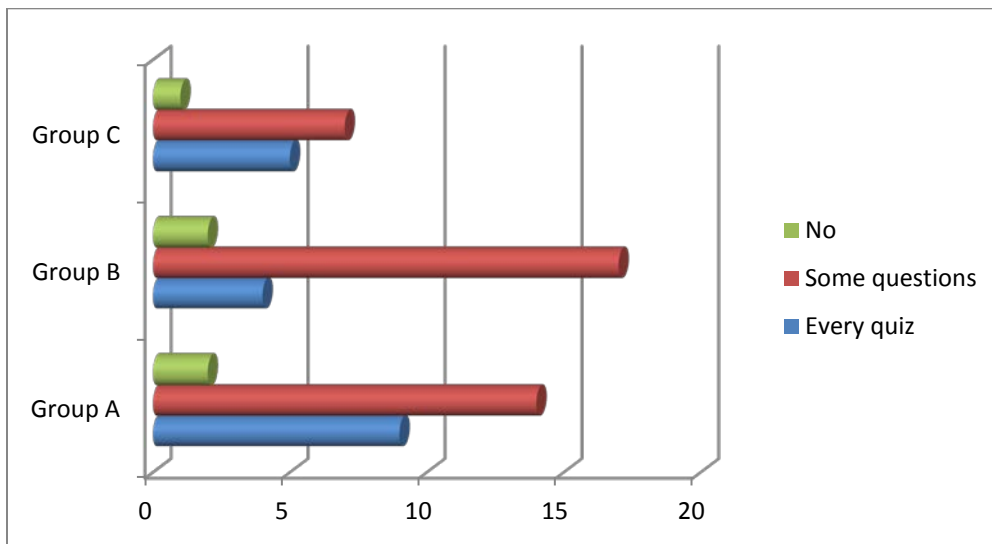


Figure 20. Did you feel that the formal formative assessments helped you on your summative assessments (quizzes)?

The last two questions on the final survey were designed for Group A only. The questions were focused on the effectiveness of the student contracts (see Figures 21 and 22).

Similar questions were asked to Group A in the midpoint survey. The graph will show

that most of the students still believe that the student contracts helped with both homework completion and summative assessments.

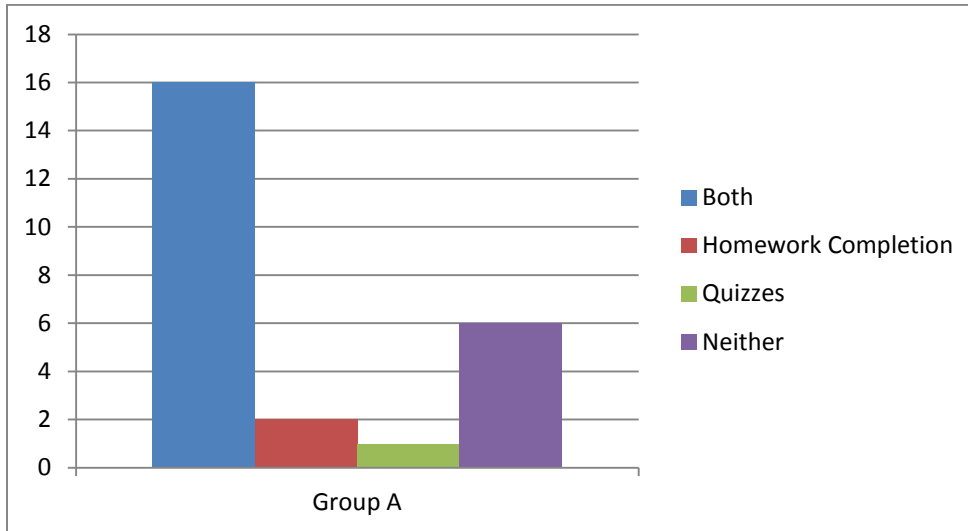


Figure 21. Do you feel that the student contracts helped you complete your homework and/or helped you on your summative assessments (quizzes)?

The graph will show that most of the students believe that they would have done just as well even without the student contracts. I believe that this is probably true since these students are in the advanced class.

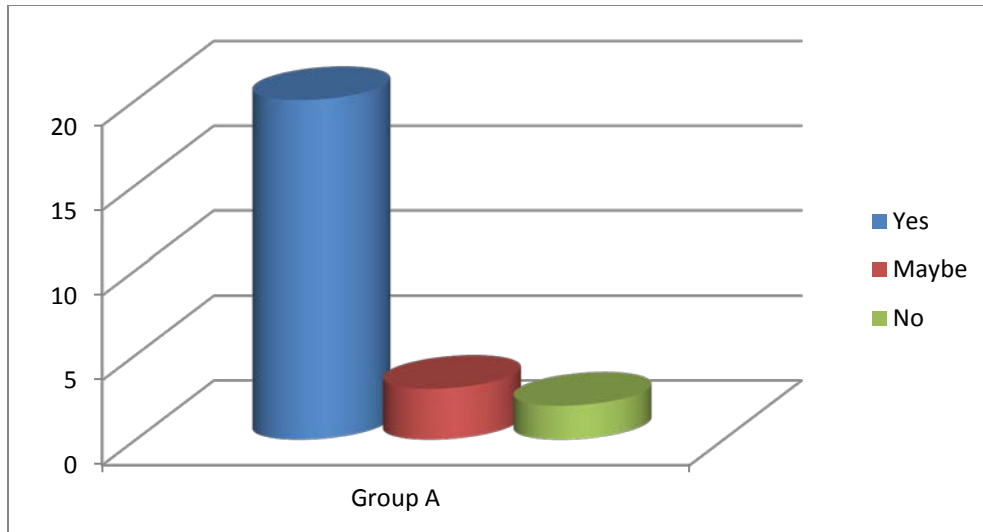


Figure 22. Do you feel that you would be doing just as well in algebra if you didn't have to meet the requirements of the student contract?

The fourth form of data that I collected is classroom observations on the effectiveness of the formal formative assessments. The students all seemed very willing and wanting to help when it came to taking the surveys and providing the input that was needed for the research. As far as observing the formative assessments, the students worked hard and started to get comfortable taking the assessments. I noticed that the students that had a strong grasp on the material finished the assessments quickly and usually received a check mark to show that they understood the material. The students that did receive a check mark were typically excited because they did not have to do some of the basic problems and had the opportunity to work on more challenging questions. Many students would receive one or two wrong on their assessments, which showed that they understood the basics of the content, but did not fully understand all of the steps in some of the processes. The students then had an opportunity to see how to do the problems correctly when we went through the questions together in class once they

were corrected. I think that this was the best part of the process. I even realized how many students did not understand some concepts that I had assumed they knew in past years. I think that this was an eye opener for me in the process.

Lastly the students that really struggled took their time or did not answer some of the questions. Most of the time these students were the students that normally struggled in mathematics classes. Early in the school year it gave me an opportunity to see which students will struggle or have struggled in the past with a poor background in mathematics. I was able to give more help to these students. Other students that struggled were ones that had missed school the day before and usually did not have a good idea of what we did the day before so it gave them a chance to learn it when we went through the assessments in class after they were corrected. The collection of data was very helpful and an important part of the action plan. The action plan will be discussed in the next section.

Action Plan

The goal of the action research was to see the effects of formal formative assessments and student contracts on homework completion and summative assessments. The student surveys served as the main source of data to the students' attitudes toward both homework completion and summative assessments. The data showed that the students liked using the formative assessments to help them learn the new content in mathematics class. The data also showed that the students thought that the formative assessments had a positive impact on their homework completion in intermediate algebra

and the formative assessments had a positive impact on the summative assessments as well.

The results of the research are very encouraging when it comes to the attitudes of the students. I plan on incorporating these assessments in all of my classes and I want to keep improving upon them as well. I want to be able to utilize the assessments in a way that all of the students will benefit from them. I want to find ways to challenge the high ability students by assigning them higher order thinking questions when they fully understand the formative assessments. I also want to help the middle ability students by showing them areas that they could improve on and keep helping them with their skills. The last group that I want to help is the lower ability students by finding their weaknesses with the formative assessments so we can have more one on one time or small group time. The assessments were accurate in finding all of these students in each group. Now I want to improve upon the strategies that I use after finding the results from the formative assessments.

The student contracts used in Group A have been very successful when it comes to homework completion and summative assessments. I think that students' motivation was very high because the students had high expectations being in an advanced mathematics class in eighth grade. In the past the eighth graders that were moved into the advanced intermediate algebra class had always done well because they were higher ability students that were motivated. Last school year we had some students that were not meeting the expectations of taking the advanced intermediate algebra class as eighth graders and that helped bring in the idea of a student contract. Most of the students in Group A stated in the surveys that they think the student contracts definitely motivated

them to complete their homework and do well on the summative assessments. I plan on using the student contracts in future years. I would like to use the student contracts in other mathematics classes, but I will have to think of ways to make it work for those classes.

Student learning will be impacted in a positive way due to the action research. Students will be able to get feedback from the formative assessments on the current topics that they are learning. Students will have an opportunity to show what they know or find out what they do not know. Students can take the instant feedback to help them with their learning on their assignments and therefore on their summative assessments. Students can also help improve any type of research with feedback on their own about what is going on in the classroom. The surveys that I used were informative and I will continue to use surveys anytime that I need information from the students about the progress of any activity in my classroom.

Lastly, I definitely want to expand on my research to improve my teaching and student learning. I want to follow up on the current research by researching more on this topic of formative assessments and how it affects homework completion and summative assessments. I want to find ways to improve the different aspects of the formative assessments. The questions that I still have and want to answer include: How do the higher ability students use the formative assessments effectively? How can the formative assessments help differentiation in the classroom? How can the formative assessments improve student motivation for all students?

I now know that student feedback is really important in improving my teaching and students' learning. Students can give great feedback on my teaching, classroom activities, or the content learned. I can also provide feedback to the students about the content and how they performed. I have also learned the importance and valuable tool of data collection. I will be able to use data collection effectively in any future research projects. I learned how to find possible solutions to a problem through the action research project and will be able to use these skills in the future to improve my teaching and the students' learning.

References

- Britton, T. (2011). Using formative and alternative assessments to support instruction and measure student learning. *Science Scope*, 34(5), 16-21.
- Cancio, E. J., West, R. P., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management and parent participation. *Journal of Emotional and Behavioral Disorders*, 12(1), 9-22.
- Delacruz, G.C. (2011). *Games as formative assessment environments: Examining the impact of explanations of scoring and incentives on math learning, game performance, and help seeking*. (CRESST Report 796). Los Angeles, CA: University of California, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).
- Devender, R. B., Rose, M. M., & William, J. T. (2009). Enhancing motivation to complete math tasks using the high-preference strategy. *Intervention in School and Clinic*, 44(3), 146-150. doi:<http://dx.doi.org/10.1177/1053451208326052>
- Drier, H., Dawson, K. M., & Garofalo, J. (1999). Not your typical math class. *Educational Leadership*, 56(5), 21-25.
- Sterrett, W., Fiddner, P., Gilman, C., & Consortium for Research on Educational Accountability and Teacher Evaluation (2010). A reflective look at formative assessment: Using math exit slips to check for understanding. *Consortium for Research on Educational Accountability and Teacher Evaluation*.

Weber, B., & Young, L. (2005). The effects of on-line homework within a college algebra course: An action research project. *Journal of Educational Computing, Design and Online Learning*, 6, Retrieved from http://coe.ksu.edu/jecdol/Vol_6/pdf/theeffect.pdf.

Appendix A

8th Grade Intermediate Algebra Contract

You have met 4 out of the 5 requirements to advance to Intermediate Algebra in the 8th grade.

- A in quarter 3
- A in quarter 4
- MCA score of 55 or better
- Final Exam score of 85% or better
- Zero missing assignments for semester 2

The Barnum High School math department congratulates you on this accomplishment. This contract is to make sure that your success continues in Intermediate Algebra.

Intermediate Algebra is an advanced class for 8th graders. The class gets more challenging throughout the year. If you are not showing success at the end of the first quarter, you will be required to move back down to Basic Algebra.

In order to stay in Intermediate Algebra for the entire year, at the end of quarter 1 you must:

1. Have zero missing assignments.
2. Have a grade of at least 82% (B-).

Additionally, once you make it past Quarter 1, there is no going back down to Basic Algebra. You have to stick it out through the end of the year, no matter what your grade is.

By signing this contract, I understand that in order to stay in Intermediate Algebra for the year, I have to have zero missing assignments and have a grade of at least 82% for the first quarter. If I do not meet these requirements, I will be moved back to Basic Algebra.

I also understand that I cannot be moved back down to Basic Algebra after the end of the first quarter.

Printed Student Name

Student Signature

Date

Ms. Helland
Basic Algebra Teacher

Date

Mr. Robertson
Intermediate Algebra Teacher

Date

Appendix B

Student Attitude Survey

Please select the answer that best fits your learning in math. Explain when needed to.

1. What motivates you to do your homework? Circle all that apply
 - a. Good grades
 - b. Parents
 - c. Teachers
 - d. Fear of failure
 - e. Other: Explain_____

2. What reasons would you not do your homework? Circle all that apply
 - a. Too busy
 - b. Don't understand
 - c. Don't care
 - d. Too much homework
 - e. Other: Explain_____

3. What could help with homework completion for you? Circle all that apply
 - a. Teacher checks for better understanding
 - b. Less homework
 - c. Positive Peer Pressure (contract)
 - d. More time
 - e. Other: Explain_____

4. What is the most effective method of working on classwork in math? Explain your answer.
 - a. On your own
 - b. With a partner
 - c. With a group
 - d. On your own, but checking with the teacherExplain_____

5. What is the most effective method of learning in math? Explain your answer.
- Teacher lecture
 - Classroom discussion
 - Discovery learning on your own
 - Other: Explain_____
6. How much effect does doing your math homework everyday have on your test scores?
- 100%
 - 75%
 - 50%
 - 25%
 - 0%
7. What is the most effective method to prepare for a math test? Circle all that apply
- Do the homework assignments for the chapter
 - Complete a study guide
 - Memorize what is going to be on the test
 - Other: Explain_____
8. Do you think that in-class assessments (teacher checking your work) will improve your homework completion and test scores?
- Yes. Both
 - Only homework completion
 - Only test scores
 - No. Neither
9. **1st hour only:** Do you think that the contract will improve your homework completion and test scores?
- Yes. Both.
 - Only homework completion
 - Only test scores
 - No. Neither

Appendix C

Student Midpoint Survey

Please select the answer that best fits your learning in mathematics. Explain when needed to.

1. Do you feel that the formal formative assessments (small sheets with a couple questions) have been helpful in your learning of the content?
 - a. Yes. Every time.
 - b. Most of the time
 - c. Half the time
 - d. Rarely. Once or twice.
 - e. Never.

2. Do you feel that the formal formative assessments (small sheets) show what you know or do not know about the content you are learning about?
 - a. Yes. Every time.
 - b. Most of the time
 - c. Half the time
 - d. Rarely. Once or twice.
 - e. Never

3. Do you feel that the formal formative assessments (small sheets) help you complete your homework?
 - a. Yes. Every time.
 - b. Most of the time
 - c. Half the time
 - d. Rarely. Once or twice.
 - e. Never

4. Do you feel that the formal formative assessments (small sheets) help you on your quizzes?
 - a. Yes. Every time.
 - b. Most of the time
 - c. Half the time
 - d. Rarely. Once or twice.
 - e. Never

5. If you could change something about the formal formative assessments (small sheets), what would you change?
- a. Nothing
 - b. Easier
 - c. More challenging
 - d. More questions
 - e. Less questions
 - f. Other_____
6. **1st hour only:** Do you feel that the student contracts have helped you complete your homework and/or do well on your summative assessments (quizzes)?
- a. Both
 - b. Just complete homework
 - c. Just help on quizzes
 - d. Neither

Appendix D

Final Student Survey

1. Do you feel that the formal formative assessments (small white sheets) were effective in helping your learning of the algebra content?
 - a. Every time
 - b. Most of the time
 - c. Half the time
 - d. Rarely
 - e. Never

2. Would you like to keep doing the formal formative assessments throughout the school year?
 - a. Yes. For every section.
 - b. Yes, but not for every section.
 - c. Yes, but only once in a while.
 - d. No.

3. If you could change anything about the formal formative assessments, what would it be?
 - a. More questions
 - b. Less questions
 - c. More challenging questions
 - d. Less challenging questions
 - e. Other. Explain_____

4. Did you feel that the formal formative assessments helped you to complete your homework?
 - a. Every time. They were a great help.
 - b. Sometimes. They helped out on the challenging content.
 - c. Rarely. I usually figured it out anyway, but the assessments didn't hurt.
 - d. No. They were a waste of time.

5. Did you feel that the formal formative assessments helped you on your summative assessments (quizzes)?
 - a. Every quiz. The assessments were a great help.
 - b. Some of the quiz questions. The assessments helped for some content.
 - c. No. The assessments didn't have an effect on the quizzes.

6. **1st Hour Only:** Do you feel that the student contracts helped you complete your homework and/or helped you on your summative assessments (quizzes)?
 - a. Yes. Both
 - b. Only homework completion.
 - c. Only quizzes.
 - d. Neither.

7. **1st Hour Only:** Do you feel that you would be doing just as well in algebra if you didn't have to meet the requirements of the student contract?
 - a. Yes. I want to do well in math.
 - b. Maybe. I want to do well, but I might not be doing as well if not for the contract.
 - c. No. The contract motivates me to do well in math.