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The Effects Not Grading Formative Assessments Has on Summative Assessments

Luke Saunders
sx3114mu@go.mnstate.edu

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The Effects Not Grading Formative Assessments Has on Summative Assessments

A Project Presented to
the Graduate Faculty of
Minnesota State University of Moorhead

By
Luke Saunders

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Requirements for Degree of
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ABSTRACT

This 2021 study focused on the relationship between not grading formative assessments and summative assessments. The focus was on whether students will do their formative assessments if they know they would not be graded. Furthermore, if they decided to complete or not complete their formative assessments, this study would show the effects on their summative scores. The study lasted for one chapter in their curriculum. The research took place in a North Dakota school, specifically 52 geometry students. Data showed that majority of students will not do their homework if not held accountable. The data also suggests that not grading formative assessment played a role in how students would succeed on summative assessments.

CHAPTER ONE

INTRODUCTION

Academic dishonesty has been an on-going problem for teachers in the educational field. Academic dishonesty is very challenging to manage thanks to the accessibility of mobile devices. This is a problem that many teachers are battling and are struggling to find an answer. It seems the plausible answer to correct this problem is to not grade anything that is taken home. If a teacher wants to grade an area of content, it needs to be done in class via quiz, bell ringer, daily grade, or other assessment. This very predicament is what is fueling this action research.

This research is going to find out if not grading these quizzes, bell ringers, daily grades, or any type of these formative assessments actually changes summative assessment scores. It would be beneficial for any teacher to know if it is worth their time to correct all these different assessments. It is a known fact that teachers need to give assessments to keep students on task and to reinforce the content with seeing problems in different formats. This research is going to show if students need accountability to succeed in their classes.

Brief Literature Review

Assessments are a vital piece of any educational classroom. Assessments are broken down into two types: formative and summative. Formative uses feedback to improve students' learning, while summative tests on what the student has already learned. Each type of assessment is important in a teacher's classroom. Teachers use assessments to track how a student is doing in their classroom. Schools also track their students for many reasons. They want to know what classes to put the students in, if they are ready for college, if the students need additional help with their studies, and many more. When tracking their students, teachers look at two main factors. One of the key factors is if they are paying attention and participating in formative

assessments. The second key factor is how are the students performing on their summative assessments.

The first key factor is all about formative assessment. Teachers need to be making sure students are paying attention and participating in lectures and activities. These are questions that lead to the overall question of should teachers be grading on attention and participation? Each teacher formulates their classroom differently when it comes to formative assessments. Not that one way is right or wrong, but do teachers need to be giving grades for these types of assessments, especially if these types of assessments are not authentic student work?

The second key factor is performance on summative assessments. If students are not doing authentic work on formative assessments, this may lead to poor summative assessments. A potential problem is that students may not learn the material and move on to the next concept. Math builds on itself more than any other subject. If a student wants to use online resources to do their homework, it may have long-term ramifications. Students may not understand this until it is too late and then they may not willing to put in the work to redo previous assignments.

Statement of the Problem

A problem in today's educational system is authentic student work. If a homework assignment is given, it can be hard for a teacher to identify if this is the student's work or the work of a website. There are many websites that are easily accessible for students to use to complete homework. It has reached a point where many teachers will only give grades to students for completing work in class because they can monitor, if it is in fact, the student's work. Therefore, the research conducted will include how not grading formative assessments (includes homework completion and quizzes) might change the student's summative assessments. The research will show one of two things: (1) If not grading formative assessments,

this may lead to students not doing their homework and therefore lead to poorer test scores, or (2) If not grading formative assessments, this may lead to students being accountable for their own grades and know that they still need to complete their assignments to do well on their tests. These are the 2 points that will be addressed in this research.

Purpose of the Study

This study is being done to see how teachers can best utilize formative assessments in their classroom. Teachers use formative assessments many ways in their classrooms based on the needs of their students. Based on which type of formative assessment a teacher might use, students seem to figure out ways in how to find answers that are not their own outside of the classroom. This leads to the question of why are teachers grading their formative assessments? Teachers need formative assessments for evaluating student comprehension and academic progress. This study will show how students react when their formative assessments aren't put in the grade book. Will they not complete anymore homework lessons when they know there isn't an official grade, or will they continue to do the homework knowing that this information will be on the tests that will affect their overall grade. This leads to the title of this study of "The Effects Not Grading Formative Assessments Has on Summative Scores".

In addition to the main purpose of the study, it will also show the teacher what if students are relying on those formative assessments to help boost their overall grades or if those assessments are hindering the students' overall grades. Using this piece of knowledge will be helpful when figuring out what type of assessments the teacher is giving and how many should the teacher give to provide a fair grading system.

Research Question

Assessments are a critical part of any high school student's education. They let the student know if they need to work harder at the content or if they understand the material. Assessments also let the student know if they are ready to move onto a new topic. If students use online resources to show they understand formative assessments, they may move onto a topic for which they are not prepared. Therefore, research is needed to investigate the relationship of grading or not grading formative assessments and summative assessment scores.

RQ1: How will not grading formative assessments impact summative assessments?

Sub-RQ1: How would cumulative chapter grades look different if quizzes were included versus if they weren't included?

RQ2: How will not grading homework affect students' homework completion?

Sub-RQ2: After informing the students that their formative assessments (quizzes) will not be graded, what effect will this have on students use of technology to complete work?

Definition of Variables. The following are the variables of study:

RQ1:

Independent Variable: Not grading formative assessments

Dependent Variable: Summative scores

Sub-RQ1:

Independent Variable: Including quizzes as part of the students' grades

Dependent Variable: Cumulative chapter grades

RQ2:

Independent Variable: Not grading homework

Dependent Variable: Homework completion

Sub-RQ2

Independent Variable: Informing students quizzes will not be graded

Dependent Variable: Students use of technology

There are a plethora of different variables that go into formative assessment that I will not be doing my study on that still affect my study. A few of these variables might be the students' attitudes, students' engagement, or students' willingness to go the extra mile (e.g., how many of these students are coming in and getting extra help either before or after school?). These variables will play a big part in my findings, however, I cannot quantify these variables.

Significance of the Study

Students need to learn to be accountable for their own grades. This is something that students really struggle with freshman and sophomore year. As they get older and mature, it seems that they will eventually understand this concept of accountability. This will be a very important concept for them to grasp for the fact that it will be one hundred percent up to them to complete their assignments and understand they will be getting no credit for it. This is a very important lesson for any individual to learn.

Teachers will need to make sure the students are on board with this new way of grading. The conversation needs to be had with the students to make sure they know their options going into this study. Students need to be made aware that this study is optional but will only affect their grade in a positive manner. The students will have two options. The first option is to accept that their formative assessments, such as pop quizzes or daily work, will not be put into the grade book. The teacher will still grade it and give constructive feedback as to better their work. However, the only grade going into the gradebook will be the end chapter test. If this way of grading is negatively affecting the students score, they will have option number two.

The second option is for the teacher to go back and put back in all the formative assessment scores that they did previously in the chapter. The students will have the option to pick whichever way of grading they want. If they pick the second option, it will be as if the student didn't volunteer for the study.

Students still need to be accountable for their actions and grades. When given guided opportunities to self-assess, students will become more insightful about what they need to do to improve their performance (Wolf et al., 2012). The opportunity to self-assess will be given with pre-test and post-test surveys given out as a hard copy for the students to fill out (see Appendix C and D). A good conversation could be had with the students, letting them know that online resources are definitely acceptable. Letting the students know that copying their homework from the internet will not help them in this new version of grades. This will hopefully introduce them to using the online websites as resources to help them learn and not just getting good grades on formative assessments.

Research Ethics

In order to conduct this study, I obtained permission from MSUM's Institutional Review Board (IRB) approval to ensure the ethical conduct of research involving human subjects. I followed the school district's IRB procedure to obtain permission to conduct my research. This involved receiving permission from the building principal at the school where the research was conducted.

Protection of human subjects participating in research will be assured. Participants were informed of the purpose of the research and any procedures required by the participant, including disclosure of risks or benefits (see Appendix C). Confidentiality was protected through the use of pseudonyms without identifying information. The choice to participate or withdraw at any time

was outlined both verbally and in writing. All students are under the age of eighteen, and the parents were made aware of the nature of the study and provided their permission for their child to participate.

Limitations

Like any research there is always a possibility of students not wanting to participate in my research. This study will not negatively affect any student's score. The students will have a meeting with the teacher after the chapter test to see which option they wish to take. This will be private so no students will feel uncomfortable in front of their friends. The option to have their formative assessments graded will be given to them in this private meeting. If they so choose to take that option, it will be as they didn't partake in the study, but yet the teacher has the results they need for conducting their study.

Conclusions

Is this research going to be the only method in how teachers can combat cheating? The answer to this is no. There are many teachers who have found alternative ways to assess their students honestly. Although, teachers need to embrace this culture of new online resources. These online resources are not going anywhere, and teachers need to be able to use these resources to help their teaching. This research will shed some light on how big of a role these online resources are playing in the students' learning as well as seeing the relationship between not grading formative assessments and their summative assessment scores.

In the literature review, research will be shown on what others have said on the topics of formative and summative assessments. Research will demonstrate what learning would look like without grading any formative assessments, and if this would benefit a classroom. Lastly, the

literature review will discuss what others say about the difficulties of teaching in a world so dependent on the internet.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Assessment is a vital piece of any profession in order to gauge success. Within assessment, there are two main types of assessment – summative and formative. Formative assessment involves using assessment practices to develop or improve educational processes and to support and monitor student learning (DeLuca et al., 2018). Formative assessment is such an important piece of any learning classroom. When used in a classroom, formative assessment has been defined as the process “to recognize and respond to student learning to enhance that learning during the learning” (Clinchot et al., 2017, p. 70). The primary definition of formative assessment is that it is not used for grading purposes (Bennett, 2011; DeLuca et al., 2018). It is believed that good teaching is inseparable from good assessing (McIntosh, 1997). If teachers are not assessing their students every day, there is no way for them to check for understanding or to know if they can move on to the next topic. Teachers need formative assessment just as much as the students. Formative assessment helps teachers to identify strengths and weaknesses in their students’ understanding (Clinchot et al., 2017). It is believed by many that integration of formative assessment in teaching will improve learning outcomes in mathematics (Govender, 2019).

However, the debate lies with grading practices. The dilemma is if formative assessment needs to be graded to be effective for summative scores. One of the main issues in grading is

knowing how to deal with non-achievement factors such as effort, work habits, and motivation (DeLuca et al., 2018). Teachers' grading policies on participation will look different in each classroom. Consistency in grading is so important and is often neglected. Inconsistency can lead to unfairness as well as "distortionary effects," such as a preference by students for instructors in their grading rather than for course's educational content (Glazer, 2014, p. 284). Grading practices and assessment are interconnected; therefore, the controversy remains whether or not formative assessment evaluation improves summative scores.

Formative vs. Summative Assessment

The difference between formative assessment and summative assessment is that formative assessment uses feedback to improve teaching and learning while summative assessment measures what students have learned to certify a grade (Glazer, 2014). One type of assessment is not better than the other. A good teacher needs both to do an effective job.

Formative assessment is broken up into three main categories: content knowledge, mental processes, and individual dispositions (McIntosh, 1997). Formative assessment is more than just practicing content. It is the ability to understand the students' thought processes and attitudes toward the content. Formative assessments aim to understand and support teaching and learning effectiveness rather than grade the performance or product (Wolf et al., 2012). When teachers match formative assessments to student needs, students will be more successful on the summative assessments. These practices will help them on their summative assessments.

Summative assessments can be given as a test at the end of a term, chapter, semester, or year. Typically, summative assessments are used to gather how much information is retained throughout the unit. The summative assessment is evaluation that often limits feedback to the achievement report and is usually a letter grade (Glazer, 2014). Assessment is a key component

in the learning cycle and should be valid, reliable, and transparent (Glazer, 2014). Teachers are assessing subconsciously each class period so students can gather individual knowledge and understanding.

Purpose of Grades

Important and integral, grades inform students about their level of comprehension for the material and communicate student achievement in relation to educational standards (DeLuca et al., 2018). Colleges also look at student grades as a requirement for admission. The main purpose of grades includes four categories: monitoring and reporting, feedback, accountability, and sorting. (DeLuca et al., 2018). Each of the four categories are equally important when assessing students. There are still questions around whether students are intrinsically motivated to complete assignments or is a grade one of the main factors that motivates them to learn. This question leads to standards-based grading.

According to Townsley & Buckmiller (2020), standards-based grading is a philosophy of grading learning goals and work habits, repurposing homework as practice, and highlighting evidence of learning rather than averaging out multiple assessments. Many schools continue to follow the same traditional ways of grading. Doing this, they are trusting that the student's grade properly reflects their knowledge of the content. If schools fail to pay attention to the type of assessments collected for grades, the likelihood of misalignment is greater and thus the data that school leaders gather and use for instructional decisions may be inaccurate (Townsley & Buckmiller, 2020). The results of this study will show if the student's grade properly confirms the students' knowledge of the content.

Importance of Confidence in Formative Assessment

Confidence is imperative and creates success. When students feel confident, they are motivated to complete assignments and generally enjoy working on that homework. Conversely, students who are not confident or do not see the reason for learning the content, avoid participating in formative assessments which leads to lower scores and achievement (Beesley et al., 2018). To avoid lack of participation, teachers need to build a positive classroom climate, so students feel empowered to take on new challenges. A good way of doing this is the use of feedback. When given constructive feedback, it can lead to a supportive learning climate and strengthen the relationship between teacher and student which can lead to more confident students in a classroom (Pinger et al., 2017). Once confident, student test scores should improve. However, poor assessment scores result in some students feeling stuck, angry, and could lead them to avoid future work. For others, poor assessment results act as motivators to do better (Peterson & Irving, 2008). If teachers can implement a growth mind-set in their students, then the students will be better positioned to meet the challenge when it arises.

A growth mind-set is important no matter what area a person is in. A growth mind-set is the belief that academic ability or intelligence is not fixed but can be changed and enhanced over time through one's own effort (Snipes & Tran, 2017). If teachers can get students thinking in a growth mind-set, it will drastically increase confidence, motivation, engagement, and test scores in one's classroom.

Classroom Without Grading Formative Assessment

Formative assessments need to be implemented in every classroom as an important strategy for student learning. However, if not graded, implementing a responsive approach would be a good place to start. When practicing the responsive approach, wrong answers are not

dismissed but gone over, and correct answers are not accepted without justification for correctness (Clinchot et al., 2017). This will hopefully encourage a growth-mind set, grit, and make critical thinking a standard in one's classroom.

According to Hacisalihoglu et al. (2020), academic success can be reached by using these three skills: growth mindset, grit, and critical thinking. Growth mindset is the ability to improve through effort, strategy, engagement, and hard work. Grit is the perseverance of effort and consistency of interest for long-term goals. Lastly, critical thinking is the use of creative and analytical thinking. If a student can understand these three skills, they should be open to critical feedback.

An important part of assessment, feedback is especially key when students are not getting the daily grades to reassure them that they are on the right track. Feedback can confirm existing beliefs, add information, overwrite existing beliefs, tune understandings or lead to restructure of a lesson (Peterson & Irving, 2008). Giving students constructive formative feedback increases a sense of know-how and contributes to a supportive environment (Pinger, 2017; Rakoczy et al., 2019). Having a supportive and positive classroom climate will lead to students being more accountable for their own work and hopefully create an atmosphere of student accountability. Accountability is assuming responsibility. For students to be able to succeed, they will need to accept that they are responsible and accountable for their own grades, especially if the formative assessments are not being graded. Student accountability is created through self-assessments of their knowledge (Jamal et al., 2014). It is up to each individual student and their determination to succeed in class.

For a classroom with no graded formative assessment to work, collaboration needs to be a part of the classroom structure. Collaboration with peers improves student accountability.

Teachers have found success by supporting small-group discussion and peer collaboration in order to boost student confidence (Beesley et al., 2018). When practicing peer collaboration, teachers should be mindful of members in the groups, so all students benefit from the interaction.

Difficulties of Grading in an Online World

In the world of technology, some students are taking advantage of online resources to purposefully and inadvertently cheat. Now that most schools are one-to-one with laptops, there is little holding them back from locating any answer. According to Lavery et al. (2012):

Formative assessment is only useful if students are truly taking advantage of it to evaluate their learning progress rather than perceiving it as a chore that should be circumvented in the most efficient way. Copying homework answers from other students, be it in person or through online “cheat websites,” is detrimental to learning success. (p. 540)

These “cheat websites” are websites that have every problem from every book worked out completely. They are easy to find for the twenty-first century brain. Photomath (<https://photomath.com>), Mathway (<https://www.mathway.com>), Mathscript (<https://webdemo.myscript.com>), Chegg (<https://www.chegg.com>), and Slader (<https://www.slader.com>) are a small collection of sites students use. It is difficult to get students to understand and complete homework the way it is and now these applications and websites are free and ready to use whenever the students want them. These apps can be a helpful resource if used correctly and in the right context. However, this is generally not the case. When students rely on technology to complete homework, they find it difficult to participate honestly in formative assessments.

If students rely on the internet to complete homework, and that homework results in a superior grade, they are more likely to believe they understand the material and will give

inaccurate formative feedback to the teacher (Senel et al., 2020). The use of internet resources makes grading formative assessments difficult for a teacher because the apps tell the student step for step how to solve each problem. The only way a teacher can truly know if it is authentic work is if any assessment is done and turned in during class. This leads to the argument that grading or not grading formative assessment will change the student's summative assessment scores.

Research Questions

RQ1: How will not grading formative assessments impact summative assessments?

Sub-RQ1: How would cumulative chapter grades look different if quizzes were included versus if they weren't included?

RQ2: How will not grading homework affect students' homework completion?

Sub-RQ2: After informing the students that their formative assessments (quizzes) will not be graded, what effect will this have on students use of technology to complete work?

Conclusion

As a result of inaccuracies, teachers need to be cautious of grading formative assessment. Assessment has a critical impact on student life, both in providing appropriate feedback and by giving a grade, which can determine which classes they choose to take in the future (Glazer, 2014). If students are using these online resources and their grades are inflated because of this, they may feel a high confidence level with the content and choose a path for which they are not ready. For this reason, teachers should not be using formative assessments to help boost students' grades, rather use it to give feedback on where the students currently are in the content. The research will show whether grading or not grading formative assessments makes a difference in students' summative scores, but the ultimate goal for any classroom is forming and sustaining a learning environment which promotes knowledge building, higher-order thinking, accountability,

and collaboration (Jamal et al., 2014). This is what every teacher needs to be striving for in their classrooms. In the next chapter, we will cover the different methods on how this study will be conducted and tested.

CHAPTER THREE

METHODOLOGY

Introduction

Teachers use assessments to gauge success from their students. The two main types of assessment that teachers use are formative and summative. Formative assessment is the process of gathering information on three questions: (a) Where am I going? (b) How am I doing now? (c) Where do I go next? (Beesley et al., 2018). Summative assessment is *can I show I know the content by way of quiz or test*. How teachers give and collect assignments for formative assessment is up to them. Using a quantitative approach, the purpose of this study was to show the effects on students test scores if these formative assessments were not graded.

Academic dishonesty is a big problem in the world of education. Every answer from every textbook is easily accessible with the use of technology. With most schools now implementing one-to-one technology initiatives (this means each student gets their own laptop or iPad) it has never been easier for students to look up answers online. This puts teachers in a predicament. It forces teachers to not grade anything taken outside of the classroom because teachers do not know if it is the students' authentic work or the worked-out solutions by some website that the students copied down.

For this reason, this study will show if it is worth spending time grading formative assessments. Why should teachers spend time grading these formative assignments when some

of them are just worked out solutions from a website? When students simply copy the answer without analyzing the necessary steps to arrive at the answer, students do not engage in processing or problem-solving skills. If students know that their homework wasn't graded, then there is no need for them to copy off these websites. If students were told that their formative assessments would not be graded, one of three negative effects could happen: (1) students didn't do their homework, or (2) students did do their homework and if they did not know the answer to a question, then they would look up the answers on these websites to see how the website approached the problem, or (3) students will still use the websites and cheat anyway even though they are not getting anything for it. Students could also carry on with their studies like nothing changed. They could continue to do their homework or come in and ask questions.

Using and finding resources is a great skill to have. The students need to learn how to properly use these resources to help them succeed. This study brought to light questions of student's study habits. Will these students do the work and persevere knowing their homework was not graded or would they simply enjoy this time of seemingly limited accountability until they got to the test?

Research Questions

RQ1: How will not grading formative assessments impact summative assessments?

Sub-RQ1: How would cumulative chapter grades look different if quizzes were included versus if they weren't included?

RQ2: How will not grading homework affect students' homework completion?

Sub-RQ2: After informing the students that their formative assessments (quizzes) will not be graded, what effect will this have on students use of technology to complete work?

Research Design

This study was conducted quantitatively using a quasi-experimental design. The researcher is going to influence a change in student behavior (option of not grading quizzes) to see if this affects their tech use, and furthermore their scores. To prove this quasi-experimental study, the researcher is going to do hypothesis testing to see what happens to student's grades (dependent variable) if a teacher stopped grading their formative assessments (independent variable). The researcher is doing a hypothesis test because he cannot prove the primary hypothesis is true. Instead, the researcher is going to try and prove that the null hypothesis is false to show the primary hypothesis is true. The researcher's primary hypothesis (H1) is *Not grading formative assessments affects summative scores*. The researcher's null hypothesis (H0) is *Not grading formative assessment does not affect summative scores*.

This study was about learning what students will do if there isn't the accountability from the teacher's grading their formative assessments. Beginning the study, the researcher gave a survey to see what the students' initial reactions would be (see Appendix A). Throughout this study, the researcher still graded the formative assessments and kept record using the spreadsheet (see Appendix B). The reason for the researcher to keep grading was to find correlations between students doing or not doing their formative assessments and their summative assessments. The researcher also compared previous year's test scores from before the study and the test scores once in the study. The researcher did this to see if the average changed from previous years.

Setting

This study took place in a Geometry classroom. There were three different class sections that were being researched. This high school was part of a school building that houses grades k-12. This building was home to 984 students. On average each grade had roughly 70 students.

This school was in a small town in North Dakota. It had a population of nearly 2,700 people and was roughly 20 miles straight west of Fargo, North Dakota. This was a very tight-knit, small town community. It was a growing small town being so close to Fargo. It was a good mix of small town living next to a big city. This small town was also known for its sports, continually competing at state events. Most parents were very involved in their children's lives helping and encouraging them in their academics and athletics.

Comparing the district with the state of North Dakota, their English/Language Arts and Math scores were almost identical with the state. The district did have a 97.8% graduation rate. The cultural/ethnicity breakdown was 94% White, 2% Black, 2% Native American, 1% Hispanic, and 1% Asian Americans and Pacific Islander. Based off this data the student body was not very diverse in terms of race or ethnicities. The district did have 17% of the student body receive free or reduced lunches (Information Technology Department, n.d.).

Participants

The participants of this study were the researchers' Geometry class in the 2021-2022 school year. The researcher had 54 students spread out over three class sections. The first section consisted of 22 students, the second section consisted of 17 students, and the third section consisted of 15 students. There were 33 Sophomores and 21 Freshmen. Out of these 54 students there were 37 males and 17 females. As for race/ethnicities, one student was African American, one student was Hispanic, and the other 52 students were White. Out of those 54 students, 3 of them had 504 plans and needed accommodations.

Sampling

Participants were selected by convenience sampling. Convenience sampling is used in this study because all the participants were readily available to the researcher. This means that

this was not a random sampling. The participants of this study were part of the researchers 2021-2022 Geometry class.

Instrumentation

For the quantitative study, the researcher introduced the study doing a Likert Scale Survey (see Appendix A). He did this to get an initial understanding and feel of the classroom. He wanted to know how the students would react when they found out that none of their homework would be graded over the course of this study. Once the study started, the researcher still assigned all the daily homework and still gave little quizzes at the end of each section. The researcher graded them and gave feedback to how the students could better understand the concepts even though the researcher didn't put the grades in the gradebook. When finished with the content, the researcher gave a pre-test survey (see Appendix C). After that the students completed the summative test. Once the researcher inputted the grades, he gave a post study survey (see Appendix D).

Data Collection and Analysis

The researcher started the unit by giving the students the Likert Scale survey in the beginning of class on the first day of the unit (see Appendix A). He looked at the results of this survey to get an understanding of what his students might do over the duration of this research. After each lecture the researcher gave a formative assignment of some sort as homework. This looked like problems straight out of the textbook, a quick three-minute bell ringer, or a five-question pop quiz of some sort. The following day after answering questions on the previous homework, he gave a little 5 question quiz to check for understanding. The researcher graded it and held onto the scores until the end of the chapter. Once the researcher finished teaching all the content for that chapter, he gave a pre-test survey (see Appendix C). This survey asks the

students about their completion of the homework and asks about use of online resources. Once they took this survey, they then completed the summative test. This test was based off of the previous homework problems throughout the chapter. After correcting the test, the researcher then looked for correlations between his graded section quizzes and the students' test scores. In addition, he found the average score of the test and compared it to the averages of the previous years (2019 & 2020). The previous years were taught the same content using the same notes. Using this data gave the researcher information to go off to see if grading or not grading formative assessments changes summative scores. Once his findings were complete, he held individual private meeting with each student. He gave each student the option to either take option one or option two. Option one was to accept the test score and grade with not grading any formative assessments. If the student was not happy with their test score, they were given a second option. This second option is for the teacher to input all the formative grades just as if it was like before the action research study began. This option would hopefully give the students some points back if they did not fare as well on the test.

Once the researcher inputted the grades, he gave a post study survey (see Appendix D) asking how the students felt after taking the test and asking them to reflect on things they could have done different before the test to better their results.

Research Question and System Alignment

Table 1 provides a description of the alignment between the study Research Question and the methods used in this study to ensure that all the variables of this study has been accounted for adequately.

Table 1***Research Questions Alignment***

Research Question	Variables	Design	Instrument	Validity and Reliability	Technique	Source
RQ1: What are the effects that not grading formative assessments has on summative assessments?	IV: Classroom instruction, formative assessments DV: Student's performance	Quasi-Experimental Design	Likert Scale Survey, Formative In-Class Assessments, Summative Test Scores	In order to achieve valid results, the researcher made sure he knew if the students were still keeping up with the homework or not so that the tally sheet would show correct correlation with test scores.	Filling out survey, collecting tallies after seeing if students complete or partially completes or does not complete homework. Looking at test scores after completing the chapter.	HS Geometry Class Sample Size: 54 students broken up into three sections
Sub-RQ1: How would cumulative chapter grades look different if quizzes were included versus if they weren't included	IV: Classroom instruction, formative assessments DV: Student's performance	Quasi-Experimental Design	In-Class formative assessments and Summative Test Scores	In order to achieve valid results, the researcher computed the difference in the students grades with including formative assessments and no assessments.	Once the test was completed the students got to decide which grade, they wanted between their overall including formative assessments and their grade and with just the test score.	HS Geometry Class Sample Size: 54 students broken up into three sections
RQ2: How will not grading homework affect students' homework completion	IV: Classroom Instruction, formative assessments DV: Student's completion of assessments	Quasi-Experimental Design	Likert Scale Survey, Formative Assessment	In order to achieve valid results, the researcher checked participants homework to see if they	Filling out surveys and making tallies next to students names if they completed the homework.	HS Geometry Class Sample Size: 54 students broken up into

<p>Sub-RQ2: After informing the students that their formative assessments (quizzes) will not be graded, what effect will this have on students' use of technology to complete work?</p>	<p>IV: Classroom Instruction, formative assessments</p> <p>DV: Student's completion of assessments</p>	<p>Quasi-Experimental Design</p>	<p>Likert Scale Survey, Formative Assessment</p>	<p>were completing the homework.</p> <p>In order to achieve valid results, the researcher gave a survey at the end of the study to ask the students about their use of technology over the study.</p>	<p>Filling out student surveys</p>	<p>three sections</p> <p>HS Geometry Class Sample Size: 54 students broken up into three sections</p>
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Procedures

The duration of this study lasted one chapter. That was approximately six weeks. The researcher wanted to conduct the study over one chapter to compare mean scores of the summative assessments, adding validity to the study. On the first day of the study the researcher had the students fill out the Likert Scale Survey. He did this to understand what the mind-set was of his students. After taking the survey, the researcher started teaching his content. At the end of each lesson, the researcher gave some sort of formative assessment. This could have been homework straight out of the book, bell ringer, pop-quiz, popsicle stick Q&A, or any number of formative assessments. The next day the researcher always began doing a 10-minute review of the previous days' content. Once there were no more questions, the researcher walked around to each student and he tallied on his tally sheet either a vertical tally, diagonal tally, or horizontal

tally. He gave a vertical tally if the students did the work, a diagonal tally if they tried but did not finish, and a horizontal if they didn't attempt. Even though the researcher did not grade any of these assignments, this data was collected to provide context in examining exam scores. It was also nice to have in case parents were wanting an explanation about their child's grade. Once the researcher was done teaching the content for that chapter, he gave a summative assessment in the form of an exam. Once he graded the exam, the researcher then compared the results of the exam with his tally sheet seeing any correlations between the two. Giving a pre-test survey and a post study survey solidified many observations. Once seeing any correlations, the researcher then could make a hypothesis based off his findings.

Ethical Considerations

While any harm or danger coming to the students is not foreseen in this study, the student's safety is very important to the researcher. Emotional distress may ensue because of the impact of this grading method may have on participants, especially if the grades are to become part of the student's permanent record. However, at the end of each chapter, if the students' grade does go down, they will have the option to have all their formative scores put back into the gradebook as if the study never happened. The three surveys that were given were free from any bias. The formative assessments to check their understanding was also free from bias. The exam scores were also free from bias. Either the exam math questions were right or wrong. Students might have seen their grades starting to go down because of not grading formative assessments and their emotional health started to turn negative. If this was the case, the researcher encouraged the students to come in for extra help or possibly talk to their parents or a counselor. Students also have the option of including the formative assessment scores in their final grade to improve their overall score.

Conclusion

Teachers want to put their students in the best position to succeed. Students may not realize the effects that cheating has on a person. Students think that they will use online resources to get caught up, but what happens is that it puts them farther behind. Once students get into this mind-set of cheating, it is hard to break out of it because they don't know how. They try but then realize they have been doing it so long to get by, that they do not have the base knowledge to succeed. This study will give a better understanding of if teachers don't grade formative assessments, then there is no point for students to be going online using these online resources. This study will encourage students to be accountable for their own grades.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATIONS

Introduction

Academic dishonesty is a growing problem in the world of education. Students are finding new ways of completing their homework in dishonest ways. This leads teachers to find new ways of grading formative assessments. This might look like more in-class assessments. However, this comes at the expense of time for teaching content. This is the reason for this action research. Do teachers need to be grading any formative assessments?

The research will analyze if *not* grading these quizzes, bell ringers, daily grades, homework or any type of these formative assessments changes summative assessments. This research will be beneficial for teachers because many teachers spend hours grading. Teachers know that formative assessments are a key part of any academic success. Students need these assessments so they can assess where they are at with the content. Teachers need these

assessments to gauge if their students are understanding the material or if the teacher needs to reteach some content. This research is going to show if high school students need accountability to succeed in their classes.

Data Collection

This study was conducted quantitatively using a quasi-experimental design. The researcher influenced a change in student behavior (option of not grading quizzes) to see if this affects their technology use, and furthermore, their scores. To prove this quasi-experimental study, the researcher did hypothesis testing to see what happens to student's grades (dependent variable) if a teacher stopped grading their formative assessments (independent variable). The researcher did a hypothesis test because he couldn't prove the primary hypothesis is true. Instead, the researcher was going to try and prove that the null hypothesis is false to show the primary hypothesis is true. His primary hypothesis (H1) is *Not grading formative assessments affects summative scores*. His null hypothesis (H0) is *Not grading formative assessment does not affect summative scores*.

The researcher compared this year's test results to this chapter's results from the previous two years. He found the average of each of the three years and their standard deviations. He also ran an independent samples t-test comparing the means of 2 groups to see if the sets of scores are significant or not. Lastly, the researcher found the p-value to see if he would reject or fail to reject the null hypothesis.

This study was tricky because there are so many different variables; the researcher also tested sub-questions since he already had the data. The first sub-question was as follows: *"After informing students their formative assessments (quizzes) will not be graded, what affect will this have on student's use of technology to complete work?"* This is important information for

teachers to know how their students will react to not grading formative assessments. He did this by handing out pre-study surveys and post-study surveys to see how students react.

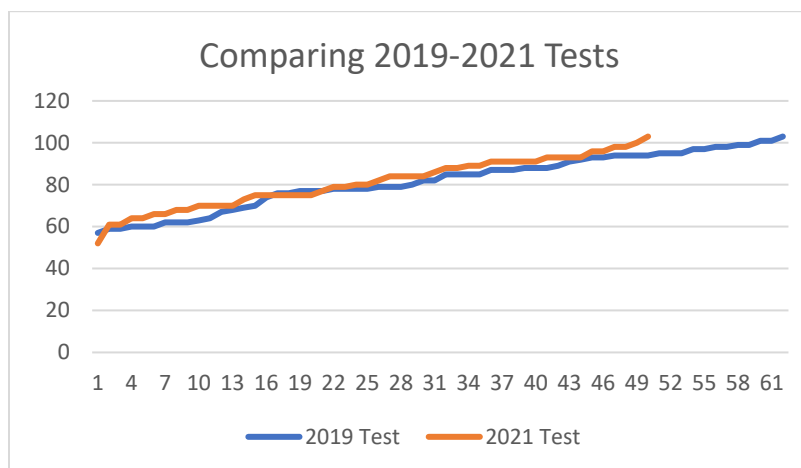
The second sub-question that he asked was “How would cumulative chapter grades look different if quizzes were included versus if they weren’t included.” This piece of knowledge is vital for any teacher to know about their students. Are the students relying on quizzes to help balance out their test scores? Or do the quizzes bring the students’ grades down because they know the quizzes aren’t worth as many points as the test? These are important things to know when teaching a group of teenagers and trying to find out how to put them in the best position to succeed in a class.

The participants of this study were the researcher’s Geometry class in the 2021-2022 school year. The researcher had 54 students spread out over three class sections. There were 33 sophomores and 21 freshmen. Participants were selected by convenience sampling. Convenience sampling was used in this study because all the participants were readily available to the researcher.

Results

***RQ1:** How will not grading formative assessments impact summative assessments?*

The primary hypothesis (H1) is Not grading formative assessments affects summative scores. The null hypothesis (H0) is Not grading formative assessment does not affect summative scores. To test the significance of the summative scores, the researcher ran a 2-tailed unpaired t-test with .05 significance. He also ran the p-value to see if he would reject or fail to reject the null hypothesis. Figure 1 shows the comparison between 2019 test scores and the 2021 test scores.

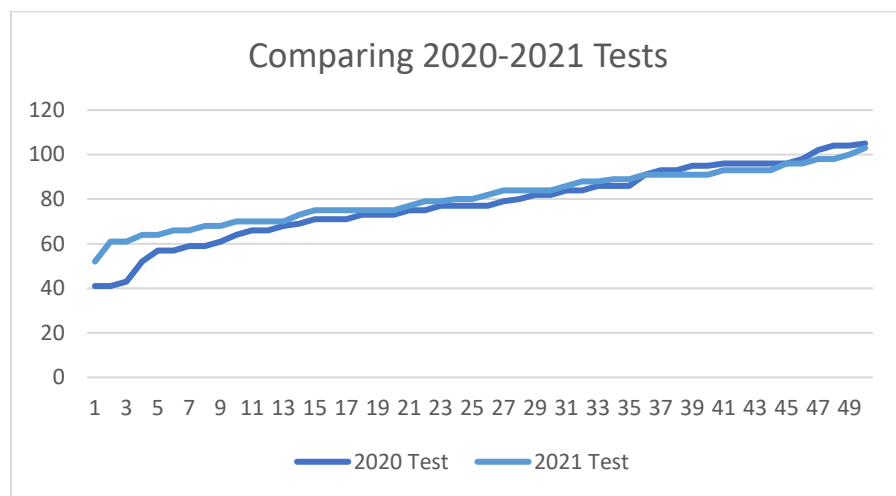
Figure 1*Comparing 2019 to 2021 Test Scores*

Note: The x-axis stands for the different number of students. The y-axis stands for test scores. I give options for extra credit on the test, therefore that is the reason why some students scored better than a 100%.

The 51 students who took the math test in 2021 ($M = 80.9\%$, $SD = 12$) compared to the 62 students who took the same math test in 2019 ($M=81.8\%$, $SD=13.1$) demonstrates very similar scores between the two years, $t(111) = .36555$, $p = .715401$. This tells me that the findings are not significant and thus I fail to reject the null hypothesis. Figure 2 shows the comparison between 2020 test scores and the 2021 test scores.

Figure 2

Comparing 2020 to 2021 Test Scores



Note: The x-axis stands for the different number of students. The y-axis stands for test scores. I give options for extra credit on the test, therefore that is the reason why some students scored better than a 100%.

The 51 students who took the math test in 2021 ($M = 80.9\%$, $SD = 12$) compared to the 50 students who took the same math test in 2020 ($M=78\%$, $SD=16.7$) demonstrates similar scores between the two years, $t(99) = -.97825$, $p = .33036$. This tells me that the findings are not significant and thus I fail to reject the null hypothesis. Although there was a detectable difference in the scores, it was not a significant enough difference, therefore by failing to reject the null hypothesis, this means that not grading formative assessments does not influence summative scores.

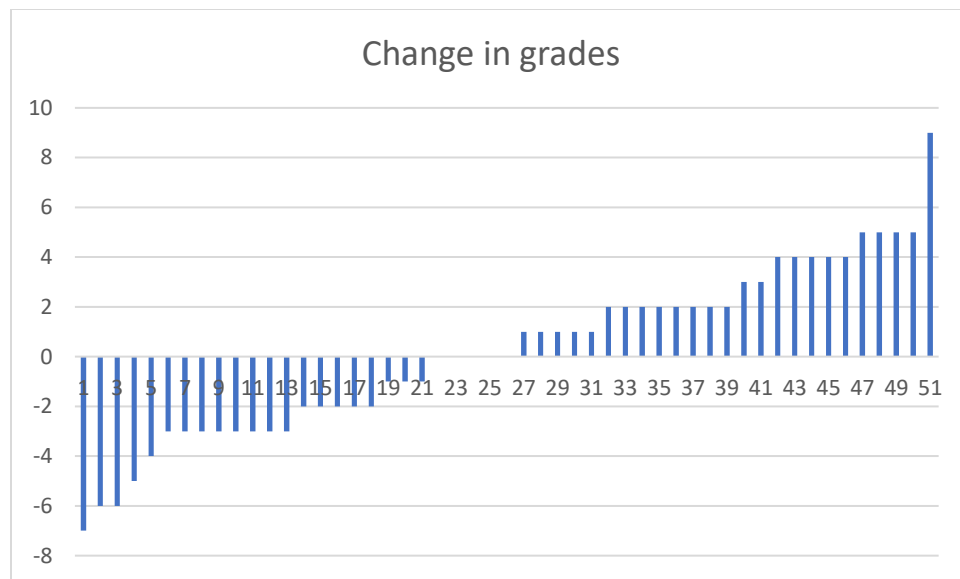
Sub-RQ1a: *How would cumulative chapter grades look different if quizzes were included versus if they weren't included?*

To show these results, the researcher first put the test grades into the gradebook. He then input the formative grades in the gradebook. He recorded the difference of what their score was

before and after. If it was a (+), that means the formative assessments made their overall score better. If it was a (-), that means that formative assessments made their overall score worse. If it was 0, the student's score stayed the same (see Figure 3).

Figure 3

Change in Grades



Note: The x-axis stands for the number of students. The y-axis stands for the difference in the students percentage in their overall grade after putting in their formative assessment scores.

Out of the 51 students who participated in my study, 25 students had a positive score, 21 had a negative score, and 5 stayed the same. The average change was +.22. This means that more students used formative assessments to better their overall score than not.

RQ2: *How will not grading homework affect students' homework completion?*

To record this data, the researcher filled out an excel spreadsheet over lessons 3.1-3.5. Using 0 if the student didn't try the homework, 1 if the student attempted the homework, and 2 if the student completed the homework (see Appendix B). The data from the spreadsheet was compressed the Table 1 below.

Table 1*Completion scores for lessons 3.1-3.5*

Score	Lesson 3.1	Lesson 3.2	Lesson 3.3	Lesson 3.4	Lesson 3.5
0's	33	36	26	29	15
1's	15	11	23	20	22
2's	3	4	2	2	14

Sub-RQ2a: *After informing students their formative assessments (quizzes) will not be graded, what effect will this have on student's use of technology to complete work?*

Before giving the final test, the researcher handed them a pre-test survey to see how they were feeling before the test. Question #4 on the pre-test survey asked if they used any technology to help them complete any homework. The survey was scored by 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree. The average score was a 2.3 with a mode of 2. This tells me that the students disagreed with the use of technology to complete homework.

Data Analysis

RQ1: *How will not grading formative assessments impact summative assessments?*

After analyzing the results, it did surprise me that the average was almost identical over the last couple years. Throughout the study, I was keeping track of students who did the homework, and those who did not. Seeing how many students didn't try the homework, I was expecting a lower average. Although there was a detectable difference in the scores, it was not a significant enough difference, therefore I fail to reject the null hypothesis. This means that not grading formative assessments does not influence summative scores.

There were also a couple different variables that could have played a role in why the averages were what they were. The first variable is the effects COVID has had on the students. The world saw what happens when students must learn from home for an extended amount of time. This can be very challenging for many students. Thankfully my school was only shut down for the months of March-May of 2020. My school has been back full time ever since starting the new 2020 school year. Teachers can tell a difference in student performance just from those 3 months of online learning. This could be a factor explaining the lower average for the 2020 test, hopefully by 2021 they have made the steps necessary to get caught up with math skills lost.

The second variable that needs to be considered is the start of a new class in 2021. This class is called informal geometry. Informal Geometry pulled out essentially the lowest 15% of geometry students to teach them slower and less content. This new class could have made the averages higher in the 2021 school year. The class was not used in this study.

Sub-RQ1a: *How would cumulative chapter grades look different if quizzes were included versus if they weren't included?*

After the test, I pulled in each student individually and showed them their current test grade. Then, I input their formative assessment grades that I collected over that past chapter. I wanted each student to see what their overall grade would do. Like I said in my results, there were 25 students whose scores increased, 21 students whose scores decreased, and 5 students whose scores stayed the same.

The 25 students who saw their scores increase were happy. I was able to communicate the point that these are the students that rely on turning their C test grade into a B overall. These formative assessments are key to them getting a better grade. This means they need to come to class everyday prepared for any type of assessment, because their overall grade is riding on it.

The 21 students who got a negative score were disappointed that their score didn't change. After having a conversation with them, most of them admitted that they didn't take these formative assessments seriously because they knew they only had to do well on the test. These were also the students who didn't do a single homework problem.

If their grade stayed the same, I was able to communicate with them that this is what student scores should do. The work they are putting in on the formative assessments should be the same as what they get on the test (or at least similar).

RQ2: *How will not grading homework affect students' homework completion?*

I opened the study explaining that it was their choice to be accountable for their own grades this chapter. I would check their homework completion, but I would not put any grades in for completion. My hope was for students to still complete the homework and show me that even though there wasn't accountability, they would still want to complete the homework. This however was not the case. Homework completion instantly took a dive. If I gave work time in class, most of the class would do it for the 5-10 minutes, but they would not complete any homework outside of class.

I need to realize that most of my geometry students are freshman and sophomores. For me to expect them to do extra work that is not graded might seem unrealistic. Personally, I need to realize that students have multiple classes they need to succeed in. If I want them to take any assignment seriously, it will have to be graded going forward.

Sub-RQ2a: *After informing students their formative assessments (quizzes) will not be graded, what affect will this have on student's use of technology to complete work?*

This part of the study was very interesting. My results showed that the students scored a 2.3 on the Likert scale on the question about use of technology. This means that most students

disagreed with the statement of their use of technology on their homework. Since most of the students did not complete any homework, they would not need any technology to do that. This means that if homework was optional, most students would not find the need to use online resources. This is one way to discourage the use of technology in my classroom.

Recommendation for Future Research

This action research came to be because I had a problem with students using online resources in my classroom. I know this might not be the case in every classroom, but some teachers might be able to pull different parts of this study to help them in their own classrooms.

I researched how not grading formative assessments would affect summative scores. This is one option a teacher can do to change up how they grade in their classroom. I would like to read about how other teachers might combat the use of online resources in their classrooms. It would be interesting if teachers tried other methods to help students understand the content without having the students immediately turn to technology.

I want to emphasize that technology is not the problem. The problem is how students use the technology. Students are getting into bad habits of relying on these resources before they try the problem. If some researcher wanted to create some sort of academic platform to encourage students to learn the content while using technology, I think that would be successful.

Conclusion

The purpose of this study was to find some method to teach the content without having to worry about if students are cheating online. I researched the effects of not grading formative assessments. The effects of not grading formative assessments did show a decrease in students using online resources. The reason for this was because the students weren't held accountable for

homework problems. Why would the students need to use online resources if no one was looking at the homework problems? However, did this make a difference in summative scores?

Since I couldn't prove if not grading formative assessments affects summative scores, I had to make a null hypothesis and do a t-test as well as find the p-value to see if my null hypothesis was rejected or not. According to my results, I failed to reject the null hypothesis. This means that not grading formative assessments does not influence summative scores. Although formative assessments do play a part in our student's understanding, these results show that grading them or not will not affect summative scores.

A favorite part of this study was when I showed the students the difference in their score when putting in the formative assessments. There was a recognition moment for many students when they realized how important their formative assessments were to their overall score. The hope going forward is that students realize the importance of formative assessments and they complete the homework assigned and come to class prepared, every day.

CHAPTER 5

IMPLICATIONS FOR PRACTICE

Introduction

The purpose of my study was to find an efficient way to gauge student success without having to worry about students using online resources. I researched what the effects were of not grading formative assessments on summative assessments. I found that not grading formative assessments did not affect the summative scores. Although formative assessments do play a part in our student's understanding, these results show that grading them or not will not affect summative scores.

Other results show that not graded work influences many students to do as little work as possible. When told that homework problems will not be graded, most students stopped doing them. However, this leads to another part of this study. Students seem to stop using online resources when assignments aren't graded. These are all good things to know going forward.

Action Plan

This study was eye-opening both to me as a teacher and my students. The students realized the importance of doing well on formative assessments. I learned about the work ethic of freshman and sophomore Geometry students. Going forward, I will still only grade formative assessments that I give in my classroom. I will start assigning homework problems as credit. Learning from this study, many of the students will not do the homework if there is no accountability. I want to provide that accountability. I want to start checking homework often. I might not check it every day, but if the students are aware that I might check it, hopefully that will be enough for them to come to class prepared. This might lead to more students going online to finish their homework, but I feel doing that is better than doing nothing.

I plan on starting to check the homework beginning with the next chapter. Students will not be happy with this conclusion, but over time they will hopefully appreciate what I am trying to do. Students will be held accountable to finish their homework problems along with continuing to take short quizzes after every couple of lessons. This will build a climate of hard work and accountability in my classroom. Students will know that they must come to class prepared.

Plan for Sharing

I plan on sharing my results with my students. Students would be more accepting of my changes in my grading if they knew my findings were directly from them. I am also willing to

share the results with my teaching staff. Informally giving a brief overview of my study will encourage fellow teachers to keep giving formative assessments and remind them that progress checks matter in a student's test scores. I would also advise fellow coworkers to keep checking homework. From my study, teachers need to make sure students are kept accountable each day. If we let this slip, the students will be completely fine with not completing their homework. Teachers need to be reminded of the importance of all forms of teaching, and at the core of education, a teacher's job is to teach and hold their students accountable. Students who want to learn are going to learn no matter what the format or how we grade. It is our job as educators to keep teaching and making an impact for their future.

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APPENDIX A

(Start of Study Survey)

Instructions: Circle the choice after each statement that indicates your opinion.

1. I use some form of online resource to cheat on my homework.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

2. I use some form of online resource to check for understanding on my homework.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

3. I do not use online resources to help me with my homework.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

4. If homework is not graded, I will still look up answers using online resources.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

5. If homework is not graded, I will no longer use online resources.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

6. If homework is not graded, I plan on still doing all of the homework assignments.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

7. If homework is not graded, I only plan on doing the homework I do not know how to do.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

8. If homework is not graded, I plan on doing no homework because it is not graded.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

APPENDIX B
(Homework Completion Chart)

Student #	Lesson 3.1	Lesson 3.2	Lesson 3.3	Lesson 3.4	Lesson 3.5
1	0	1	1	0	1
2	0	0	0	0	1
3	0	0	0	0	1
4	0	0	1	0	1
5	0	0	0	0	1
6	0	1	0	0	0
7	0	0	0	0	0
8	0	0	0	0	1
9	0	0	0	0	1
10	0	1	1	0	0
11	0	0	0	0	1
12	0	0	0	0	1
13	0	1	0	1	1
14	0	0	1	0	1
15	0	1	1	1	1
16	0	0	1	1	2
17	2	2	1	1	1
18	1	0	1	1	2
19	1	0	1	1	2
20	0	0	0	1	1
21	0	0	0	1	0
22	1	0	1	1	1
23	2	0	1	1	1
24	0	2	1	1	2
25	0	0	1	1	1
26	1	0	1	0	2
27	2	2	2	2	2
28	1	0	1	1	1
29	1	0	1	1	1
30	0	0	1	1	2
31	1	0	1	1	1
32	0	1	1	1	2
33	1	1	1	1	2
34	1	1	1	1	1
35	1	1	1	1	1
36	0	0	1	0	2
37	1	0	0	0	2

38	0	0	0	0	0
39	0	0	0	0	0
40	1	1	0	0	0
41	1	0	0	0	0
42	1	0	0	0	0
43	0	0	0	0	0
44	0	0	0	0	0
45	0	1	0	0	0
46	0	0	0	0	2
47	0	0	0	0	0
48	0	0	0	0	0
49	0	0	0	0	2
50	1	0	0	0	0
51	0	2	2	2	2

APPENDIX C**(Pre-Test Survey)**

1. I have done all the recommended problems my teacher told me to do for this chapter.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
2. I have done enough of the recommended problems that I feel I need to succeed.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
3. I have done no recommended problems my teacher has told me from the textbook.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
4. Throughout this chapter, I have used online resources to help me on my homework.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)
5. I feel prepared for this test.
Strongly Agree (5) Agree (4) Undecided (3) Disagree (2) Strongly Disagree (1)

APPENDIX D

(Post Test Survey)

1. I felt that test went well.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

2. I felt that test was harder than I thought it would be.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

3. I felt that test was easier than I thought it would be

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

4. That was not how the teacher portrayed the test to be in the review.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

5. What is something you wished you would have done before taking this test.
-

APPENDIX E (Informed Consent Form)

Dear Parent/Guardian,

Your child is invited to participate in a study to see whether not grading formative assessments (daily assignments, quizzes, etc.) will affect the students test scores. My instruction will not change. You can expect the same amount of work and rigor of any previous class. The first two chapters will be my normal teaching. After these first two chapters, I will then have a conversation with the students and tell them what I am researching and what changes they can expect. My instruction will not change, all of my daily lessons will still be assigned. Those assignments will however not be graded like before. I will then compare test scores over the next 2 chapters and see if grading or not grading formative assessments plays a part in my student's test scores.

Your child was selected because s/he is in my geometry classroom. If you decide to participate, please understand that your child will be asked to do the following, and these are typical classroom activities that involve no risk to your child.

1. Be part of my geometry lessons and take part in common formative assessments, regular classroom instruction, and student surveys regarding common formative assessments.
2. Take a summative assessment (chapter test) to determine if not grading formative assessments has an effect on the student's test scores.

Although Principal/Academic Dean Nikki Wixo has granted me permission to provide this experience for your child, since the information is being used to help me complete my master's degree at Minnesota State University-Moorhead, I need to have parental consent to use this information in my final paper that I am required to do as part of my degree. If you sign this form, you are giving me consent to use the information that I gather.

Please get in touch at any time with questions about this study. You may contact the teacher Luke Saunders by email at luke.saunders@k12.nd.us or Principal Investigator Dr. Tiffany Bockelmann at 218-780-0757, or by email at tiffany.bockelmann@mnstate.edu. Any questions about your rights may be directed to Dr. Lisa I. Karch, Chair of the MSUM Institutional Review Board, at 218-477-2699 or by email at irb@mnstate.edu.

You will be offered a copy of this form to keep. You are making the decision whether or not to participate. Your signature indicates that you have read the information provided above and have decided to participate. You may withdraw at any time with out prejudice after signing this form should you choose to discontinue participation in the study.

Student

Date

Signature of Parent of Guardian

Date