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The Effect of Formative Assessment on Student Motivation and Self-Regulation

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Abstract

The main purpose of this study was to determine whether the use of formative assessment in a high school classroom setting would increase student motivation and self-regulated learning strategies. The sample (*n*=41) in this study included students from grades 7-12 social studies course. The researcher engaged in formative assessment strategies paired with formative feedback aimed at improving student understanding of concepts and ideas in social studies. Based on the research, formative assessment, paired with formative feedback, can give students the motivation to aide their learning, and help them learn rather than memorize. The shortened 44-item Motivational Strategies for Learning Questionnaire (MSLQ) was used in a quantitative pre- and post-test approach for the purposes of this study. The data were analyzed using a paired samples t-test to determine statistical significance. Based on the data from the study, there was no statistical significance in either student motivation or self-regulation through the use of formative assessment.

Keywords: formative assessment, summative assessment, student feedback, student motivation, self-regulated learner

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Chapter One

Introduction

Student motivation to learn is a culmination of many different aspects, but most importantly, it includes student engagement or effort, goal orientation, and self-efficacy (McMillan, Cohen, Abrams, Cauley, Pannozzo, & Hearn, 2010). Through these three aspects of learning, a student can become a self-regulated learner, where a student can actively monitor his or her process in meeting his or her learning goals (Nicol & Macfarlane-Dick, 2006). In practice, self-regulation is not a mental ability or a skill that can be acquired, but a process where learners turn their mental abilities into skills (Zimmerman, 2002).

Formative assessment for instruction and student learning is the process used to improve curriculum construction, teaching, and learning through student feedback and self-assessment (Bloom, Madaus, & Hastings, 1981). Formative assessments differ from summative assessment, which most educators are accustomed to, in which the evaluation occurs at the end of a teaching unit to evaluate learning and assign a grade (Bloom et al., 1981). Sadler (1989) proposed that formative assessment focuses on two central themes, facilitating student self-regulation and feedback. Formative assessment provides corrective measures so learners can succeed using feedback (Wininger & Norman, 2005).

Providing students with feedback on their work includes cues to support learning as well as recognizing discrepancies in task and goal performance (Wininger & Norman, 2005). Teachers are responsible for providing their students with feedback that can give certain learning clues and point students in the right direction of their learning goals. The use of feedback during the learning process can help a student recognize gaps in his or her learning and give him or her the knowledge to fill those gaps. Learning tasks become more defined for the learner, as he or she is self-motivated rather than motivated by an external factor. For example, students may fear

losing points on an assignment or fear of repercussions from the teacher. In this study, formative assessment was implemented to measure the effect it had on student motivation and self-regulated learning strategies.

Purpose of the Study

The main purpose of this study was to determine whether the use of formative assessment in a high school classroom setting would increase student motivation and self-regulated learning strategies. The sample (n=41) in this study included students from grades 7-12 social studies classes. The researcher of this study is a middle and high school social studies teacher who teaches six different social studies courses throughout the course of a regular school day. Each student in the school where the research took place is required to take a social studies course each year. Despite the fact that the students must take a social studies course each year, the researcher believes that most students do not understand the importance of social studies. As described in the literature review, without interest in the subject, students' motivation in that class can be negatively affected.

The researcher implemented multiple methods of formative assessment strategies in addition to daily classroom instruction. To implement formative assessment effectively, the researcher paired formative assessment with consistent and timely feedback. As described in the literature, feedback is essential to formative assessment and helps students recognize gaps in their learning. To fill those gaps, students will have to find the knowledge that they need so they can progress through the learning process. Formative assessment is not exclusive to social studies, however, as it could be applied to almost any classroom setting. It is the hope of the researcher that students can recognize their own learning process and be able to apply self-regulation to their other courses as well. If students can learn to apply these self-regulated

strategies to all their classes, it may be possible for them to recognize the importance of all of them and therefore increase their motivation for them.

Statement of the Problem

A common procedure for a typical classroom goes as follows: students come to class, students listen to the teacher, the teacher gives an assignment, the student does the assignment, the student gets a grade for the said assignment, then the student gets tested on material after the said unit is finished. A person who has been through the public education system in the United States will more than likely recognize this procedure. This procedure, however, does not give proper attention to several important areas of the educational process. The lack of attention to students' learning goals and lack of engagement in the learning process leave the students' underprepared for the "real world." Having students develop their individualized method of learning, and goal setting, appropriately prepares them for real-life situations they may come across as they complete their education. Therefore, teachers must look to change this current format and institute different methods of teaching and learning.

Based on the literature review, there is either a lack of knowledge about what constitutes formative assessment or teachers are not actively engaging in formative assessment practices. To understand where a student is in the learning process, there needs to be some benchmark of student learning, in other words, measurement of progress. Formative assessment can provide this benchmark, as it can indicate to the teacher where the student is in the learning process. Giving assignments and assigning a point value during the grading process is often seen as enough to benchmark. It is often easier for teachers not to provide some sort of feedback as it speeds up the grading process. However, omitting feedback leaves the students without a sense of direction for their learning. With no sense of direction, a student does not know how to

improve his or her learning, which means he or she cannot set goals or engage in any strategies to help himself or herself learn. Formative assessment, implemented effectively, could help alleviate this problem and provide students with the direction he or she requires.

Scope of Research

The scope of this study is finding a correlation, if any, between formative assessment and high school students' motivation to learn and self-regulated learning strategies. Data for the research was collected only from the participants in social studies classes of which they attend daily. On a regular basis, the participants in this study will be subjected to formative assessment strategies, which they have not previously undergone in previous classes. The hope is that these formative assessment strategies will require students to become more self-sufficient and accountable for their actions. Although the researcher would like to put emphasis on the students being motivated to gain knowledge, the participants will, most likely, be driven by the desire to obtain a better grade in the class. Areas of focus for this study included what motivates students to learn, how students are motivated to learn, and what strategies do they utilize to become a self-regulated learner.

Significance of the Study

In the eyes of a student, it may seem that there is significantly more emphasis placed on retention of fact rather than retention of skills and learning while in school. However, this is not the fault of the students as they have been trained to think this way by teachers. For most classrooms, it is safe to say that students are mainly focused on achieving a number because that number is attached to a certain letter grade. Looking to achieve this letter grade may result in students forgetting what the goal of their learning is. Formative assessment, paired with formative feedback, can give students the motivation to aide their learning, and help them learn

rather than memorize. Students need skills, and often remembering a certain fact is far less useful in the future than knowing how to problem solve and think critically. Providing students with the knowledge of the gaps in their learning, and allowing them to fill those gaps on their own, helps them develop their own skills and learning strategies.

As to the significance of this study, it has the potential to motivate both students and educators. For students, if teachers begin to use more formative assessment strategies, there is a chance that they could be more motivated to learn and develop new learning strategies. Personal learning strategies and self-regulation will aid students in the future. Self-regulated learning strategies give students the potential to develop their own problem-solving skills and learn for themselves. For educators, achieving a higher level of motivation can never be a negative aspect of teaching and learning. Students who are motivated will learn more than those who are not, and in the profession of helping young people learn, this is very important. Also, if students can develop their own strategies for learning, their potential to learn new things will increase. Formative assessment has the potential to provide teachers with what they need to get more out of their students.

Research Questions

This study addresses whether there is an increase in student motivation and self-regulated learning strategies using formative assessment practices. The research questions for this study are as follows:

1. Is there a statistically significant correlation between student motivation and the use of formative assessment?
2. Is there a statistically significant correlation between student self-regulation and the use of formative assessment?

Definition of Terms

The following terms and their definitions were used throughout the course of the study. The researcher used these terms to direct the study and develop the review of literature, methodology, data analysis, and discussion chapters. The following definitions are vital to the understanding of the study, especially the difference between formative and summative assessment and how motivation and self-regulation coincide.

Formative assessment. A process in which assessment is used by the teacher to determine evidence of learning. Teachers can use this evidence to adjust the instructional process and students can use this evidence to adjust their current learning tactics. Formative assessment taking place during the learning process and is considered an assessment for learning (Popham, 2008).

Summative assessment. A process in which learning is assessed at the end of a unit of study when instruction for the unit has ended. The success of a student is measured by a standard by which the summative assessment is based on. Summative assessment is an assessment of learning (Koukounas, 2016).

Student feedback. Information provided to the student from the teacher that tells the student where they are in the learning process. The teacher bases feedback on the standards for the course and learning goals of the student and teacher. Feedback can be provided in a variety of ways, for example, written feedback on an assignment or verbal feedback during class (Nicol & Macfarlane-Dick, 2006).

Student motivation. A student's willingness, need and desire to be successful in the learning process. Student success can be reliant on the level of motivation in a student. Motivation can determine interest in a subject, habits, and success (Said & Al-Homoud, 2004).

Self-Regulated learner. A self-directed process through which students can develop their own learning strategies, skills, goals, and habits. Self-regulated learners are able to measure their own effectiveness and monitor their progress towards learning goals. Self-regulation is internal and does not rely on outside forces for development (Zimmerman, 2008)**.**

Chapter Summary

In summary, this study examined the benefit formative assessment may have towards student motivation and self-regulated learning strategies. This study has the potential to give educators to examine the benefit of formative assessment and understand formative assessment on a deeper level. With this study, teachers may be encouraged to use more strategies similar to those used in this study to benefit student motivation and learning strategies. Additionally, further engagement and interest in class materials might be an outcome that teachers can achieve while implementing formative assessment strategies.

In the upcoming chapters, the review of literature, methodology, findings, and future discussion will be detailed. The review of literature in Chapter Two will focus on elements of formative assessment like teacher understanding of formative assessment and formative feedback. The review of literature will also contain sections detailing different areas of student motivation and self-regulation. In the third chapter, the methodology for this study is detailed including a description of the instrument and research method. In the fourth and fifth chapters, discussion of the data and future discussion will be analyzed.

Chapter Two

Review of Literature

A widespread practice in teaching is to assess a students' learning after the learning has taken place using summative assessment. What teachers may not realize is that by implementing new strategies into their curriculum, by way of formative assessment, they can significantly improve the level of learning from his or her students. Formative assessment can be applied with very little added effort on the teachers' part or with much more significant effort and both can have a significant effect on student learning. The focus of the literature will look to answer the research question of whether formative assessment has a significant impact on student motivation and self-regulated learning strategies. In this review of literature, the use of formative assessment will be examined along with the thoughts and feelings of students and teachers, the various methods of applying formative assessment, elements of effective formative feedback, and the benefits formative assessment can have on student learning. Also, the literature on student motivation will be examined along with the process of becoming a self-regulated learner.

Formative Assessment

There are two main forms of assessment in modern education, summative and formative. Summative can be thought of as certification and accountability whereas formative assessment aims to improve student learning (Yu and Li, 2014). As stated by Hollingsworth (2012), "formative assessments are generally thought of as metacognitive tools designed to support instruction in order to facilitate the creation of a learning profile for students to track progress over time" (p. 366). As described by Bell and Cowie (1999) "formative assessment is the process used by teachers and students to recognize and respond to student learning in order to enhance

that learning, during the learning" (p. 198). Therefore, formative assessment is a tool and is to be used as assessment for learning, rather than assessment of learning (Popham, 2008).

Many strategies can be used to fit the formative assessment role, making formative assessment an incredibly versatile and flexible tool for teachers to have. Some strategies that have proved to be effective include the exit slip, minute papers, work critiques, or think-pair-share (Rasmussen, 2017). Teachers can use any combination of formative assessment strategies and tailor their program to what works best for their students. These formative assessment methods can be specifically chosen by the teacher to meet certain needs of his or her students.

Formative assessment is used to achieve the goal of assessing a students' learning and tailoring instruction based on the needs of the student so that the instruction can better suit the student's needs. Formative assessment can be used by teachers to gauge student learning while it happens and helps teachers respond to the needs of the students (Cotton, 2017). Assessment can be used to send a message to students and that message is what counts as knowledge in a learning environment (Hollingsworth, 2012). If formative assessment is used as a message for students to be able to prepare for the summative assessment, then overall student learning should improve as a result.

Formative assessment is an important practice and can be utilized in every teacher's classroom. Formative assessment is important to the teacher because it can help a teacher recognize students' needs, track student achievement, and offer opportunities to succeed (Rasmussen, 2017). Formative assessment can help make the learning more individualized, as there are no two learners that are completely similar (Greenstein, 2010). Additionally, formative assessment can be beneficial to the student, as stated by Moss and Brookhart (2009):

> students understand and use learning targets, set their own learning goals, select effective learning strategies, and assess their own learning progress. And as students develop into more confident and competent learners, they become motivated (energized) to learn, increasingly able to persist during demanding tasks and to regulate their own effort and actions when they tackle new learning challenges. (p. 5)

If formative assessment can provide what is missing for both students and teachers, then there is no reason it should not be used. Other than the extra time it takes for teachers to understand and implement formative assessment, there seems to be no apparent drawback.

Implementing Formative Assessment

Formative assessment is not a strategy that can only be applied by an exclusive, or elite, group of teachers, the lack of formative assessment is usually the fault of the teacher. Hollingsworth (2012), states that "despite the research evidence to support the power of formative assessment processes to improve teaching and learning, these practices are not necessarily be implemented in classrooms" (p. 367). The literature involved in this research attempted to answer the research question by looking at the way that the application of formative assessment can be measured. Formative assessment is not always implemented in all classrooms. A teachers' lack of formative assessment would lead people to believe that teachers either do not believe in the use of formative assessment, or they do not feel confident in their ability to implement and use it effectively.

A study by Cotton (2017) examined teachers' perceptions of their use of formative assessment and examined the students' perceptions of their teachers' implementation of formative assessment. In this study, quantitative analysis was used and a series of surveys that both the students and teachers involved rate themselves based on predetermined statements.

Before calculating the data, Cotton (2017) expected that "teacher-survey ratings regarding use of formative assessment would differ from the student-survey ratings and that they would indicate teachers' perceptions of formative assessment use were stronger than the students' perceptions of formative assessment use" (p. 43). The teachers involved in this study had received numerous opportunities to learn and understand formative assessment from various professional development opportunities and training seminars. What was discovered in Cotton's study is that after analysis of the data the teachers in this study understood formative assessment but were deliberately choosing not to implement it (Cotton, 2017). It is not unusual for teachers to have a vast amount of opportunity to expand on their knowledge of different educational tools. With the knowledge that even from a limited sample of teachers, like the ones involved in this study, would choose not to use formative assessment, begs the question of how many other teachers there are that do not implement it that could. Teachers understand that there is a lot of potential in formative assessment to gain an understanding of how their students learn, but it is possible that it is their own lack of confidence that stops them from implementing formative assessment.

Teachers' Understanding of Formative Assessment

In another study, Antoniou and James (2014) looked to contribute to the discussion of "teachers' perceptions, understanding and actions in relation to formative assessment" (p. 157). Antoniou and James (2014) have the understanding that teachers may have trouble implementing formative assessment because of a general lack of understanding of what formative assessment really is. The various definitions and understandings of formative assessment have led to confusion as to what formative assessment really means in the classroom.

Furthermore, according to Antoniou and James, "the increasing policy emphasis on measuring academic standards and the need for evidence-policy development has created a

pervasive emphasis on summative evaluation for high stakes purposes" (2014, p. 157). With these facts and ideas in mind, it is no wonder that the implementation of formative assessment is not a standard in teacher education. So much of educational grading relies heavily on immediate number value that teachers often look to produce results rather than emphasize the process of learning. Also, teachers may not even have a full understanding of what it takes to not only implement formative assessment but then also use it effectively to better meet the needs of the student. Antoniou and James (2014) conducted this study with qualitative methods in mind and looked to analyze teachers' practices and understanding of formative assessment.

The researchers carried out this research by conducting interviews, making observations in the classrooms of the teachers involved in the study, and by observing students work. What was found in this study is that "teachers had positive perceptions and values towards using formative assessment practices but had a fairly narrow view of what actually constitutes formative assessment and the teacher role in it" (Antoniou et al., 2014, p. 159). In other words, the teachers involved in this study understood the value and merit of formative assessment but did not have a firm grasp on the concept. If a teacher does not have a full understanding of an educational tool and tries to implement it, it would be like having a student take a test on a topic that they are unsure of. Further on in the article the authors discuss possibly integrating some sort of framework for teachers to gain a better understanding of the implementation of formative assessment.

Antoniou and James (2014) go on to mention that the teachers involved in the study had no clear criteria of what they should assess and could not clearly define the criteria either. The results found from this article display that for there to be effective implementation of formative assessment, then the outcome and goal of formative assessment should be more clearly stated. If

a framework for formative assessment was established as a standard for education, then it may be possible for the implementation of formative assessment to be standard.

Leadership Role in Formative Assessment

Lack of framework and lack of understanding can play a significant role in the implementation of formative assessment. While school administrators oversee many things, they can also play a crucial role in the implementation and understanding of formative assessment. In a study conducted by Hollingsworth (2012), the focus was to understand the role of school leadership as a catalyst for innovation in instruction and classroom assessment by way of implementing formative assessment. This qualitative study looked to investigate leadership practices and how those practices led to increased implementation and confidence in the use of formative assessment. This case study only examined one school district for gaining data, and this may be the biggest limitation of any of the studies observed in this paper.

However, what Hollingsworth found is that "the built-in time for reflection and teacher conversation in professional learning communities is an important practical implication for administrators. For a sustained change, teachers need practical support in the form of time for teachers learning and collaboration" (2012, p. 377). In other words, this study is suggesting that with the support of administration through professional learning communities and continued conversation with other teachers, teachers will be more motivated to change. This change could very easily be the implementation of formative assessment. By the end of this study, it was clear that people in formal positions of school leadership can facilitate the use of formative assessment to benefit student learning (Hollingsworth, 2012).

Students' Perceptions of Formative Assessment

Teachers share a common sentiment when it comes to formative assessment, that it helps the students and helps the teacher gain a better understanding of their students learning. However, by considering the perception of students on formative assessment it may be possible to gain a better understanding of what methods work and which do not. In a qualitative study conducted by Weurlander, Söderberg, Scheja, Hult, and Wernerson (2012) the student perceptions and experiences of formative assessment were explored.

Weurlander et al. (2012) conducted a series of interviews after administering two different forms of formative assessment to the students involved in the study, on individual assessment and the other group-based. It is important to know how students perceive formative assessment if they find it useless it may counteract the intended use of formative assessment. Fortunately, this study found that "formative assessments are an important role for students' learning in three areas: motivation to study, awareness of their own learning and the effects on learning, in terms of both processes and outcomes" (Weurlander et al., 2012, p. 752). What the data form this study states is that students see formative assessment as somewhat of an external motivator, and something that encourages them to study more so they do well (Weurlander et al., 2012). What this could mean is that not only do teachers see the benefit of formative assessment, but it is possible for students to understand the benefit as well. Student motivation is something many teachers struggle with, considering all the extrinsic factors that affect a student throughout their life. The study by Weurlander et al. also found:

> that formative assessment can give students feedback on their progress, which in turn makes them aware of their own learning. The experience of whether or not they were able

> to complete the task or answer the questions gave students an indication of how much they had understood and where more study was required. (2012, p.753)

Students are given multiple reasons to believe in the process of formative assessment making the implementation that much easier for teachers. Students that believe in a system and can find meaning and usefulness in it will be more eager to participate.

Furthermore, in a quantitative study, a researcher tried to gain insight on the impact of formative assessment in a group setting (Yu and Li, 2014). Although this study attempted to measure the benefit of group-based more than the actual implementation or student perception of formative assessment, the student survey responses are eye-opening. For the study, Yu and Li (2014) used a series of formative and summative assessments in two English classes. The formative assessments that were administered were given in a group setting to measure the effectiveness of group-based formative assessment. With the two groups involved in the study one class did the formative assessment individually and the other group-based.

Along with the multiple assessments the students were given they were also asked to take a survey. What was found is that the group that had group-based formative assessment scored at least 10% better than the class that had individual formative assessment (Yu and Li, 2014). In terms of student perceptions, the student surveys supported the idea that students positively perceive formative assessment. The authors of this study conclude by stating, “formative feedback can come from other students” (Yu and Li, 2014, p. 843). This study unequivocally proves that formative assessment is something that can come from various sources, especially formative feedback from peers. Formative assessment does not even have to be teacher-led, which should make implementation for teachers even easier.

Formative Feedback

Feedback during the learning process is essential to formative assessment as it gives insight as to how well something is done or is being done (Sadler, 1989). Formative assessment must meet a certain set of standards for it to be beneficial to students. For example, formative feedback must be precise, clear, and understandable (Rasmussen, 2017). Providing feedback to students allows him or her to progress down the path of self-regulation, as feedback aides them in the self-evaluation stage of being self-regulated. Feedback can also correct habits before they are formed in the learning process. Bloom, Madaus, & Hastings (1981) state:

> A system of feedback to the teachers and students can reveal the errors or difficulties in learning for each student shortly after they occur. If appropriate correctives are introduced as they are needed, the educational system can be a self-correcting system so that learning errors can be corrected before they are compounded with later learning errors. (p. 156)

This adds extra responsibility on behalf of the teacher, but if done correctly, formative assessment and formative feedback can act as a thermostat rather than a thermometer (Wininger & Norman, 2005). It is also stated that feedback gives more responsibility to the student as it puts the responsibility of closing the gaps in their abilities on them. Those gaps are pointed out in the feedback provided by the teacher.

Formative feedback from teachers should be done in a manner that is not perceived negatively by the student. Feedback treats mistakes as opportunities to learn and to develop the skills a student needs to obtain mastery. Also, during the learning process feedback promotes motivation because it gives students hope and positive expectations for themselves. Strictly negative feedback may give a student the sense that they should not expect to do better and that

they are expected to fail (Cauley & McMillan, 2010). This is not to be misconstrued that students cannot be told when they are wrong, this would be missing the point of feedback and building on positive habits. There is more than just a single method for feedback. Some methods of feedback are more informal like making comments while walking throughout the room or a more normative method like commenting on assignments (Cauley & McMillan, 2010).

Formative assessment needs to be timely so that the students who receive it have an opportunity to act upon it. The best time to provide feedback is when students are still mindful of learning outcomes and have time to act on the information (Rasmussen, 2017). Teachers who are normally slow to provide feedback or return student work may struggle in this area. It is imperative that, especially with formative assessment, the feedback given during the learning process can provide benefit to the student prior to summative assessment. If feedback is not given as soon as possible, a student may have forgotten how they performed on the given task (Bailey, Little, Rigney, Thaler, Weiderman, & Yorkovich, 2010).

Formative feedback also needs to be precise and selective. Feedback that is too vague or too long and cumbersome may prove too overwhelming to the learner and useless (Bailey et al., 2010). The goal of formative assessment is to reach a learning goal or standard by way of assessment of learning. Feedback provides recognition of the progress towards those learning outcomes. Therefore, the feedback provided from the teacher should recognize those goals within the feedback and avoid statements that are vague or general like “good job” or “nice work” (Rasmussen, 2017). In addition, feedback should focus on the task at hand and not be too long and complicated which may overwhelm the learner. Often, teachers want to try and fix all mistakes as they are made, but a more effective approach is to fix what is apparent at the time (Shute, 2008). A better, and easier, approach is for teachers to focus on one, or two, elements at a

time when providing feedback. Providing feedback that is more selective like this can give students the information in digestible sizes (Wiggins, 2012).

Student Motivation

The motivation of a student to learn is one of the most essential factors when determining the success of a student. Said and Al-Homoud (2004) refer to student motivation as his or her "willingness, need, and desire and to participate in, and be successful in, the learning process" (p. 2). One of the most important models to consider with motivation is the model developed by Deci & Ryan (1985) on the Self-Determination Theory (SDT). SDT points out two different forms of motivation, intrinsic, or motivation that comes from within, and extrinsic, or motivation that is derived from outside factors. Intrinsic motivation does not develop from students being pressured into doing something, rather a student feels a need to do things themselves and become their own regulators. Extrinsic motivation focuses on aspects that the student cannot control and that are imposed upon them by an outside force. Normally, intrinsic motivation factors that a student engages in will evoke interest or pleasure and the activity will feel like it has a purpose to the student. Extrinsic motivation comes from external forces that may result in a feeling of obligation, or even guilt for the student (Hornstra, Kamsteeg, Pot, & Verheij, 2017).

Teachers should want his or her students to be intrinsically motivated to complete a task as it could mean that the student finds that task to be important to his or her development. Students that are solely extrinsically motivated may represent behaviors associated with unwillingness or passive compliance (Hornastra et. al., 2017). Students should want to do things that both make them happy, but also make them feel like they are accomplishing something or developing. Students who feel they only do things because they are told to do so may be less willing to experiment in the future or take the steps to develop on their own. Self-regulated

learners are motivated learners and are intrinsically motivated to complete tasks and develop as a learner.

Self-Regulated Learner

Self-regulated learning (SRL) is a process by which students become masters of their own learning process. SRL is a proactive process, one that students use to acquire academic skills that include goal setting, selecting and utilizing learning strategies, and monitoring one's own effectiveness (Zimmerman, 2008). SRL is a process that student themselves embark on, in which students use their own beliefs of themselves to transform their mental abilities (Zimmerman, 2008). These beliefs stem from a factor that is already present in student, which is an abundance of intrinsic motivation.

Self-regulation shifts the common belief from the early 19th century that a student's failure to learn was because of a lack of discipline or lack of intelligence (Zimmerman, 2002). However, views on learning have since shifted away from learning being a skill that students acquire from teachers to a skill that students develop for themselves (Zimmerman, 2002). It goes without saying that without student motivation, SRL would not occur as it requires students to become masters of their own learning. Zimmerman (2002) stated that "self-regulation of learning involves more than detailed knowledge of skill; it involves the self-awareness, self-motivation, and behavioral skill to implements that knowledge appropriately" (p. 66). Tay (2015) expanded on these concepts by stating three ways students are self-regulated:

> Motivationally, self-regulated learners perceive themselves as competent, self-efficacious, and autonomous. Metacognitively, self-regulated learners who plan, organize, self-instruct, self-monitor, and self-evaluate at various stages during the

> learning process. Behaviorally, self-regulated learners select, structure, and create environments that optimize learning. (p. 170)

Those that are self-regulated carry the compacity to complete tasks on their own and develop themselves. However, this is not to be confused with the idea that those who are self-regulated no longer need a teacher, as the teacher facilitates this process.

Motivation and SRL

For students, being in school is like having a job for adults where they are responsible for completing a set of tasks on a day to day basis. However, whereas adults are motivated by monetary incentive, students do not have an incentive in school other than the grades they receive. The hope is that these grades will someday translate into a good life after completing their mandatory, required schooling. Therefore, completing tasks in school is not what motivates students to succeed, but rather a self-regulatory process that stems from intrinsic motivation to learn (Zimmerman, 2002). This process is known as self-regulation, and for students to succeed beyond what the teacher has provided to them, there must be some sort of self-regulating. The process of self-regulation can be broken down into three phases, forethought phase, performance phase, and self-reflection phase (Zimmerman, 2002).

People motivate themselves and guide their actions through a process of forethought. They form ideas of what they can accomplish, anticipate outcomes of the perceived action, and then set goals for themselves and plan courses of action (Bandura, 1993). Bandura (1993) also states that “forethought is translated into incentives and appropriate action through self-regulatory mechanisms” (p. 12). In the forethought phase of becoming a self-regulated learner, a student must become aware of their own learning abilities. This process can be known as becoming self-efficacious, one’s ability to be aware of their own learning (Zimmerman, 2002).

Schunk (1991) described self-efficacy as “an individual’s judgements of his or her capabilities to perform given actions” (p. 1). Self-efficacy has a profound effect on student motivation, as those who have a low sense of self-efficacy may avoid a task completely out of fear of failure, while those who have a high sense of self-efficacy will participate more readily (Schunk, 1991). Additionally, those who have a high sense of efficacy might visualize themselves in more successful scenarios and develop supporting methods to get themselves there. Those with low efficacy might only think of the negative consequences of attempting something (Bandura, 1993). In short, in this phase, it is important that a student receives regular feedback to support the process of becoming self-efficacious. Providing a student with feedback, either positive or negative, will either reinforce positive results or provide learning goals the student can visualize and try to attain.

The performance phase involves the student being able to observe and control their own actions they decided on in the forethought phase (Zimmerman, 2002). This could also be called the phase where students adopt certain learning strategies to help them succeed. This is also the stage where learners will adopt strategies involving self-control and self-observation. This process is then expanded upon in the self-reflection phase where the learner engages in judgement and react to their own work (Zimmerman, 2002). When students judge themselves, they compare their performance to some set standard by which they are told to achieve. In the judgement phase, it is important for teachers to provide feedback so that students recognizer the standard on a continual basis. In these two phases, the learner truly begins to self-regulate because he or she is beginning to recognize the path he or she needs to take to learn. Students rely heavily on their sense of self-satisfaction. The more satisfied a student feels with his or her

performance, the happier and more motivated he or she will be. If a student is dissatisfied, he or she may feel discouraged and less motivated.

Chapter Summary

Most questions about formative assessment do not concern whether it is effective. Most questions about formative assessment, concern whether teachers understand its importance and if they are willing to implement. There is no doubt that adhering to consistent formative assessment strategies takes more time as a teacher and requires more insight as to progress a student is making. Implementation requires support as well and teachers need the support from school administrators both to understand and to be consistent with the implementation process. Having support from students is also vital to the success of formative assessment practices. It is important that formative assessment is not perceived as “busy work” or constant testing and quizzing. The goal for teachers should be for students to recognize formative assessment as an opportunity to expand their learning on a topic and to recognize their own growth. Formative assessment needs to be recognized as a tool, and not just as a task for students and teachers to complete.

Teachers can help their students do this by providing them with consistent, timely, precise, and constructive feedback. Feedback during the learning process can provide students with the knowledge they need to further their learning and understanding of a subject. Feedback that is too vague, or overwhelming, can prove to be ineffective for the learner. Formative feedback adds more responsibility to a teacher workload but is worthwhile for the growth of the student in need. In addition, when done correctly, formative feedback can provide students with the intrinsic motivation they need to succeed in learning.

Motivating students can be a constant struggle for teachers. Unmotivated students, often lack direction and without that direction cannot learn for themselves, often leading them to give up. Formative assessment, if applied correctly, can give those students direction. Giving feedback to a student allows them to recognize the areas they can grow and the areas where they have fallen short. Recognizing these areas and having a heightened sense of accountability will lead a student to take measures to improve their own learning. This process can be known as self-regulation, where the student plays an active role in their own learning process. Unmotivated students cannot self-regulate. In chapter three, the methodology of the study will be discussed along with the population, sample, and research tool.

Chapter Three

Methodology

The purpose of this study was to evaluate whether a correlation exists between formative assessment and student motivation and self-regulated learning strategies. To conduct this study, the researcher used formative assessment strategies in each class participating in the study, along with daily classroom instruction and summative assessments. The researcher did not use any formative assessment strategies prior to administering the Motivational Strategies for Learning Questionnaire (MSLQ) (See Appendix A). The formative assessment strategies used by the researcher were developed prior to the researcher implementing the strategies. Formative assessment strategies, as defined in the literature, included activities with the intent of being used as assessment for learning (Popham, 2008). Some examples of strategies used were entry and exit slips, strategic questioning, and think-pair-share. Daily classroom instruction, as defined by the researcher, includes lectures, activities, and daily assignments. These formative assessments happened with a frequency of at least once a week and focused on key points and major factors that contribute to the North Dakota State Social Studies standards to be met by each student. The researcher analyzed the progress of each student based on these formative assessments and administered constructive and regular feedback based on the needs of the student. When necessary, the researcher took the proper steps to adjust instruction based on the needs of the class. These steps taken by the researcher were necessary to adhere to the goals of formative assessment as stated in the literature review. At the end of the study, the MSLQ was administered for the second time and analyzed for statistical significance.

For the purposes of this study, a quantitative approach was used to address the research questions. The research instrument used was the 44 item Motivational Strategies for Learning

Questionnaire (MSLQ) (Pintrich & DeGroot, 1990). The 44 item MSLQ uses scales that measure student motivation and self-regulated learning strategies. The MSLQ is a self-assessment tool in which students rate themselves based on statements about motivational and self-regulated strategies and beliefs. For the purposes of this study, the MSLQ was administered twice in a pre- and post-test format. The pre-test was given prior to the implementation of formative assessment and was given again approximately 16 weeks after implementation. After administering the post-test, analysis of the data took place in an effort to address the research questions. The analysis was completed using scores of all participants from both the motivational and self-regulation scales.

For the first research question that asks whether there is a statistically significant correlation between student motivation and the use of formative assessment, the motivational beliefs subscales were used. These subscales focus on self-efficacy, intrinsic value, and test anxiety. For example, Q1 from the motivational subscales states, “Compared to other students in this class I expect to do well” and Q10 which states, “I prefer classwork that is challenging so I can learn new things.” Students must rate themselves on a seven-point Likert scale to determine how well these statements describe themselves. These items, along with the other 20 items of the motivational subscales, were used to address the research question.

For the second research question which asked if there is a statistically significant correlation between student self-regulation and the use of formative assessment, the self-regulated learning strategies subscales of the MSLQ were used. These subscales focus on cognitive strategy use and self-regulation. Students used the same Likert scale for this portion of the survey. Examples of statements from the self-regulated subscales include Q34 which states, “I outline the chapters in my book to help me study” and Q38 which states, “I work on practice

exercises and answer the end of chapter questions even when I don't have to." These items, along with the other 20 items of the self-regulated learning strategies subscales, were used to address the research question. The table below organizes all items from the 44 items MSLQ based on the correlation to the research questions and sub-categories of the MSLQ.

Table 3.1

MSLQ Items and Subscales

Categories	**Item Distributions**	**Research Question**
Student Motivation	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	Is there a statistically significant correlation between student motivation and the use of formative assessment?
Self-Regulated Learning Strategies	23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44	Is there a statistically significant correlation between student self-regulation and the use of formative assessment?

Description of Instrument

The MSLQ was obtained from the University of Michigan website and is listed as available in the public domain. To answer the research questions, the 44 item Motivational Strategies for Learning Questionnaire (MSLQ) will be used in a quantitative approach. The original MSLQ was developed by Pintrich, Smith, Garcia, and McKechie (1991) using a seven-point Likert scale to measure motivation and self-regulated learning strategies with 1 being equal to "not at all true of me," 6 equal to "untrue of me," 5 equal to "somewhat untrue of me," 4 equal to "neutral," 3 equal to "somewhat true of me," 6 equal to "true of me," and 7 equal to "very true

of me." The original version of the MSLQ is an 81-item questionnaire that measures a student's motivational orientations along with his or her learning strategies. The MSLQ was developed with a modular approach giving researchers the opportunity to use all 15 subscales or as many as they choose to answer the given research question.

For the purposes of this study, a shortened version of the MSLQ was used. The shortened MSLQ developed by Pintrich and DeGroot (1990) contains 44 items modified from the original MSLQ to more adequately meet the needs of junior high to high school students (See Appendix A). The shortened MSLQ also contains elements that focus on the two specific areas of motivation and self-regulated learning strategies. The motivational and self-regulated learning scales are divided into five subscales that focus on elements of motivation and self-regulation. The subscales of self-efficacy, intrinsic value, and test anxiety all focus on aspects of student motivation, and the subscales of cognitive strategy use and self-regulation focus on self-regulated learning strategies. The researcher looked to answer the research questions by analyzing the data from both instances of the MSLQ given to the participants in the study. The MSLQ was administered twice during the study period, once at the beginning of the study and once at the end. The MSLQ was obtained from the University of Michigan School of Education website and is listed as available in the public domain (University of Michigan School of Education, n.d.).

Instrument Reliability. The original MSLQ was developed with the intent to be used on college students, while the shortened MSLQ being used for this study was designed by Pintrich and DeGroot (1990) with the intent of being used on younger students not yet in college. Pintrich and Degroot (1990) studied the effectiveness of the shortened MSLQ on 173 seventh grade students. Using Cronbach alpha-scores, the results of this study indicate that this version of the

MSLQ has a reliability of α = .89 for self-efficacy, intrinsic value α=.89, test anxiety α =.75, cognitive use α =.83, and self-regulation α =.74 (Roberts, 2017).

Another study conducted by Eturan, Arslan, and Demirhan (2014) looked to identify the reliability of the shortened MSLQ on high school students. This study was conducted with 1,605 high school students participating. Using factor analysis, the study was able to confirm the validity of the MSLQ and determine the reliability through Cronbach Alpha-scores. For the self-regulation scale of the MSLQ has a reliability of α=.81, and the motivational scale has a reliability of α=.81. Using both sets of data, it can be indicated that the MSLQ is sufficiently reliable for the purposes of this study.

Population

The population (N=103) consists of students in grades seven through 12 that attend the school where the research took place during the 2018-2019 school year. All students in grades seven through 12 of the research setting are required to take social studies, math, English, and science class each year.

Sample. Data were collected from the school at which the researcher worked as a high school social studies teacher. The sample (n=41) was chosen out of convenience for the researcher as the social studies teacher working in the research setting. The population (N=103) was not large enough to apply random sampling to this study, therefore convenient sampling was necessary (McMillan, 2010). Data were collected during the 2018-2019 school year. The sample (n=41) consisted of students in social studies classes between grades seven through 12. The 44-item MSLQ was administered to the entire sample and their responses were recorded via Google Forms and analyzed using the Minitab 18 data analysis software.

Research Setting

The study was conducted in a school located in a rural community in North Dakota. The school has a population of 89% white students with 29% of all students considered to be low income. The school had 103 students in grades seven through 12 throughout the course of the study. The school has 10 high school certified teachers with one principal and one guidance counselor.

Data Collection Procedure

The 44 items MSLQ was administered to all participants, that is, students via an anonymous online survey conducted during regular classroom hours. The data from the MSLQ were coded to protect student privacy rights. The survey was developed using Google Forms where the data was then tabulated in Google Spreadsheets. The 44 items MSLQ did not pose any difficulty for the participants as it was designed with the intent of being used with junior high and high school students. Each student in the school is also provided a Chromebook so there was no challenge to students accessing the survey. No data on individual student performance was collected, and no questions within the survey identify the students in any way. All participants in grades seven through 12 received this survey twice, once at the beginning of the study and once at the end. The survey lasted approximately 15 minutes for each class period. The study itself lasted 16 weeks or about the length of a high school semester in school. There was no apparent risk to the participants in the study due to the anonymity of the survey itself.

Data Analysis

Analysis of the quantitative data was completed using the Minitab 18 data analysis software. Differences in the mean scores (μ_1-μ_2) of the motivational beliefs scale and the self-regulated learning strategies scale from the pre-test and post-test survey were evaluated using a

paired samples t-test. A paired-sample t-test was used to determine if there was a difference in the motivational beliefs and self-regulated learning strategies scales from pre-test and post-test survey scores. A p-value of less than 0.05 was used to determine if there was a statistical significance between the means.

Ethical Concerns

Confidentiality procedures were taken to protect student privacy. This study was conducted on students 18 years of age or younger in high school classes grades seven through 12. Permission was received from school administrators and school board members prior to conducting research and collection of any data (See Appendix D). Participants received a letter to take home prior to beginning the study explaining the purpose of the research, how participant survey data will be protected, and how not participating would not reflect upon students' grade in the course (See Appendix B). Within the letter, parents and students were also made aware that no individual data would be collected and that all responses would be anonymous and only used for the purposes of this study. This letter was paired with a consent form for parent(s)/guardian(s) to sign which granted the students consent to participate in the study (See Appendix C).

Participation in this survey was not required, and the participants were informed of their right not to participate in the study. Participants were given the opportunity to exit the study any time before the post-test. Participants and parent/guardians also had the results provided to them via email if they chose to provide their email to receive the data. All data presented and released represented overall data, not of any individual student. There was no apparent risk to the participants in the study due to the coding method taken by the researcher to protect student privacy.

Participants did not receive any incentive to complete this survey in the form of extra credit or credit that adhered to their grade in the class in which they were completing the survey. At the end of the study, the participants were presented with the data that was collected and the benefit it could confer on them. Institutional Review Board (IRB) approval was granted by Concordia University-St. Paul prior to the beginning of the study period (See Appendix E).

Deception. To ensure the validity of the study, the researcher believed it was necessary to not inform the participants that the goal was to find a correlation between formative assessment and motivation and self-regulation. The researcher believed that if the participants knew the exact intent of the study there may have been a perceived bias towards any formative assessment practices. The intent of the research is for the students to develop their individualized motivational and self-regulated strategies and beliefs because of formative assessment. The researcher did not want to insinuate the idea the participants were completing these formative assessments only for the purposes of a study.

There is often a negative connotation towards assessment, and by withholding information about formative assessment, the researcher believed that that perception may not have existed towards formative assessment. When the participants were informed about the study at the beginning of the study period, they were only given details about what the survey was to measure, how long the study would last, and what the data would be used for. When the study was completed, the researcher informed the participants of the full intent of the study and presented the data that was collected. Data was presented via a class lecture for each of the classes that participated in the study.

Chapter Four

Results

In this chapter, the results and analysis of the collected data will be presented. Analysis of the quantitative data was completed using the Minitab 18 data analysis software. Differences in the mean scores (μ_{1}-$\mu_{2)}$ of the motivational beliefs scale and the self-regulated learning strategies scale from the pre-test and post-test survey were evaluated using a paired samples t-test. A paired-sample t-test was used to determine if there was a difference in the motivational beliefs and self-regulated learning strategies scales from pre-test and post-test survey scores. A p-value of less than 0.05 was used to determine if there was a statistical significance between the means. The purpose of this study was the address the following research questions:

1. Is there a statistically significant correlation between student motivation and the use of formative assessment?
2. Is there a statistically significant correlation between student self-regulation and the use of formative assessment?

Participant responses to the Motivational Strategies for Learning Questionnaire (MSLQ) (See Appendix A) are presented in the pages to follow. All data is organized and presented with respect to the applicable research question.

Research Question #1

Is there a statistically significant correlation between student motivation and the use of formative assessment?

To address this question, the motivational beliefs subscales of the MSLQ were used. These subscales focused on self-efficacy, intrinsic value, and test anxiety. Data collection revolved around a pre- and post-test format with the pre- and post-test were administered before

and after implementation of formative assessment strategies. The formative assessment strategies revolved around concepts relating to the state standards associated with the instructional course.

To determine the potential effect of formative assessment on student motivation, the researcher compared students' pre- and post-test scores from the MSLQ survey using a paired samples t-test. Results of the paired samples t-test show that pre-intervention score mean (M = 5.111, SD = .576) and a post-intervention score mean (M = 4.964, SD = .690) were not significantly different, t (41) = 1.71, p = .095. In regards to student motivation, the means fell between 4.9 and 5.2. This shows no significant shift towards increased student motivation following the intervention. This means that, based on this sample, there is no significant correlation between student motivation and the implementation of formative assessment strategies. In fact, based on the means scores, student motivation decreased between the pre- and post-test. The results of this analysis are displayed in the table below.

Table 4.1

Pre- and Post-Test MSLQ Motivational Subscales Survey Data

Sample	***n***	**Mean**	**Standard Deviation**	**SE Mean**
Pre-Test	41	5.111	0.576	0.090
Post-Test	41	4.964	0.690	0.108

Research Question #2

Is there a statistically significant correlation between student self-regulation and the use of formative assessment?

To address this question, the self-regulated learning strategies subscales of the MSLQ were used. These subscales focus on cognitive strategy use and self-regulation. Data collection revolved around a pre- and post-test format with the pre- and post-test were administered before and after implementation of formative assessment strategies. The formative assessment strategies revolved around concepts relating to the state standards associated with the instructional course. To determine the potential effect of formative assessment on student motivation, the researcher compared students' pre- and post-test scores from the MSLQ survey using a paired samples t-test.

Results of the paired samples t-test show that pre-intervention score mean (M = 4.320, SD = .700) and a post-intervention score mean (M = 4.241, SD = .815) were not significantly different, t (41) = .83, p = .410. Regarding student self-regulation, the means fell between 4.2 and 4.3. This shows no significant shift towards increased student self-regulation following the intervention. This means that based on this sample there is no significant correlation between student self-regulation and the implementation of formative assessment strategies. In fact, based on the means scores, student self-regulation had decreased between the pre- and post-test. The results of this analysis are displayed in the table below.

Table 4.2

Pre- and Post-Test MSLQ Self-Regulated Learning Strategies Subscales Survey Data

Sample	**N**	**Mean**	**Standard Deviation**	**SE Mean**
Pre-Test	41	4.320	0.700	0.190
Post-Test	41	4.241	0.815	0.127

Chapter Summary

As stated in this chapter, there is no statistically significant correlation between student motivation and self-regulation and the implementation of formative assessment. This is presented in the data analysis in this chapter. Data were collected from the school where the researcher worked as a high school social studies teacher. The sample (*n*=41) was chosen from convenience for the researcher as the social studies teacher working in the research setting. The population (N=103) was not large enough to apply random sampling to this study: therefore convenience sampling was necessary. Data were collected during the 2018-2019 school year. The sample (n=41) consisted of students in social studies classes between grades seven through 12. Contrary to the research questions and based on analysis of the mean scores, it is evident that student motivation and self-regulated learning strategies actually decreased later in the school year. Further discussion of the data and future implications and research are discussed in the following chapter.

Chapter Five

Conclusions

In this chapter, the researcher discusses the interpretation of the data, future implications, limitations, and suggestions for replicating a similar study. As stated in the previous chapter, there is no apparent correlation between student motivation and/or self-regulated learning strategies and the implementation of formative assessment. Instead, the data that was collected present the possibility that student motivation and self-regulation may not be directly affected by formative assessment. There is a reason to believe that if the study was to be repeated, different results could be found and new instructional practices could be enhanced upon.

Interpretation of Results

First and foremost, the results of the student motivation subscales are as follows. The intention of the study was to build on student motivation in the classroom based on the use of formative assessment and formative feedback. The focus was on student intrinsic motivation because intrinsic motivation is generally what motivates a student to complete tasks on his or her own. This theory on intrinsic motivation is based on the ideas of the Self-Determination Theory where students become their own regulators (Deci & Ryan, 1985). Extrinsic motivation factors tend to force a feeling of obligation and guilt rather than foster a feeling of accomplishment and goal setting (Hornstra, Kamsteeg, Pot, & Verheij, 2017). Therefore, because the data show regression in student motivation, based on the mean scores, it can be said that formative assessment may have had the opposite effect the researcher intended. However, the regression in student motivation can also be related to the time the study took place. This study took place over an 18-week period or approximately two quarters in a high school setting. It is possible that the regression in student motivation is more directly tied to the time of year the survey was

administered. Because the survey was first administered towards the beginning of the school year, and again towards the end of the school year, it is very possible students lost motivation as the year progressed. The interpretation of when the study took place could also be related to a limitation of the study.

Second, the results of the self-regulated learning strategies subscales paint a similar picture as the motivational subscales. The difference in the mean scores from the pre- and post-test show that self-regulated learning strategies either had not improved or had regressed. The goal of this study was to see a measurable increase in self-regulated learning strategies by way of formative assessment. It was the hope of the researcher that students would be intrinsically motivated to do better in the course they were taking by developing new learning strategies and to become masters of their own learning process (Zimmerman, 2008). Based on the strategies used by the researcher, and personal observations by the researcher, most students were not motivated to develop new learning habits or strategies.

It could be said that students themselves are not all intrinsically motivated to learn about the subject in which the research took place. In social studies courses, it may be harder for students to set pre-determined goals and outcomes for themselves. There are no formulas, numbers, or rules like with math and English classes, therefore, it may be harder for students to recognize when their goals are being met. Social studies courses have more to do with reading comprehension and understanding of past events than figuring out a calculation and the answer being right or wrong. Understanding of those events has much to do with the instructor himself or herself and his or her interpretation of the students' learning of that subject.

Without the motivation or intrinsic goal setting, it may be difficult for students to engage in the self-regulatory process. Being a self-regulated learner requires that a student acquire

academic skills that include goal setting, selecting and utilizing learning strategies, and monitoring one's own effectiveness (Zimmerman, 2008). Without any one of these steps in the process of becoming a self-regulated learner, the process may not occur at all. Based on the observations of the researcher, there is usually one goal that most students have, which is a good grade in the class.

Limitations

Although this study does not indicate any significant correlation between student motivation and self-regulated learning strategies through the use of formative assessment, the results must be viewed within the context of some specific considerations. The sample size of participating students, n=41, is relatively small. There were also some instances where students were absent from class and did not participate in all formative assessment activities. When students began the course, they did not know they would be participating in a study. However, after being informed of the study and consenting to participate, not knowing the goal of the study could have altered the perception of certain activities. Prior to beginning the study, the researcher decided that the purpose of the study would not be revealed to the participants. The purpose of the study was to monitor the outcome of formative assessment and the researcher did not want any negative perception towards formative assessment. It is possible that with this approach, the participants may have been more apathetic towards formative assessment.

In addition, it should be acknowledged that the personality of the instructor and the way in which daily instruction was delivered could have influenced the students' motivation towards these activities. Certain activities have the potential to be viewed as "busy work" rather than something that is used to improve student learning. The study is limited by the instructor's ability to emphasize the importance of all activities that took place in the classroom.

Lastly, there can be perceivable doubt that the formative assessment and formative feedback methods used by the researcher were strategies that had the potential to improve student motivation and self-regulation. Collecting qualitative data from both the researcher and the participants may have provided more insight as to how formative assessment affected the participants and what methods the researcher was using.

Suggestions for Future Research

If the study were to be conducted again, the researcher would make the following suggestions to improve the chances of statistical significance. First, one of the limitations of the study was that there was no collection of qualitative data. The most significant change would be the addition of a qualitative analysis of student behaviors, emotions, and feelings towards formative assessment. Possible suggestions include a research journal completed by the researcher that depicts the ongoing activities in the classroom, samples of participants' work, and examples of the feedback provided by the instructor. In addition, the researcher would conduct another survey or simply add to the existing survey that would have elements that specifically asked for comments from participants on certain subjects or activities. The instructor could use this data to further enhance the instructors' ability to meet the needs of individual students.

Second, this study was conducted in one subject area, and the significance of the data could have been altered had it been conducted in each subject area with different instructors. There is a possibility that, by using multiple instructors and using the same data collection procedure, there could have been an analysis of each subject and where formative assessment would be most effective. Also, with a larger population size, it would be possible to have a control and experimental group for conducting research. This would be best implemented with multiple instructors of the same subject.

Lastly, it is recommended that the researcher/instructor engage in regular and comprehensive reflection of their work. The purpose of formative assessment should be to accommodate the individual needs of a student through the process of feedback to recognize learning gaps and tailor instruction to target those gaps. To do this, instructors need to be aware of what is working for students and what is not by actively engaging in new teaching strategies and tailoring the instruction to their students.

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Appendix A - MSLQ 44 Item Survey

For each of the statements below, circle the response that best characterizes how you feel about the statement, where: 1=Very untrue of me, 2=Untrue of me, 3=Somewhat untrue of me, 4=Neutral, 5=Somewhat true of me, 6=True of me, 7=Very true of me

	Very untrue of me	Untrue of me	Somewhat untrue of me	Neutral	Somewhat true of me	True of me	Very true of me
1. Compared with other students in this class I expect to do well.	1	2	3	4	5	6	7
2. I'm certain I can understand the ideas taught in this course.	1	2	3	4	5	6	7
3. I expect to do very well in this course.	1	2	3	4	5	6	7
4. Compared with others in this class, I think I am a good student.	1	2	3	4	5	6	7
5. I am sure I can do an excellent job on the problems and tasks assigned for this class.	1	2	3	4	5	6	7
6. I think I will receive a good grade in this class.	1	2	3	4	5	6	7
7. My study skills are excellent compared with others in this class.	1	2	3	4	5	6	7

8. Compared with other students in this class I think I know a great deal about the subject	1	2	3	4	5	6	7
9. I know that I will be able to learn the material for this class.	1	2	3	4	5	6	7
10. I prefer classwork that is challenging so that I can learn new things.	1	2	3	4	5	6	7
11. It is important for me to learn what is being taught in this class.	1	2	3	4	5	6	7
12. I like what I am learning in this class.	1	2	3	4	5	6	7
13. I think I will be able to use what I learn in this class in other classes.	1	2	3	4	5	6	7
14. I often choose paper topics I will learn something from even if they require more work.	1	2	3	4	5	6	7
15. Even when I do poorly on a test I try to learn from my mistakes.	1	2	3	4	5	6	7
16. I think that what I am learning in class is useful for me to know.	1	2	3	4	5	6	7

17. I think that what we are learning in this class is interesting.	1	2	3	4	5	6	7
18. Understanding this subject is important to me.	1	2	3	4	5	6	7
19. I am so nervous during a test that I cannot remember facts I have learned.	1	2	3	4	5	6	7
20. I have an uneasy, upset feeling after I take a test.	1	2	3	4	5	6	7
21. I worry a great deal about tests.	1	2	3	4	5	6	7
22. When I take a test I think about how poorly I am doing.	1	2	3	4	5	6	7
23. When I study for a test, I try to put together the information from information and from the book.	1	2	3	4	5	6	7
24. When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly.	1	2	3	4	5	6	7

25. It is hard for me to decide what the main ideas are in what I read.	1	2	3	4	5	6	7
26. When I study I put important ideas into my own words.	1	2	3	4	5	6	7
27. I always try to understand what the teacher is saying even if it doesn't make sense.	1	2	3	4	5	6	7
28. When I study for a test I try to remember as many facts as I can.	1	2	3	4	5	6	7
29. When I study, I copy my notes over to help me remember material.	1	2	3	4	5	6	7
30. When I study for a test I practice saying the important facts over and over again.	1	2	3	4	5	6	7
31. I use what I have learned from old homework assignments and the textbook to do new assignments.	1	2	3	4	5	6	7
32. When I am studying a topic, I try to make everything fit together	1	2	3	4	5	6	7
33. When I read material for class, I say the words over and over to myself to help me remember.	1	2	3	4	5	6	7

34. I outline the chapters in the book to help me study.	1	2	3	4	5	6	7
35. When reading I try to connect things I am reading about with what I already know.	1	2	3	4	5	6	7
36. I ask myself questions to make sure I know the material I have been studying.	1	2	3	4	5	6	7
37. When work is hard I give up or only study the easy parts.	1	2	3	4	5	6	7
38. I work on practice exercises and answer end of chapter questions even when I don't have to.	1	2	3	4	5	6	7
39. Even when study materials are dull and uninteresting, I keep working until I finish.	1	2	3	4	5	6	7
40. Before I begin studying I think about the things I will need to do to learn.	1	2	3	4	5	6	7
41. I often find that I have been reading for class but don't know what it is all about.	1	2	3	4	5	6	7
42. I find that when the teacher is talking I think of other things and don't really listen to what is being said.	1	2	3	4	5	6	7

43. When I'm reading I stop once in a while and go over what I have read.	1	2	3	4	5	6	7
44. I work hard to get a good grade even when I don't like the class.	1	2	3	4	5	6	7

Appendix B – Student Information Letter

Dear Participant,

During the 2018-2019 school year, in your social studies course, I will be conducting academic research. I am conducting this research as a requirement of completion of my Master of Arts in Educational Leadership degree from Concordia University – St. Paul. As my student, I am inviting you to participate in this study.

A research study aims to improve knowledge on an academic subject, in this case the subject is student motivation and self-regulation. In other words, I am looking to measure how motivated you are to learn and what strategies you use to learn on your own.

To participate in this study, I will ask you to complete a survey during regular class hours. You will complete this survey twice, once at the beginning of the study period and once at the end. This study will last approximately 16 weeks. No additional work is required by you to participate in this study.

Your participation is **not** required in this study and you may withdraw at any time prior to the conclusion of the study. Your participation, whether you choose to or not, will not have any reflection on the grade you receive in this course.

The data from this study will be used to improve the instructional practice of teachers both at our school and possibly many others as well.

None of your personal information will be collected in the process of this study. No names or identifying data will be included in the final publication of the thesis. A coding system will be used to replace student names and/or identifying information to protect your privacy.

Before signing, I ask that you discuss your participation with your parent or guardian and have them sign as well. You may withdraw from the study at any time before the results of the study are projected.

Upon concluding this study, you will receive a copy of the results via email, if you so choose. Hence, the consent form on the next page asks you to list your email if you would like to receive the results.

If you or your parent have any questions or concerns, please feel free to contact me by email or phone. If you have any questions not answered by me, the researcher, you may contact my program coordinator, Dr. Oluwatoyin Akinde Fakuajo, at akindefakuajo@csp.edu.

Sincerely,

Beau Simon
701-328-2260
beau.simon1@k12.nd.us

Appendix C – Parent Information Letter

Dear Parents/Guardian,

During the 2018-2019 school year, in your students' social studies course, I will be conducting academic research. I am conducting this research as a requirement of completion of my Master of Arts in Educational Leadership degree from Concordia University – St. Paul. For this study, I am looking to have your student participate.

My academic subject for this study is student motivation and self-regulation. In other words, I am looking to measure how motivated students are to learn and what strategies they use to learn on their own.

To participate in this study, I will ask your student to complete a survey during regular class hours. Your student will complete this survey twice, once at the beginning of the study period and once at the end. This study will last approximately 16 weeks. No additional work is required by the students, outside of normal school-related work, to participate in this study.

Student participation is **not** required in this study and they may withdraw at any time prior to the conclusion of the study. Your student's participation, whether they choose to or not, will **not** have any reflection on the grade they receive in this course.

The data from this study will be used to improve the instructional practice of teachers both at our school and possibly many others as well.

No personal information will be collected in the process of this study. No names or identifying data will be included in the final publication of the thesis. A coding system will be used to replace student names and/or identifying information to protect your student's privacy.

Before giving their consent, I have asked that your student to discuss their participation with you. In addition, I would like you to provide your consent for your student to participate by signing the included form.

Upon concluding this study, you will receive a copy of the results via email, if you so choose. Hence, the consent form on the next page asks you to list your email if you would like to receive the results.

If you have any questions or concerns, please feel free to contact me by email or phone. If you have any questions not answered by me, the researcher, you may contact my thesis supervisor, Dr. Oluwatoyin Akinde Fakuajo, at akindefakuajo@csp.edu.

Sincerely,

Beau Simon
701-328-2260
beau.simon1@k12.nd.us

Appendix D – Consent Form

Title of Thesis: The Effects of Formative Assessment on Student Motivation and Self-Regulation

Name of Researcher: Beau Simon

Please provide your initials for the following statements and sign your name on the line at the end.

By providing my initials and appending my signature, I affirm that I have read and that I understand the information provided to me about the referenced study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

Initial of Participant:

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

Initial of Participant:

I understand that the online survey that I will complete will be used for the study.

Initial of Participant:

I agree to take part in the above study.

Initial of Participant:

If you would like to receive the results of the study after it is completed, please note your email address below:

Email:

Name of Participant_____

Signature of Participant_____Date_____

Signature of Parent/Guardian_____Date_____

Appendix E – School Board Approval Letter

September 4, 2018

Mr. Beau Simon
[redacted]

RE: Student Survey

I hereby attest that on August 20, 2018 the [redacted] School Board approved the student survey to be conducted by you as part of your Master's Program. See motion below:

Mr. [redacted] motioned to approve the student survey as presented by Mr. Beau Simon. Ms. [redacted] seconded the motion, all members present voted yes. Motion passed. "

If you have any further questions please feel free to contact me.

Thank you.

Sincerely,

[redacted]
Business Manager of [redacted]
[redacted]

Appendix F – IRB Approval Form

Concordia
UNIVERSITY·SAINT PAUL

TO: simonb@csp.edu
CC: Humans Subjects Review Committee File

The IRB Human Subjects Committee reviewed the referenced study under the exempt procedures according to federal guidelines 45 CFR Part 46.110 (Research Category 7): RESEARCH ON INDIVIDUAL OR GROUP CHARACTERISTICS OR BEHAVIOR (INCLUDING, BUT NOT LIMITED TO, RESEARCH ON PERCEPTION, COGNITION, MOTIVATION, IDENTITY, LANGUAGE, COMMUNICATION, CULTURAL BELIEFS OR PRACTICES, AND SOCIAL BEHAVIOR) OR RESEARCH EMPLOYING SURVEY, INTERVIEW, ORAL HISTORY, FOCUS GROUP, PROGRAM EVALUATION, HUMAN FACTORS EVALUATION, OR QUALITY ASSURANCE METHODOLOGIES.

Study Number: 2018_88
Principal Investigator: Beau Simon
Title: The Effect of Formative Assessment on Student Motivation and Self-Regulation

Classification: ___ Exempt __**X**__ Expedited ___ Full Review

Approved __**X**__

Approved with modifications: ____ [See attached]

Declined ____ [See attached]

Upon receipt of this letter, you may begin your research. Please remember that any changes in your protocol need to be approved through the IRB Committee. When projects are terminated or completed, the IRB Committee should be informed in order to comply with Department of Health and Human Services (HHS) Regulations, Title 45 Code of Federal Regulations Part 46 (45 CFR 46). If you have questions, please call the IRB Chair at (651) 641-8723.

Stephen Ross
Signature, Chair Human Subjects Review Committee

October 25, 2018
Date

FINAL CAPSTONE PAPER RUBRIC: (PASS OR FAIL)				
Criteria (Total points)	**Exemplary 420-403**	**Proficient 402-361**	**Competent 360-319**	**Unsatisfactory 0**
Cover Page; TOC, Abstract, Chapter One (50 points)				
Cover Page; Table of Contents, Abstract, and Chapter One: **Possible Points: ____/50** **Instructor Feedback:** **2nd Reader Feedback:**	The writer has **consistently** utilized the capstone paper template and followed **all guidelines** for the development of the cover page, TOC and Abstract; the writer has developed **a well-organized, succinctly written** chapter one informing the reader of the following: the topic and scope of the research investigation; importance of the topic to the field of education; statement of interest to engage the reader; at least 3 sources cited with a clear connection to the research question; definition of terms; how the scope of the problem investigated will be organized in a logical sequence through the use of subtopics. Chapter ends with a conclusion (chapter summary) paragraph that includes a transition to the following chapter.	The writer has **usually** utilized the capstone paper template and followed **most of the guidelines** for the development of the cover page, TOC and Abstract; the writer has **mostly** developed chapter one informing the reader of the following: the topic and scope of the research investigation; importance of the topic to the field of education; statement of interest to engage the reader; at least 3 sources cited with a clear connection to the research question; definition of terms; how the scope of the problem investigated will be organized in a logical sequence through the use of subtopics. Chapter ends with a conclusion paragraph that includes a transition to the following chapter.	The writer has **sometimes** utilized the capstone paper template and followed **some of the guidelines** for the development of the cover page, TOC and Abstract; the writer has **partially** developed chapter one informing the reader of the following: the topic and scope of the research investigation; importance of the topic to the field of education; statement of interest to engage the reader; at least 3 sources cited with a clear connection to the research question; definition of terms; how the scope of the problem investigated will be organized in a logical sequence through the use of subtopics. Chapter ends with a conclusion paragraph that includes a transition to the following chapter.	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points. **NOTE: Less than 319 points results in "0" for this assignment as it is a "pass or fail" paper representing the successful completion of the MAED program requirements competently.**
Chapter Two: Literature Review (100 points)				
Chapter Two: Literature Review **Possible Points: ____/100** **Instructor Feedback:** **2nd Reader Feedback:**	The writer has **consistently** provided a professionally written narrative which summarizes and synthesizes the information from existing body of knowledge, in order to bring the reader up to date on the research topic as proposed in Chapter One. The writer **thoroughly** addressed the scope of the research Included a minimum of 15 scholarly, peer-reviewed qualitative/quantitative/mi	The writer has **usually** provided a professionally written narrative which summarizes and synthesizes the information from existing body of knowledge, in order to bring the reader up to date on the research topic as proposed in Chapter One. The writer **adequately** addressed the scope of the research Included a minimum of 15 scholarly, peer-reviewed qualitative/quantitative/mi	The writer has **sometimes** provided a professionally written narrative which summarizes and synthesizes the information from existing body of knowledge, in order to bring the reader up to date on the research topic as proposed in Chapter One. The writer **partially** addressed the scope of the research Included a minimum of 15 scholarly, peer-reviewed qualitative/quantitative/mi	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points. **NOTE: Less than 319 points results in "0" for this assignment as it is a "pass or fail" paper representing the successful completion of the MAED program requirements competently.**

	xed-method **original** research studies. Chapter ends with a conclusion paragraph (chapter summary) that includes a transition to the following chapter.	xed-method **original** research studies. Chapter ends with a conclusion paragraph (chapter summary) that includes a transition to the following chapter.	xed-method **original** research studies. Chapter ends with a conclusion paragraph (chapter summary) that includes a transition to the following chapter.	
Chapter Three: Research Method (60 points)				
Chapter Three: Research Method **Possible Points: ____/60** **Instructor Feedback:** **2nd Reader Feedback:**	The writer has **consistently** provided a **clear** articulation of the method, that is, the research design, with **thorough** consideration for the population, sample, sample size, sampling technique, data collection procedure, consent, instrumentation, validity and reliability.	The writer has **usually** provided an **adequate** articulation of the method, that is, the research design, with **sufficient** consideration for the population, sample, sample size, sampling technique, data collection procedure, consent, instrumentation, validity and reliability.	The writer has **sometimes** provided a **developing** articulation of the method, that is, the research design, with **an emerging** consideration for the population, sample, sample size, sampling technique, data collection procedure, consent, instrumentation, validity and reliability.	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points. **NOTE: Less than 319 points results in "0" for this assignment as it is a "pass or fail" paper representing the successful completion of the MAED program requirements competently.**
Chapter Four: Research Results (75 points)				
Chapter Four: Results **Possible Points: ____/75** **Feedback:** **2nd Reader Feedback:**	The writer has **consistently** developed a **clear** articulation of the results based on the data collected for the research, as it relates to the research question.	The writer has **usually** developed an **adequate** articulation of the results based on the data collected for the research, as it relates to the research question.	The writer has **sometimes** developed a **partially** articulation of the results based on the data collected for the research, as it relates to the research question.	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points.
Chapter Five: Conclusion, Discussion, Applications, and Future Research (50 points)				
Chapter Five: Conclusion/ Discussion/ Application/ Future Studies **Possible Points: ____/50** **Feedback:** **2nd Reader Feedback:**	The writer has **consistently** developed a **clear** summary, interpreting the results, as well as the limitations of the study. The writer provided a **clear** description of how the research is applied to instructional or educational practice; has provided a minimum of three suggestions for possible future studies.	The writer has **usually** developed a **mostly clear** summary, interpreting of the results, as well as the limitations of the study. The writer provided a **mostly clear** description of how the research is applied to instructional or educational practice; has provided a minimum of three suggestions for possible future studies.	The writer has **sometimes** developed a **partially clear** summary, interpreting the results, as well as the limitations of the study. The writer provided a **partially clear** description of how the research is applied to instructional or educational practice; has provided a minimum of three suggestions for possible future studies.	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points. **NOTE: Less than 319 points results in "0" for this assignment as it is a "pass or fail" paper representing the successful completion of the MAED program requirements competently.**
APA Format & Mechanics (85 points)				
APA format & Mechanics **Possible Points: ____/85**	The writer has **consistently** met the criteria for the following requirements for this paper: APA formatted cover page;	The writer has **usually** met **most** of the criteria for the following requirements for this paper: APA formatted cover page;	The writer has **sometimes** met **some** of the criteria for the following requirements for this paper: APA formatted cover page;	The writer has **rarely** met the required components for the criteria in this category resulting in "0" points.

Instructor Feedback: **2nd Reader Feedback:**	Table of Contents right/left justified; clear, half page Abstract – per APA formatting provided; in text citations per APA and included in References page; Reference page formatted per APA guidelines; Correct use of APA level headings; correct use of spelling, grammar, and punctuation; Higher level professional language; third person writing only; correct use of past tense.	Table of Contents right/left justified; clear, half page Abstract – per APA formatting provided; in text citations per APA and included in References page; Reference page formatted per APA guidelines; Correct use of APA level headings; correct use of spelling, grammar, and punctuation; Higher level professional language; third person writing only; correct use of past tense.	Table of Contents right/left justified; clear, half page Abstract – per APA formatting provided; in text citations per APA and included in References page; Reference page formatted per APA guidelines; Correct use of APA level headings; correct use of spelling, grammar, and punctuation; Higher level professional language; third person writing only; correct use of past tense.	**NOTE: Less than 319 points results in "0" for this assignment as it is a "pass or fail" paper representing the successful completion of the MAED program requirements competently.**
Revised February 2018				**TOTAL POINTS _____/420** **Pass or Fail: 319 points are required to pass**