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Using Formative Assessments to Motivate Students in English Language Arts

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Abstract

In English Language Arts (ELA) classes, teachers can use formative assessments when students are reading and responding to complex texts to collect information about how individual students and the class as a whole are progressing towards meeting the learning goal. Teachers can then use that data to adjust instruction to further help motivate students to continue working towards meeting that goal. This quantitative two group study was designed to examine if formal formative assessments in the form of daily exit tickets and a weekly formative quiz used in ELA classes impacted tenth grade student motivation. Student motivation was measured using The Situational Motivation Scale as a pre- and post-test. The treatment group was given an exit ticket every Monday and Wednesday and a no-point quiz every Friday for six weeks. It was hypothesized that the treatment group's motivation would increase. The results of the independent and paired t-tests showed no statistically significant difference in motivation between the treatment and control groups. However, students were more consistent with their self-reported motivation rankings on the SIMS post-test than the control group. Future research should be conducted to determine the impact that formative assessments can have on student motivation in ELA classrooms.

Keywords: formative assessment, motivation, English Language Arts, high school

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Using Formative Assessments to Motivate Students in English Language Arts

Literature Review

In the classroom, teachers employ a wide variety of techniques and strategies to promote student learning. In spite of that, teachers do not consistently perform low/no-stakes checks on how those strategies impact student learning (i.e., formative assessments; Leenknecht et al., 2020). This becomes problematic because teachers have no way of identifying gaps in student learning, thus impacting the students' ability to meet the desired learning goal. Learning goals are class-wide objectives, created by teachers, designed to move students closer to meeting one or more state standards. Formative assessments are used to measure and support student learning in relation to the learning goal (Zhai et al., 2018). When teachers omit formative assessments, students may not be given the support needed to motivate them to continue working towards the learning goal (Faber & Visscher, 2018). Therefore, formative assessments can act as a bridge to aid in student learning and increase student motivation.

Although formative assessments do not have one clear definition (Bennett, 2011; Dunn & Mulvenon, 2009), studies have demonstrated that they may promote student learning when used in a multistep process (Black & Wiliam, 2004; Brookhart et al., 2009; Ruiz-Primo & Furtak, 2007). First, the teacher has to clearly communicate the learning goal to his or her students (Brookhart et al., 2009; Ruiz-Primo & Furtak, 2007). Second, the teacher must use the formative assessment to collect student responses to determine what students do or do not know (Buck & Trauth-Nare, 2009; Ruiz-Primo & Furtak, 2007). Third, students are then provided with feedback directly related to their responses (Black & Wiliam, 2009; Johnson et al., 2019). Fourth, instructional practices are modified to meet student needs; closing gaps in student knowledge

and promoting learning which can impact student motivation (Anderson, 2007; Buck & Trauth-Nare, 2009; Ruiz-Primo & Furtak, 2007; Zhai et al., 2018).

Most teachers are aware of the multistep process associated with formative assessments. Nonetheless, formative assessments have not been utilized in high school English Language Arts (ELA) classes enough, nor is there clear or consistent data demonstrating how these formative assessments impact student achievement; even when properly implemented according to the steps laid out in the literature (Andersson & Palm, 2017). Studies have shown the impact formative assessments have on students' motivation to continue working towards closing their knowledge gap and meeting the learning goal (Andersson & Palm, 2018; Cauley & McMillan, 2010; Leenknecht et al., 2020; Ozan & Kincal, 2018). The impact that formative assessments can have on student learning was originally discussed by Sadler (1989) and Black and Wiliam (1998). Both studies are considered to be founding literature in the field of formative assessments.

Theoretical Framework

The theory written by Sadler (1989) and the meta-analysis conducted by Black and Wiliam (1998) serve as the framework for how scholars, teachers, and students measure formative assessment's impact on student learning. Sadler (1989) defined formative assessments as being "concerned with how judgments about the quality of student responses (performances, pieces, or works) can be used to shape and improve the student's competence" (p. 120). Sadler's (1989) theory discussed the importance of locating gaps in student knowledge related to a learning goal, then examined how teachers and students can bridge those gaps using feedback and student self-monitoring and self-assessment. In the early 2000s researchers began to further categorize formative assessments into two distinct groups. Informal formative assessments,

assessments conducted in the moment; and formal formative assessments, assessments that are embedded into the curriculum.

Informal and Formal Formative Assessments

Informal formative assessments take place during daily whole class, small group, or one-on-one discussions and are mostly verbal or nonverbal interactions between the teacher and students (Black & Wiliam, 2009; Ruiz-Primo & Furtak, 2007; Zhai et al., 2018). Examples of informal formative assessments are effective questioning, asking students to expand on their responses, explaining the learning goal, and think-pair-share discussions. The time frame for interpreting and acting on informal formative assessments are short as they occur during instruction. Teachers are required to react on the spot when interacting with students during informal formative assessments to focus the conversations and make sure that students are maintaining focus on the learning goal (Ruiz-Primo & Furtak, 2007; Zhai et al., 2018). Both informal and formal formative assessments are directly tied to the learning goal. Formal formative assessments provide teachers with more time to focus on addressing individual gaps in student knowledge; whereas informal are spontaneous and no physical evidence of student responses is recorded for teacher use (Bell & Cowie, 2001; Ruiz-Primo & Furtak, 2007; Zhai et al., 2018).

Formal formative assessments are assessments deliberately embedded in the curriculum, to identify gaps in student knowledge, regarding the learning goal (Decristan et al., 2015; Ruiz-Primo & Furtak, 2007; Zhai et al., 2018). Formal formative assessments can be implemented at the beginning, middle, or end of a unit; depending on what the teacher is trying to understand about student learning. Examples of formal formative assessments include journals, homework, quizzes, enter/exit tickets, and graphic organizers. Formal formative assessments give teachers

time to interpret student learning; seek help from other educators; modify lesson plans; and provide students with feedback directly on the assessment to meet student needs and help them revise their learning goals in real time (Ruiz-Primo & Furtak, 2007; Zhai et al., 2018).

Learning Goal

Teachers can establish clear learning goals using formal formative assessments (Clark, 2010) by making alterations to their lesson plans to refocus student learning with respect to the learning goal (Ruiz-Primo & Furtak, 2007; Zhai et al., 2018). Zhai and colleagues (2018) conducted a case study that examined how two high school physics teachers used formal formative assessments to adjust instruction and revise the learning goal to promote 78 tenth grade high school students' learning progression. Both teachers were provided training on how to use formative assessments to collect data about students' prior knowledge and then use that data to adjust the learning goal (Zhai et al., 2018). Both teachers made substantive revisions to 7 out of 12 learning objectives after examining the data from the formal formative assessments (Zhai et al., 2018). Thus, by utilizing formal formative assessments, teachers can identify gaps in student knowledge directly related to the learning goal and adjust the lesson to promote student motivation (Leenknecht et al., 2021; Simon 2019).

Gaps in Student Knowledge

It is essential that teachers identify gaps in student knowledge before and during the progression towards meeting the learning goal. As students move through school, the expectations rise, and the content becomes more complex and builds off of prior learning. If teachers do not consistently assess how far away a student is from meeting the learning goal, the student may become frustrated, hopeless, unmotivated, and consider dropping out of school altogether. Formal formative assessments coupled with feedback can give teachers data to

effectively provide students with differentiated instruction and scaffolding (i.e., temporary supports teachers provide to students to facilitate their learning; Clark, 2010; Sadler, 1989). These scaffolds offer students of differing abilities with the opportunity to engage with difficult content as they are supported throughout the learning process.

Teachers can use both formal and informal formative assessments to identify and close gaps in student learning; thus, providing students with the support needed to increase motivation (Leenknecht et al., 2020; Ruiz-Primo & Furtak, 2007; Zhai et al., 2018). Once teachers have clearly stated the learning goal and identified where students are in relation to that goal, teachers can use feedback to help motivate students (Andersson & Palm, 2017; Buck & Trauth-Nare, 2009). Teacher feedback can motivate students to continue working towards a learning goal because it is serves to maintains communication between teacher and student concerning the student's academic progress.

Feedback

Feedback is defined as information communicated to a person regarding his or her understanding or performance on a particular task (Hattie & Timperley, 2007; Shute, 2008). Studies have suggested that feedback provided to students using formative assessments serve two main purposes. The first purpose, timely feedback, allows the teacher to modify instructional practices to maintain focus on the learning goal and bridge gaps in student knowledge (Leenknecht et al., 2020; Ruiz-Primo & Furtak, 2007; Yin et al., 2008). The second purpose of feedback is to eventually pivot students towards self-assessment and monitoring, thereby motivating them to take control of their own learning (Buck & Trauth-Nare, 2009; Leenknecht et al. 2020; Yin et al., 2008). With timely feedback, teachers can use formative assessments to

adjust instruction during a learning segment to support and promote student motivation as they work towards meeting the learning goal.

Adjusting Instruction

Teachers can modify their day-to-day instruction depending on the level of student understanding in individual classes. The instructional adjustment required may vary depending on overall student abilities and skill levels. Some classes may require reteaching and additional scaffolding, while others may be ready to move forward with the learning segment (Anderson, 2007; Andersson & Palm, 2017). Formal formative assessments integrated throughout a learning segment allows the teacher to continuously collect data, track student understanding and adjust instructional practices to better support and motivate students as they work towards a learning goal (Andersson & Palm, 2017; Buelin et al., 2019; Ruiz-Primo & Furtak, 2007).

Formative Assessment and Achievement

Most of the research surrounding the impact that formative assessments have on student learning has been conducted in science classes (Bell & Cowie, 2001; Black & Wiliam, 2004; Brookhart et al., 2009; Buck & Trauth-Nare, 2009; Decristan et al., 2015; Kingston & Nash, 2011; Ruiz-Primo & Furtak, 2007; Shavelson et al., 2008; Zhai et al., 2018). Black and Wiliam (2004) worked with two school districts to provide teachers with training about how to integrate formative assessments into their classroom routines. The training took place over 18 months and consisted of nine total days of training. The researchers visited the teachers during the 18 months and observed how the teachers were incorporating formative assessments into their instruction. After working with 26 math and science teachers and two English teachers, Black and Wiliam concluded that the impact formative assessments have on student achievement are more clearly

observable in science classes, and that the learning goals set in ELA classes are specific to each student's individual needs as opposed to the class as a whole; this is an overgeneralization.

While it is true that students reading and writing levels vary, this does not prevent a teacher from setting class-wide learning goals that are capable of being met by the majority of students. Duschl and Gitomer (1997) recognized that the goal of science education is to develop student's problem-solving skills and their ability to evaluate scientific claims and evidence. The continual checks on student learning (i.e., formal formative assessments) improved teacher instruction and student learning in science classes (Duschl & Gitomer, 1997). The goal of ELA education is also designed to develop student's ability to evaluate claims and synthesize evidence. Therefore, formal formative assessments can be used in ELA classes to improve teacher instruction and promote student learning and motivation.

English Language Arts

Few scholars have conducted research in high school ELA classrooms to determine the impact that formal formative assessments have on student learning. A meta-analysis conducted by Kingston and Nash (2011) suggested that the impact formative assessments have on student learning may be most effective in an ELA class compared to other content area classes. In their analysis they found that the mean effect size for ELA was .32 and that the mean effect size for science was only .09; further supporting the need for more research in ELA classrooms (Kingston & Nash, 2011). Effect size measures the change in standard deviation of student achievement before and after an intervention has been implemented (Kingston & Nash, 2011). Any effect size that is 0.40 or higher suggests that the intervention is having a moderately positive impact on students (Hattie & Timperley, 2007). Of the 42 effect sizes examined in the meta-analysis, 12 effect sizes were listed for ELA (Kingston & Nash, 2011). However, eight

effect sizes came from the same study and were actually measuring classrooms engaged in literacy instruction not specifically ELA classes (Kingston & Nash, 2011). The other four effect sizes came from two studies, one of which was done with kindergarteners and first graders (i.e., outside the scope of this study) and the other was an unpublished conference presentation (Kingston & Nash, 2011). Although this meta-analysis was flawed methodologically, it is still an advancement in the field because it was the first meta-analysis conducted to examine and compare effect size by content area, and it helped to demonstrate that ELA classrooms should be using formative assessments in a rigorous and structured way.

Gaps in the Research

Some scholars have questioned the validity of Black and Wiliam's (1998) meta-analysis effect size range and the overall statistical significance that formative assessments have on student achievement (Andersson & Palm, 2017; Kingston & Nash, 2011). Black and Wiliam's (1998) meta-analysis reported that formative assessments improved student learning by an effect size of 0.40 – 0.70. Bennett (2011) has claimed that Black and Wiliam's meta-analysis included research that was too diverse to quantify formative assessment's impact on student achievement. Dunn and Mulvenon's (2009) manuscript identified issues with eight of the articles that Black and William (1998) used (e.g., 80 percent of the effect sizes used in the meta-analysis came from methodologically unsound research). A subsequent meta-analysis conducted by Kingston and Nash (2011) only found 42 usable effect sizes over a span of 23 years from hundreds of studies; demonstrating that more rigorous and systematic research needs to be conducted. Formative assessment's impact on student achievement has failed to control for constructs such as student motivation (Dunn & Mulvenon, 2009). There may instead be a clearer link between formative assessments and student motivation.

Formative Assessment and Motivation

Motivation is a fundamental human behavior, and a student's motivation directly impacts their actions (Andersson & Palm, 2018; Leenknecht et al., 2020; Ryan & Deci, 2000). A person is motivated when he or she is moved to act (Ryan & Deci, 2000). When students feel supported and in control of an activity, their level of motivation increases; encouraging students to exhort more effort towards meeting the learning goal (Cauley & McMillan, 2010; Leenknecht et al., 2020; Ryan & Deci, 2000). According to cognitive evaluation theory, when students complete tasks that are within their zone of proximal development (i.e., appropriately challenging students; Vygotsky, 1980), and are given timely feedback directed at the learning goal, they have a perceived expectation of success and become more motivated to engage with the task (Andersson & Palm, 2018; Leenknecht et al., 2020; Ozan & Kincal, 2018; Ryan & Deci, 2000). Formal formative assessments provide teachers with the data needed to modify instruction to meet students at their current understanding, thus increasing their motivation.

Studies have shown that formative assessments impact student motivation (Ashdale, 2020; Leenknecht et al., 2020; Ozan & Kincal, 2018). The increase in student confidence and perceived ability is a key element in promoting student achievement. Cauley and McMillan (2010) developed a formative assessment cycle in which ongoing formal and informal formative assessments, feedback, and instructional modifications led to an increase in student motivation; in turn leading to ongoing student work and achievement.

Due to a lack of clarity and consistency in the literature regarding formative assessment's impact on achievement in ELA classes, this study aimed to demonstrate how formal formative assessments can be used to impact student's motivation. In this study, the researcher conducted

regular formal formative assessments in an ELA class as a way to motivate students to continue working towards closing their achievement gap.

Methods

Purpose

Consistent checks on student knowledge in the form of formal formative assessments impacts student motivation (Ashdale, 2020; Cauley & McMillan, 2010; Leenknecht et al., 2020; Ozan & Kincal, 2018). However, there is limited data as to the impact it has on students in ELA classes. This study was designed to better understand the impact formal formative assessments have on student motivation in tenth grade ELA classes.

Research Question

Do formal formative assessments (i.e., daily exit tickets and a weekly formative quiz) used in ELA classes impact tenth grade student motivation, as measured by The Situational Motivation Scale (SIMS)?

Hypothesis

Based on the literature, it was hypothesized that the use of formal formative assessments in an ELA classroom would positively impact student motivation (Ashdale, 2020; Leenknecht et al., 2020).

Research Design

This study was a quantitative quasi-experimental two group design using a pre-test and post-test to measure growth and difference. There were two groups, a treatment group that received the intervention and a control group that received normal instruction. At the start of the study, the pre-test was given to both the treatment and control groups. At the end of the intervention, the post-test was given to both the treatment and control groups.

Independent Variable

The independent variable in this study was formal formative assessments. For the purpose of this study, formal formative assessments were an exit ticket given every Monday and Wednesday and a weekly formative assessment quiz given every Friday. These formal formative assessments were used to check for student understanding and help the teacher to facilitate and adjust instruction (Ruiz-Primo & Furtak, 2007).

Dependent Variable

The dependent variable in this study was student motivation. In this study, motivation was conceptually defined as a behavior that moves students to complete a task or to continue working towards a learning goal (Leenknecht et al., 2020; Ryan & Deci, 2000). Motivation was operationally defined using SIMS (Guay et al., 2000; see Appendix A).

Setting & Participants

This study took place at a high school in Central California. There are 120 teachers and approximately 2,285 students currently enrolled. According to the 2018-19 School Accountability Report Card, the school is 83.9% Hispanic, 7.2% White, 4.8% Filipino, 2.1% Asian, 1.1% Black, 0.2% American Indian or Alaska Native, 0.2% Native Hawaiian or Pacific Islander. 72.9% of students enrolled are socioeconomically disadvantaged.

The participants of this study were 49 students total, 28 in the control group and 21 in the treatment group. In the control group, 28 students took the pre-test, one student was lost to attrition during the study and did not take the post-test. In the treatment group, 21 students took the pre-test, one student was lost to attrition during the study and did not take the post-test. Three students transferred into the class acting as the treatment group during the intervention and completed the post-test, but their scores were not counted towards the results because they did

not take a pre-test. The sampling conducted in this study was purposeful convenient sampling. It was purposeful because the sample included tenth grade students with gaps in their knowledge that needed to be addressed. The two ELA classes chosen for the study were in the morning, had a similar number of students, and were taught in the same classroom. Both classes also had a similar number of students who were designated as English Learner and Special Education. The sampling was convenient because the researcher taught the two tenth grade ELA classes. The treatment and control groups were randomly assigned.

Treatment Group

The treatment group consisted of 21 students: 8 females and 13 males; 21 students were Hispanic. There were 5 students classified as English Learners.

Control Group

The control group consisted of 28 students: 15 females and 13 males; 24 students were Hispanic; 2 students were White; 1 student was Two or More Races; 1 student was Filipino. There were 3 students classified as English Learners and 2 students classified as Special Education.

Measures

The pre-test and post-test survey questions were from SIMS (Guay et al., 2000; see Appendix A). The scale was a 16-item survey that measured student motivation by asking them to describe using a Likert Scale from 1 – 7 "why are you engaged in this activity" (Guay et al., 2000). Students responded to each item by choosing one option: "*1: corresponds not all; 2: corresponds a very little; 3: corresponds a little; 4: corresponds moderately; 5: corresponds enough; 6: corresponds a lot; 7: corresponds exactly*" (Guay et al., 2000). SIMS has four

subscales that measure: intrinsic motivation, amotivation, identified regulation and external regulation; each scale has four items (Guay et al., 2000).

The intrinsic motivation subscale measured a student's desire to engage in the activity because the student found the activity pleasurable (Guay et al., 2000). Additionally, the identified regulation subscale demonstrated a type of extrinsic motivation that occurs when a student recognizes that the activity is helping them achieve an external goal (Guay et al., 2000). Whereas the external regulation subscale encompassed a type of extrinsic motivation that regulates behavior based on the avoidance of punishment or the promise of a prize (Guay et al., 2000). Finally, the amotivation subscale accounted for having little sense of purpose or expectation that things would change or that they may be rewarded for their behavior (Guay et al., 2000).

SIMS took students approximately 5 to 10 minutes to complete. An example item included "why are you engaged in this activity…[b]ecause I am supposed to do it" and "why are you engaged in this activity…[b]ecause this activity is fun" (Guay et al., 2000). Students completed this survey in a Google Form. Each subscale was scored separately so that students received 5 scores total (i.e., 1 for each of the subscales and a total overall score); with higher scores meaning higher levels of motivation for 3 of the subscales (i.e., intrinsic motivation, identified regulation, and external regulation). The fourth subscale (i.e., amotivation) demonstrated higher motivation if a lower score was reported.

Validity

SIMS has established construct validity (Guay et al., 2000). This means that experts in the field have certified that the scale is indeed measuring motivation. Further, each of the four subscales of SIMS was created using modified versions of previously validated and reliable

measures (Guay et al., 2000). Therefore, each SIMS subscale and the overall scale has established forms of validity and could be used in this study (Guay et al., 2000).

Reliability

The authors of SIMS conducted five separate studies using the scale and measured internal consistency reliability during each phase of the studies (Guay et al., 2000). For all five studies, across all different participants, each subscale had moderate to high internal consistency ($\alpha = 0.62 - 0.95$; Guay et al., 2000). Thus, SIMS was used in this study without hesitation (Guay et al., 2000).

Intervention

For this study the intervention was the administration of formal formative assessments to students over the course of six weeks. The formal formative assessments used during this study were exit tickets and weekly formative quizzes. Every Monday and Wednesday the researcher asked students to complete an exit ticket using paper and pencil. During the last three to five minutes of the period, students answered a single open-ended question on material addressed that day in class that provided the teacher with a quick glimpse of student knowledge and possible student misconception (Danley et al., 2016). The researcher collected the exit tickets and checked them for understanding. A check plus mark denoted that the student was exceeding expectations. A check mark on the exit ticket denoted that the student was meeting expectations, and a check minus mark denoted that a student had not met expectations. The lesson planned for the following day was then modified based on the total number of check pluses, checks, and check minuses.

Every Friday at the end of the period the researcher asked students to complete a weekly no-point quiz. The quiz was administered on a sheet of paper with a series of questions that

students were asked to complete during the three to five minutes before the end of the period. The teacher graded the quizzes over the weekend using the check plus, check, check minus method used to check for student understanding in the exit tickets. The teacher adjusted Monday's lesson based on the number of check pluses, checks, and check minuses given on the quiz. Over the course of the six week intervention, the teacher administered 12 exit tickets and six weekly quizzes to the treatment group.

Procedures

The study began by administering a pre-test of SIMS in a Google Form to the treatment and control groups (Guay et al., 2000). The treatment group received the intervention every Monday, Wednesday and Friday at the end of class for six weeks. The control group received normal instruction during the same time period. Students in the treatment group were asked every Monday and Wednesday to complete an exit ticket and every Friday to take a short quiz designed to check their understanding of the material from that day. During the same time, students in the control group did not receive the exit tickets or weekly no-point quizzes.

Students were reminded that the assessment was designed to help the teacher better meet students where they are in relation to the learning goal and that their answers were not being factored into their overall grade because a handful of students were caught copying off his or her group member's exit tickets and Friday quizzes. There were also times during the administration of the assessments that students ran out of time to fully answer the question. When this happened, the teacher looked over the students' beginning answers, made any necessary adjustments to the following day's lesson and passed back the assessments to students at the beginning of the period the next day so they may finish answering the question.

At the end of the study, both groups took a SIMS post-test in a Google Form to determine if the intervention successfully increased student motivation (Guay et al., 2000). The data collected from the pre-tests, post-tests and formal formative assessments were used for the purposes of modifying instruction during the intervention period. No other data were collected.

Fidelity

Fidelity of the treatment was ensured by an independent observer; in this study another English teacher who was familiar with formative assessments and the current curriculum. The independent observer came into the treatment classroom one day a week for six weeks to observe the intervention being administered (i.e., using exit tickets and no-point quizzes). The independent observer observed the control class one day a week for six weeks to ensure that the intervention was not being used (i.e., business as usual). The independent observer attended 12 of the 60 class periods throughout the six-week intervention period or 20 percent of the intervention and there was 100 percent fidelity to intervention throughout the study (see Appendix B).

Ethical Considerations

The ethical considerations the researcher considered were respect for persons, beneficence, and justice. To ensure respect for persons, the researcher followed the informed consent process. The researcher obtained written consent from all participants prior to beginning the study. To establish beneficence, the researcher protected the confidentiality of all participant information collected during the study. The researcher continued to conduct weekly check ins, via a Google Form, with students to ensure that the intervention was not causing psychological stress. To indicate the presence of justice in the study, the researcher collected the data to

improve instruction and student motivation for the benefit of all participants at the conclusion of the study.

Validity Threats

Potential validity threats and extraneous variables in this study included experimenter effects and subject attrition. The experimenter made sure that any implicit bias did not affect the study by using SIMS as the measure (Guay et al., 2000). Further, fidelity to intervention occurred by using an independent observer for 20 percent of the intervention period, to ensure that the researcher only provided the intervention to the treatment group. Subject attrition may have been an extraneous variable that impacted the dependent variable. Due to the COVID-19 pandemic, students who were unvaccinated were forced to quarantine at home for a minimum of five days if exposed to COVID-19. If a student in either the treatment or control group was forced to quarantine during the study, they were dropped from the study.

Data Analyses

All data were entered into the Statistical Package for the Social Sciences® (SPSS®) for Windows, version 25.0.0 (SPSS, 2017). No names or identifying information was included in the data analysis. Before analyses were conducted all data were cleaned to ensure no outliers were present (Dimitrov, 2012). After cleaning the data, independent sample t-tests (control and treatment groups) and dependent samples t-tests (pre-test and post-test) were conducted to determine the significant difference in student motivation levels between the two means scores on SIMS (Guay et al., 2000). Further, before interpreting the analytical output, Levene's Homogeneity of Variance was examined to see if the assumption of equivalence had been violated (Levene, 1960).

Results

Two independent samples t-tests were conducted on the whole sample ($n = 47$) for both the pre and post assessment scores. Results for the pre-test were: Levene's Homogeneity of Variance was not violated ($p > .05$), meaning the variance between groups was not statistically different and no correction was needed, and the t-test showed non-significant differences between the mean scores on the pre-tests between the two groups $t(47) = .03$, $p = .98$. The pre-test scores were the same and there was no statistical significance between the two groups (See Table 1). Results for the post-test were: Levene's Homogeneity of Variance was not violated ($p > .05$), meaning the variance between groups was not statistically different and no correction was needed and the t-test showed non-significant differences between the mean scores on the post-tests between the two groups $t(47) = .50$, $p = .62$. In this study, formative assessments did not impact student motivation in a statistically significant way (See Table 1).

Table 1

Results of Independent Samples T-Tests

	Mean	SD
Pre-Test		
Treatment	4.15	.71
Control	4.15	.73
Post-Test		
Treatment	3.99	.53
Control	4.07	.62

Note. SD = Standard Deviation.

After determining the differences between pre and post assessment scores between groups, two paired t-tests were run for both groups (i.e., treatment and control) to determine if participants mean scores from pre to post were significantly different within each group (See

Table 2). Results for each group were as follows: treatment group, $t(20) = 1.13$, $p = .27$; control group, $t(27) = .44$, $p = .67$. In this study, formative assessments did not impact motivation in a statistically significant way. The mean score for both groups decreased from the pre- to the post-test. The standard deviation in both groups also decreased from the pre- to the post-test, meaning that the motivation across student groups was more consistent in the post- than in the pre-test.

Table 2

Results of Paired T-Tests

	Mean	SD
Treatment Group		
Pre	4.15	.71
Post	3.99	.53
Control Group		
Pre	4.15	.73
Post	4.07	.62

Note. SD = Standard Deviation.

Discussion

The purpose of this study was to determine if the use of formal formative assessments, in the form of exit tickets and weekly formative quizzes, would impact student motivation in ELA classes. The majority of existing research surrounding formative assessments tends to focus on how the tool can be implemented to impact student achievement. However, teachers use data collected from formative assessments to adjust instruction, provide students with support which subsequently, impacts their motivation (Andersson & Palm, 2017; Buelin et al., 2019). Formal formative assessments are used in ELA classes to check student learning and improve teacher instruction; yet data have not been collected in ELA classes at the same rate as in science classes.

In this study, formative assessments were the intervention used in an ELA classroom to determine the impact that structured and consistent, no-point checks can have on student motivation.

The results of this study did not however, support the hypothesis; formal formative assessments did not impact student motivation in a statistically significant way. Both the treatment and control groups decreased their mean scores on SIMS from the pre- to the post-test (Guay et al., 2000). These results suggest that student motivation actually decreased across both groups of students after the six week period. Interestingly, the treatment group also showed a decrease in their standard deviation demonstrating that while, overall motivation decreased, students were more consistent with their self-reported rankings on SIMS; signifying that as a whole the class has a similar level of motivation (Guay et al., 2000). The students in the treatment group felt more supported than the students in the control group; the post-test showed that structured checks on student understanding worked to maintain class-wide engagement with the content to encourage students to continue working towards the learning goal. Even though, in this study, student motivation actually decreased, the data established that formal formative assessments can help struggling students who may become so unmotivated that they stop working towards achieving the learning goal altogether.

One reason that this study may not have aligned with previous findings, was that many studies that have seen statistically significant change were focused on college-aged students who may be more naturally motivated (Leenknecht et al., 2020). The participants in those studies chose to continue their education in college and consequently were more motivated to continue working towards meeting the learning goal than high school students who are required to attend school. Additionally, researchers who have seen an increase in motivation also included student

achievement in their research (Andersson & Palm, 2018; Ashdale, 2020; Ozan & Kincal, 2018). While student motivation can directly impact achievement, these two variables are not interchangeable and represent two fundamentally different constructs; thus, more research should be conducted to study these independently of one another. When future studies are conducted surrounding formative assessment and student motivation, researchers must also consider the limitations in this study.

Limitations and Future Studies

As with all human subjects research, there were limitations that could have impacted the results and should be considered when conducting future studies. One limitation that very likely contributed to the rejection of the researcher's hypothesis was the low number of participants (n = 47). Before the experiment began 57 students were participating in the study, however there was an attrition of seven students from the treatment group and one student from the control group before the pre-test was administered. The researcher strongly recommends replicating this study in future ELA high school classrooms with a much larger sample size; as this study may have accepted the null hypothesis simply due to a lack of statistical power. Future researchers may consider reaching out to ELA Professional Learning Communities within a high school so that all ELA students from a certain grade may participate in the study. Particularly as these Professional Learning Communities were created for the purpose of comparing and discussing student data. This would not only lead to a larger sample size but could also be more representative of the high school ELA population.

Another limitation that may have contributed to this study's results was student fatigue brought on by the COVID-19 pandemic. Student's cognitive maturation over the past 25 months may have impacted the slight decrease in student motivation. The majority of students upon

returning to in-person instruction after 18 months of virtual instruction, have consistently struggled with motivation and engagement. In January 2022, schools saw a surge in COVID-19 cases resulting in more lost instructional days for students who were forced to quarantine at home. While, student engagement is slowly increasing, students are still suffering from anxiety, stress, and overall exhaustion because of the pandemic as this researcher noticed throughout this year of schooling. Future studies will need to account for the long-term effects that the COVID-19 pandemic continues to have on student engagement, learning and motivation.

Future researchers should also consider how formative assessments can be used to help the chronically unmotivated student. This study demonstrated (through the decrease in the treatment group's standard deviation) that formal formative assessments may help prevent students from becoming unmotivated as teachers use the data collected to adjust instruction and address student misconceptions. Researchers could use this study to determine how formative assessments may actually play an important part in decreasing the apathy and indifference in students who may not be naturally motivative to continue learning. Formative assessments used in ELA classrooms have the potential to help students maintain the motivation necessary to refine essential writing skills and engage more deeply with complex texts.

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Appendix A

The Situational Motivation Scale (SIMS)

Directions: Read each item carefully. Using the scale below, please circle the number that best describes the reason why you are currently engaged in this activity. Answer each item according to the following scale: 1: *corresponds not all*; 2: *corresponds a very little*; 3: *corresponds a little*; 4:*corresponds moderately*; 5: *corresponds enough*; 6: *corresponds a lot*; 7: *corresponds exactly*.

Why are you currently engaged in this activity?							
1. Because I think that this activity is interesting	1	2	3	4	5	6	7
2. Because I am doing it for my own good	1	2	3	4	5	6	7
3. Because I am supposed to do it	1	2	3	4	5	6	7
4. There may be good reasons to do this activity, but personally I don't see any	1	2	3	4	5	6	7
5. Because I think that this activity is pleasant	1	2	3	4	5	6	7
6. Because I think that this activity is good for me	1	2	3	4	5	6	7
7. Because it is something that I have to do	1	2	3	4	5	6	7
8. I do this activity but I am not sure if it is worth it	1	2	3	4	5	6	7
9. Because this activity is fun	1	2	3	4	5	6	7
10. By personal decision	1	2	3	4	5	6	7
11. Because I don't have any choice	1	2	3	4	5	6	7
12. I don't know; I don't see what this activity brings me	1	2	3	4	5	6	7
13. Because I feel good when doing this activity	1	2	3	4	5	6	7
14. Because I believe that this activity is important for me	1	2	3	4	5	6	7
15. Because I feel that I have to do it	1	2	3	4	5	6	7
16. I do this activity, but I am not sure it is a good thing to pursue it	1	2	3	4	5	6	7

Codification key: Intrinsic motivation: Items 1, 5, 9, 13; Identified regulation: Items 2, 6, 10, 14; External regulation: Items 3,7, 11, 15; Amotivation: Items 4, 8, 12, 16.

Appendix B

Fidelity Table

Fidelity Check Table

Date	Treatment/Control	Signature/Initials
Wednesday Week 1	Treatment	Madi R
Friday Week 1	Control	Madi R
Wednesday Week 2	Treatment	Madi R
Friday Week 2	Control	Madi R
Wednesday Week 3	Treatment	Madi R
Friday Week 3	Control	Madi R
Wednesday Week 4	Treatment	Madi R
Friday Week 4	Control	Madi R
Wednesday Week 5	Treatment	Madi R
Friday Week 5	Control	Madi R
Wednesday Week 6	Treatment	Madi R
Friday Week 6	Control	Madi Brown