# The Impact of Written Feedback and Letter Grades

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#### Abstract

The purpose of this study was to determine whether written and verbal feedback provided to high school students would change their self-confidence and self-concept with regard to their academic abilities. This study used a pretest, posttest research design based on two administrations of the same survey using the same participants with the goal of detecting whether students' perceptions changed after the implemenation of feedback. The null hypothesis stated that there would be no difference in students' self-confidence and self-concept after the intervention period. Forty eight 11<sup>th</sup> and 12<sup>th</sup> grade students enrolled in AP Calculus participated in this study. Using a dependent samples *t* test analysis, the the data revealed statisically significant differences in students' perception of their self-confidence and self-concept when comapring pre-survey to post-survey responses. Despite the researcher's findings, more research should be conducted on the impact of grades and students' self-confidence and self-concept.

#### **CHAPTER I**

#### INTRODUCTION

#### Overview

The traditional letter grading system where grades range from A to F has been a part of education for many years, and many school systems seem unlikely to change. However, letter grades alone do not always accurately measure intelligence or one's learning of standards. Having "good" grades can lead to opportunities for students such as college acceptance, scholarships, job opportunities, and an overall improved quality of life. Because of these opportunities, students tend to focus more on achievement in the form of A's or passing courses than they do content mastery.

Grades are often used as motivation for students, but extrinsic motivation is not beneficial in this case. Students become hyperfocused on receiving high letter grades rather than on gaining useful knowledge. For those students who do not receive the reward of high grades as motivation, this can continuously discourage them from wanting to be in a school setting. Grades indicate to students whether or not they were successful at a topic, and these grades play a part in influencing students' self-concept.

The traditional letter grading system comes with many flaws. For instance, educators sometimes inflate grades, which, in turn, misrepresent a student's actual mastery of content.

Another issue is that, from one classroom to the next, there can be inconsistency between the grades teachers assign. Letter grades do not show the entire picture of a student, and too often students get defined by a letter grade that falls short in communicating students' abilities and areas in need of improvement. Students' grades can easily be misrepresented, thereby impacting their self-confidence and self-concept.

#### **Statement of Problem**

The purpose of this study is to examine the impact of written and verbal feedback with content mastery checks along with the letter grade system on high school students' self-concept and self-confidence.

There is a lot of pressure for students to receive high grades in order to be labeled successful. This can lead to anxiety for a student, lower self-concept, and lower student achievement. With letter grades, students can easily compare themselves to other students, instead of focusing on themselves and what knowledge they were able to gain. One of the keys to success is self-confidence. For a high school student, a majority of his/her self-confidence in a classroom may come from how he/she performs in school.

Content mastery techniques can help students better understand what content knowledge they have mastered and where they still have room for improvement. This can also help improve students' self-confidence because they may feel as if they have more control over their academic growth. Letter grades on their own categorize students, but with written or verbal feedback, students are able to process what the grade means and may be better able to identify action steps needed in order to improve.

# **Hypothesis**

Null: There will be no difference in students' self-confidence and self-concept after receiving written feedback along with letter grades, measured by changes in their pre-survey and post-survey ratings.

#### **Operational Definitions**

# **Independent Variable**

The independent variable is the written feedback with content mastery checks.

# **Dependent Variable**

The dependent variable is the impact on students' self-confidence and self-concept related to their grades as measured by the survey.

#### **CHAPTER II**

#### REVIEW OF THE LITERATURE

Education is about a student growth and preparation for future endeavors in order to be a successful member of society. School is meant to help students discover their interests. Today there is a lot of pressure on students to receive high grades, earn high test scores, and perform perfectly in order to get accepted into a top-notch college. Instead of focusing on education and growth, students, parents, and society have started to idealize grades to be the purpose of sitting in a classroom.

This literature review seeks to explore the impact of grades on students and their educational experience. Section one provides information on the purpose of grades. Sections two and three discuss how grades affect students emotionally and their academic self-concept.

Section four provides alternatives to the standard letter grading system, and in section five, a summary is provided.

### The Purpose of Grades

The overall purpose of the grading system is to communicate student achievement (Anderson, 2018), aid teachers in planning, and to motivate students. That communication may be for the student, families, administration, or other involved parties. There are numerous strengths and weaknesses to the grading system that most schools have in place. Typically, grades range from five to six letter grades. Grades are meant to measure "quality, proficiency, intensity, and value" (Anderson, 2018, p. 3) of a student's work. Teachers are asked to use grades so there is a clear understanding of how a student compares to oneself, to show improvement, and to show a level of mastery to content standards. Teachers are able to utilize grades in order to improve their instruction (Anderson, 2018). From a letter grade, teachers can

determine whether content has been mastered by their students. Grades help teachers to differentiate materials in order for their class to benefit.

Another main purpose of grades is to motivate students (Anderson, 2018). The intention of using grades as motivation is to encourage students to work hard educationally in order to earn their "good" grades. Grades are used as admission criteria into universities, for scholarship eligibility, and for awards, and can often factor into employment decisions.

Some of the downfalls for the letter grading system include inconsistency, negative effects on student motivation, and a lack of communication of the entire picture of a student's academic progress. A final grade for a student typically does not consist solely on the content knowledge of the student. Grades have been used as self-esteem boosters (Randall & Engelhard, 2010). Parents seem happy with the grading system because on paper students are achieving highly, but when the U.S. compares test scores internationally, the country fall short. Grades are sometimes inflated with effort, attitude, and presence (Randall & Engelhard, 2010). Unintentionally, it has been found that teachers assign different grades for the same work (Anderson, 2018) even when using a rubric. Grades used as motivation diminish the effect of intrinsic motivation for education (Anderson, 2018). Grades are extrinsic motivation. From one student to the next, grades can have either a positive effect or negative effect. While grades are used as communication for parents and students, this can be one of the downfalls. Letter grades and percentages standing alone are difficult for parents to interpret (Knaack, Kreuz, & Zawlocki, 2012). Traditional letter grades do not show strengths and weaknesses, making it difficult for parents and students to know their specific areas that need improvement.

### **How Grades Affect Students**

Letter grades are used to indicate student progress, and grades speak to mastery of

learning outcomes but often have little to do with intelligence. This leads to different positive and negative emotions for students, depending on what that grade is and what the grade means to them. A longitudinal study completed on secondary education students found that students' report card grades affected their emotional and behavioral engagement during the spring term of the school year (Poorthuis, Thomaes, Denissen, De Castro, & Van Aken, 2015). Students who received high report card grades were still engaged and motivated to learn. The students who received lower report card grades demonstrated less engagement in the spring, diminishing the purpose of grades to be used as motivation. In this scenario, grades demotivated students to continue to put forth their best effort.

Grades provide some students with a lot of joy and pride (Pekrun, Lichtenfeld, Marsh, Murayama, & Goetz, 2017). Their positive grades predict their positive emotions. The exact opposite occurs for students with negative grades; low grades result in a negative outlook on their education. For students who are struggling and receiving the lower grades, school can become more of a place that enhances anxiety (Anderson, 2018).

It is natural for humans to compare themselves to others for validation. When students receive grades, privacy of these grades is often compromised because students tend to be open and share this information with other students. This can hinder their relationships with other students (Anderson, 2018). This can also spoil a relationship with a teacher (Anderson, 2018) when students are dissatisfied with their grades. Having poor relationships with teachers can be detrimental to a student's overall education.

Grades may be providing the wrong kind of motivation. Anderson (2018) states that "working harder to achieve better grades is not the same as working harder to learn more" (p. 4). When students become motivated by grades, students often become less interested in the content

and material that they are actually learning (Anderson, 2018). This leads to students memorizing facts instead of gaining true longevity of knowledge. Grades are diminishing intrinsic motivation for some students.

Knowing that having good grades allows entrance into the most prestigious universities and one day their dream jobs, students' goal is to have good grades instead of knowledge so they will do whatever it takes to achieve that and in the easiest form possible. This reduces students' preference to take on the challenging tasks (Knaack et al., 2012), instead resulting in students receiving higher grades on something they know they will succeed with.

Extrinsic motivation is beneficial for a short period of time, but intrinsic motivation is the most beneficial for a long period of time. Students with the highest academic success rate have higher intrinsic motivation (Taylor et al., 2014). Students can learn a lot from failure; however, continuous low grades are seen as a threat for more failure instead of increased motivation (Hamachek, 1972).

# **Academic Achievement and Self-concept**

Academic achievement in secondary education is typically measured with the grading system. Grades can have both a positive and negative effect on a student's self-concept. Self-concept is how a person perceives him/herself.

Through receiving grades, a student is told whether he/she is successful or not. A student with good grades will tend to feel more of a sense of personal worth (Hanssan, Jami, & Aqeel, 2016). A student receiving a low grade may experience a sense of continuous failure, and this can lead to a low self-worth and self-esteem (Hamachek, 1972). When a student receives a low grade continuously in a specific content area, he/she is less likely to be encouraged to improve, believing he/she is not good at that specific content.

Students correlate their self-worth with their grades instead of seeing themselves in an overall picture. The higher grade a student receives, the higher self-acceptance they have (Hanssan et al., 2016). In the long run, this can have negative effects on one's mental health. It is difficult to determine which comes first, high self-esteem or high academic achievement. However, Hamachek (1972) notes that "positive change in one facilitates positive change in another" (p. 19).

# **Grading Alternatives**

Having an accountability measure for students throughout their education is important. However, there are alternatives to the traditional grading system that could increase student motivation, have better effects in student self-concept, and lead to positive emotions related to education.

The purpose of education is for students to gain knowledge. With the traditional letter grade system and education, the end of a unit of topic is marked with a letter grade. This is typically done with a test. Students often receive their grade and then move on to the next concept even if the content was not mastered. By utilizing content mastery grading techniques, students will gain more knowledge. With content mastery, students would be expected to earn a 90% or better on an assessment (Reddy et al., 2013). This provides students with a greater sense of achievement. With this sense of achievement, lower grades will be less daunting and more encouraging to understand the content. Content mastery sends a message to students that they have the abilities to be successful (Reddy et al., 2013). Content mastery could help decrease anxiety in schools and increase positive emotions towards oneself and school.

Similar to content mastery is standard-based learning. With standards-based learning, students receive biweekly, or however frequently a school system chooses, progress reports

aligned toward state standards (Knaack et al., 2012). This still provides students with accountability measures. This technique helps students set specific goals and allows them and their parents to know their specific areas of improvement. Students become less complacent with doing just enough to earn a high grade (Knaack et al., 2012), and this structure provides them with the opportunity for increased motivation.

Expanding the traditional grading system to more than just a given letter grade and providing feedback with every grade would increase student attitudes (Sweet, 1966). This feedback could come in the form of verbal, whole, class, written comments, etc. Providing students with an opportunity to receive nonthreatening feedback, such as comments or an ungraded assignment, allows students to become engaged in their own learning (Kitchen et al., 2006).

# **Summary**

The letter grading system is used in education mainly for communication purposes.

While there are many perks of the traditional letter grade, if the letter grade stands alone, it poses some downfalls for education. Grades have been found to negatively affect student motivation, whether students are receiving high or low grades. This, in turn, affects their academic self-concept which is important for growth of a student. There are many grading alternatives that school systems and teachers can put in place while still implementing the traditional letter grade. Education should not be focused on what GPA a student receives, but rather on their overall growth and content knowledge.

#### **CHAPTER III**

#### **METHODS**

The goal of this research was to determine the impact of mastery learning techniques and written or verbal feedback that accompanies letter grades on high school students' self-concept and self-confidence.

#### Design

This study was quasi-experimental in nature and employed a pre-survey and post-survey design. The independent variable is the written feedback with content mastery checks along with letter grades. The dependent variable is students' self-concept and self-confidence related to their grades measured by the survey. The study was implemented for six weeks. A comparison was made between the two surveys administered in order to determine the change in students' self-confidence and self-concept based on receiving written and verbal feedback. This comparison was conducted using a dependent t test analysis at alpha = .05

## **Participants**

This research was conducted at a suburban high school in Harford County, Maryland. This school has an enrollment of 1,447 students. The 48 students involved in this study were 11<sup>th</sup> and 12<sup>th</sup> graders taking AP Calculus AB. Twenty-eight of these students have been labeled as gifted, one of the students has limited English proficiency, 34 students are enrolled in 11th grade, and 14 are enrolled in 12th grade. Twelve students are Asian, three students are multiracial, four students are Hispanic, one student is African American, and the rest are Caucasian. This class has highly motivated students, with the expectations that the course moves quickly.

#### **Instrument**

Pre-survey and Post-Survey (see Appendix): All participants completed a survey including

open, short answer questions and Likert scale items to determine the impact grades have had on their self-confidence and self-concept. The pre-survey consisted of eight Likert scale questions ranging from one (strongly disagree) to five (strongly agree). As noted, there were also four open-ended responses.

Post-survey (see Appendix): All participants completed a survey including short answer and Likert scale items to determine the impact grades have had on their current self-confidence and self-concept. The post-survey consisted of eight Likert scale questions ranging from one (strongly disagree) to five (strongly agree). There were also two open-ended responses. The post survey was given after six weeks of the intervention.

#### Procedure

Prior to starting the content mastery learning techniques and verbal or written feedback attached to letter grades, students were given a pre-survey where the students responded to questions about how they relate themselves to their grades, their confidence in a classroom, their self-concept as a result of grades, and why grades are important to them.

Throughout the six weeks, students received written feedback on all their graded assignments. The feedback discussed what concepts the students had not mastered and the steps that needed to be taken in order to master that concept. Students were also allowed to make corrections to graded assignments. At the end of the six weeks, the students took the post-survey asking them questions about how they relate to their grades and how the verbal feedback impacted their self-confidence and self-concept. The researcher compared survey results in an effort to determine if changes from the first administration to the second administration were evident.

#### **CHAPTER IV**

#### **RESULTS**

This study aimed to show the impact that written and verbal feedback along with letter grades have on students' self-confidence and self-concept. Dependent groups t test analyses were conducted to determine whether there was a difference in student self-confidence and self-concept after implementation of written feedback. The significance level for these analyses was set at p = .05. Also, descriptive statistics in the form of means and frequencies of responses were used to provide more insight into the impact of the intervention.

# **Descriptive Statistics**

Shown in Table 1 are the pre-survey and post-survey student mean scores for items 1 and 2. The number of participants for both administrations of the survey was 48 and inclusive of the same student group. With regard to the pre-survey, students' mean scores were 4.65 for item 1 and 3.33 for item 2. With regard to the post-survey, students' mean scores were 4.63 for item 1 and 3.29 for item 2. The cumulative average for the pre-survey for items 1 and 2 was 3.99. The cumulative average for the post-survey for items 1 and 2 was 3.96.

Table 1

Comparison of Mean Scores for Pre-Survey and Post-Survey Items 1 and 2

Survey Type	Number of Survey Participants		Survey Item Number	
		Item 1	Item 2	
Pre	48	4.65	3.33	3.99
Post	48	4.63	3.29	3.96

As shown in Table 2, a dependent samples *t*-test was conducted to compare differences between students' pre-survey and post-survey scores on items 1 and 2. The mean difference in

the students' cumulative survey scores was .0313 with a standard deviation of .8639. The significance level for this t-test analysis, t (95) = .354 was p>.05 at .724. Therefore, there was a failure to reject the null hypothesis, and findings suggests there was no evidence of statistical significance when comparing pre-survey and post-survey scores when combing items 1 and 2.

Table 2

Dependent Samples t-Test Analysis for Pre-Survey and Post-Survey Cumulative Scores-Items 1 and 2

Survey	Mean	SD t df Sig		Sig (2-Tailed)	
Pre-Post	.0313	.8639	.354	95	.724

Shown in Table 3 are the pre-survey and post-survey student mean scores for items 5 and 7. The number of participants for both administrations of the survey was 48 and inclusive of the same student group. With regard to the pre-survey, students' mean scores were 4.13 for item 5 and 3.19 for item 7. With regard to the post-survey, students' mean scores were 3.69 for item 5 and 2.81 for item 7. With regard to the pre-survey, the cumulative average for items 5 and 7 was 3.66. The cumulative average for items 5 and 7 for the post-survey was 3.25.

Table 3

Comparison of Mean Scores for Pre-Survey and Post-Survey Items 5 and 7

<b>Survey Type</b>	Number of Participants	Survey Item Number		Cumulative Average
		Item 5	Item 7	
Pre	48	4.13	3.19	3.66
Post	48	3.69	2.81	3.25

As shown in Table 4, a dependent samples t-test was conducted to compare differences between students' pre-survey and post-survey scores. The mean difference in the students' cumulative survey scores was .2448 with a standard deviation of .4391. The significance level for this t-test analysis, t (95) = 3.863 was p<.05 at .000. Therefore, the null hypothesis is rejected, and findings suggest that scores on the post-survey were statistically significantly higher than the scores on the pre-survey when combing items 5 and 7.

Table 4

Dependent Samples t-Test Analysis for Pre-Survey and Post-Survey Cumulative Scores- Items 5 and 7

Survey	Mean	SD	t df Sig (2-Tai		Sig (2-Tailed)
Pre-Post	.2448	.4391	3.863	47	.000

# **Survey Responses**

Table 5 below lists the frequencies of responses detailing what student felt their grades said about them and how the intervention of corrections and written feedback impacted them as a student. These were results from the post-intervention survey where students provided these survey responses after receiving the intervention of written and verbal feedback.

Table 5

Descriptive Statistics through Frequency of Responses on Post-Intervention Survey Items 9 and 10

Item 9 Category for replies:	Shows work ethic and effort	Indication of how good of a student	Reflection of test taking skills/memory	Other	Total
What do your grades say about you?	25	11	10	2	48
Item 10	Learn from	Self-	Less	Learn the	Total

Categories for replies:	mistakes	improvement	stress/more confident	content	
How did the corrections and written feedback help	20	3	11	10	44
you as a student?					

With regard to item 9, 52% of the students indicated that their grades represented them as hard workers. None of the students indicated that their grades represented them as a total person or provided a complete depiction of their intelligence level. Students noted that their grades may say they are an A plus student, but their content knowledge does not match up to that A. For item 10, a 45.5% of the students replied that they were able to learn from their mistakes.

#### **CHAPTER V**

#### **DISCUSSION**

The purpose of this study was to determine whether written and verbal feedback provided with student letter grades would influence students' self-confidence and self-concept. Data was collected to determine how the addition of grading feedback was perceived. The results of the study were statistically significant enough to reject the null hypothesis. The results revealed that students' view of their grades as well as their self-confidence and self-concept became more favorable after the intervention. The descriptive statistics indicated that the students benefitted from the written and verbal feedback with regards to learning of the content.

# **Implications of Results**

The results indicated that there was a significant difference in the form of improved self-confidence after the intervention period. The results revealed that with the interventions, students valued their content knowledge more than grades and compared themselves to other students less. Additionally, students felt their grades became a more accurate reflection of their academic abilities. Post-intervention surveys suggest that most students felt that their grade represented how hard they worked. Students also made note that the feedback helped them build confidence and learn from their mistakes. This allowed students to feel less stressed when it was time to test, but they did not value their grades any less.

The findings indicate for educators that they should provide written feedback whenever possible. This will improve relationships with students, build confidence for the students in the content area, and provide more of an opportunity for students to learn from their mistakes.

Teachers should participate in professional development to help provide students with the

appropriate feedback that would align to standards related to the content. This professional development should also help teachers learn how to guide students learning with the feedback.

## **Theoretical Consequences**

There is not much research to be found on the mental impact of grades on students. This study attempted to determine whether written feedback improved students' self-confidence and self-concept, and the study also attempted to determine how students value grades in a course. Written feedback has been researched, and students benefit from direct feedback and learn to correct their mistakes in the future (Hashemnezhad, & Mohammadnejad, 2012).

The post survey results for items 1, 2, 5, and 7 indicated a significant difference in how students viewed their grades and themselves academically after receiving several weeks of verbal and written feedback. It is noted that some questions were not compared statistically, but the students did provide feedback on how the interventions impacted them academically. As students move through their education and grades become more important in society, it is essential that more research is conducted on what educators can do to help bridge the gap between confidence in the classroom and grades received by students. There should also be more research conducted on strategies teachers can implement in order to make grades less important that content knowledge.

# Threats to Validity

There are several limitations that could be identified as threats to the validity of this study's findings, and future research on this topic should seek to address these threats. One internal threat includes the brief time frame that the intervention was implemented. The intervention only took place for six weeks where students met every other day. This decreases the likelihood of the strength the relationship between written feedback and improved self-

confidence since it was a short time frame. Another internal threat is that students only received the intervention in one of their eight classes that they were currently enrolled in. Students might not have been receiving the written feedback in their other seven courses, and therefore, their self-confidence, self-concept, and their attitude toward grades might have been affected by those other courses.

The sample size of only 48 students where they all received the intervention may also have affected the external validity. With a longer time interval and more representative sample, the results could be more generalized.

# **Connections to Previous Studies and Existing Literature**

Past researchers have linked grades and self-esteem and self-concept together. Hanssan et al. (2016) stated that self-esteem and academic achievement go hand in hand; however, it is nearly impossible to determine which one comes first. This study suggests that grades come first. Grades are extremely important to students and there are many pressures for students to receive high grades. The pressure from grades often enhances anxiety in students while also serving as an extrinsic motivation (Anderson, 2018).

While there are many positives associated with the letter grading system and it is widely used throughout the world, there are several negative impacts letter grades have on students' self-confidence and self-concept when grades are the only measure of academic achievement. Constant failure and low grades remind a student that he/she is not successful and could lower one's self-worth (Hamachek, 1972). Pekrun et al. (2017) found that less than satisfactory grades led students to have negative feelings about their education and school is meant to be a positive environment where students spend a lot of their time. Lastly, grades have an impact on students' behavioral engagement (Poorthuis et al., 2015). Students who receive high grades in a course

tend to be more engaged than those who do not (Poorthuis et al., 2015). Students who receive bad grades benefit from written feedback to improve their self-concept. For students who receive high grades, written feedback provides the opportunity to extend their learning and learn from some of the mistakes they may have made.

# **Implications for Further Research**

Further research should be conducted on the impact that written feedback and verbal feedback provided along with letter grades has on student self-confidence and self-concept.

Additional tests should be administered to measure the direct mental impact of grading on students' self-confidence. A control group would be helpful to determine whether there is a difference. Data taken over the short window may not provide the most accurate research results. In the future, a study should be conducted over a long period of time such as an entire semester. More research should be also be done on student achievement with alternative grading systems besides letter grades to determine how these techniques improve students' confidence. Some techniques that could be researched include standard-based learning and content mastery.

#### Conclusion

This study will hopefully remind teachers of the importance of students' feelings while in their classroom. The findings will hopefully encourage teachers to take the time to provide students with written and verbal feedback along with their letter grades, reminding students that they are more than just a score and that their progress is important to the teacher. Future studies should last longer than six weeks and include a larger sample size. This study showed that written and verbal feedback impacted students' self-confidence positively.

#### References

- Anderson, L. W. (2018) A critique of grading: Policies, practices, and technical matters. *Education Policy Analysis Archives*, 26(49).
- Hanssan, A., Jami, H., & Aqeel, M. (2016). Academic self-concept, self-esteem, and academic achievement among truant and punctual students. *Pakistan Journal of Psychological Research*, *31*(1), 223–240. Retrieved from https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=tru e&db=a9h&AN=118694614&site=ehost-live&scope=site
- Hamachek, D. E. (1972). Effect of early school failure experiences on self-image development and implications for school counselors. Paper presented at the annual meeting of the American Educational Research Association in Chicago, Illinois on April 3-7, 1972. East Lansing, MI: Michigan State University.
- Hashemnezhad, H., & Mohammadnejad, S. (2012). A case for direct and indirect feedback:

  The other side of the coin. *English Language Teaching*, *5*(3), 230–239. Retrieved from http://search.ebscohost.com.goucher.idm.oclc.org/login.aspx?direct=true&db=eric&AN= EJ1078905&login.asp&site=ehost-live&scope=site
- Kitchen, E., King, S. H., Robison, D. F., Sudweeks, R. R., Bradshaw, W. S., & Bell, J. D. (2006). Rethinking exams and letter grades: How much can teachers delegate to students  $CBE-Life\ Sciences\ Education,\ 5(3),\ 270\text{-}280.\ Retrieved\ from}$  https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=tru e&db=eric&AN=EJ840884&login.asp&site=ehost-live&scope=site
- Knaack, S., Kruez, A., & Zawlocki, E. (2012, May 1). *Using Standards-Based Grading to Address Students' Strengths and Weaknesses. Online Submission*. Retrieved from

- https://goucher.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=tru e&db=eric&AN=ED531172&login.asp&site=ehost-live&scope=site
- Pekrun, R., Litchtenfeld, S., March, H. W., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic perfomance: Longitudinal models of reciprocal effects. *Child Development*, 88(5), 1653-1670.
- Poorthuis, A.M.G., Thomaes, S., Juvonen, J., Denissen, J.J.A., deCastro, B.O., & Van Aken, M.A.G. (2015). Do grades shape students' school engagement? The psychological consequences of report card grades at the beginning of secondary school. *Journal of Educational Psychology*, 107(3), 842-854. Retrieved from https://doi-org.goucher.idm.oclc.org/10.1037/edu000000
- Randall, J., & Engelhard, G. (2010). Examining the grading practices of teachers. *Teaching and Teacher Education: An International Journal of Research and Studies*, 26(7), 1372–1380. Retrieved from http://search.ebscohost.com.goucher.idm.oclc.org/login.aspx?direct=true&db=eric&AN=EJ890996&login.asp&site=ehost-live&scope=site
- Reddy, D.M., Pfeiffer, H.M., Fleming, R., Ports, K.A., Pedrick, L.E., Barnack-Tavlaris, J.L, & Swain, R.A. (2013). "U-Paced" instruction: Improving student success by integrating content mastery and amplified assistance. *Journal of Asynchronous Learning Networks*, 17(1), 147-154.
- Sweet, R. C. (1966). Educational attainment and attitudes toward school as a function of feedback in the form of teachers' written comments. (Report No. 15) Madison, Wisconsin: Madison Research and Development Center for Learning and Re-Education.

Taylor, G., Jungert, T. Mageau, G. A., Schattke, K. Dedic, H., Rosenfield, S., & Koestner, R.

(2014). A self-determination theory approach to predicting school achievement over time: The unique role of intrinsic motivation. *Contemporary Educational Psychology* 39(4), 342-358. Retrieved from

# Appendix A Pre-Intervention Survey (all complete)

Please complete the following items by selecting the rating from 1 to 5 which describes your feelings best:

1= stro 2= disa	ngly disagree
	her agree nor disagree
4= agre	ee
5= stro	ngly agree
1.	Grades are important to me.
2.	My grades accurately reflect me as a student.
3.	After a test, I frequently forget information that I learned even if I score a high
	grade.
4.	How I feel about a content area is a reflection from my grades.
5.	I frequently compare myself to other students based off grades.
6.	When other students earn better grades than me, I feel inferior.
7.	Grades are more important than content knowledge.
8.	High grades give me confidence and low grades hinder my confidence.
Ple	ase answer the following questions in 1-2 sentences.
9.	What can teachers do to help students better understand their grades? Please list 2-3 specific things that would help.
10.	What supports would help you feel more confident in a class that you struggle in?
11.	What do your grades say about you?
12.	Why are grades important to you?
13.	Other Comments:

# Appendix B Post-Intervention Survey (all complete)

Please complete the following items by selecting the rating from 1 to 5 which describes your feelings best:

1= strongly disagree 2= disagree 3= neither agree nor disagree 4= agree 5= strongly agree	
1Grades are important to me.	
2My grades accurately reflect me as a student.	
3Having the opportunity for correction allowed me to feel less stress.	
4Written feedback improved my self-confidence.	
5I frequently compare myself to other students based off grades.	
6Corrections helped me feel more confident in the content area.	
7Grades are more important than content knowledge.	
8High grades give me confidence and low grades hinder my confidence.	
Please answer the following questions in 1-2 sentences.	
9. What do your grades say about you?	
10. How did the corrections and written feedback help you as a student?	
11. Did you take advantage of the opportunity for corrections? Why/why not?	
12. Other comments:	