The Effects of Grading Practices on Motivations for Learning at the Middle School Level

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The Effects of Grading Practices on Motivations for Learning

at the Middle School Level

By

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B.A. Bates College, 2002

M.S. University of Southern Maine, 2006

M.S. University of Southern Maine, 2016

A DISSERTATION

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

In Public Policy

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June 24, 2019

Advisory Committee:

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Date: July 24, 2019
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The Effects of Grading Policies and Practices on Motivation for Learning

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Dissertation Advisor: Dr. Anita Stewart McCafferty

An abstract of the dissertation presented in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Public Policy
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The objective of this quantitative survey study was to measure the effect grading traditionally (using averaging) versus non-traditionally (best, most recent evidence) on four types of student motivation. These types of motivation were mastery orientation (learning for learning sake), performance orientation (going for the grade or external recognition), performance avoidance (not wanting to appear incompetent), and mastery avoidance (not wanting to lose what you have). This set of orientations is derived from the goal orientation theory.

In this study, 1,652 students and 93 educators between four schools took an anonymous 20-minute online survey. Due to lack of teacher participation, two schools were not used in the study. The survey for the teachers measured grading practices, while the survey for the students measured motivation orientations. There were other questions asked of both teachers and students, but only the aforementioned and demographic data were analyzed.

Findings from this study indicate that teachers in School 3 report using traditional averaging significantly more than School 1, who uses the best, most recent evidence more. However, due to the similarities in their other grading practices, the two schools’ mastery orientation scores are not statistically different. School 3 students are statistically more performance oriented, but by a margin that makes one question if classic negative socio-economics affects are being mitigated as they have double the free and reduced lunch rate. In
terms of gender, cis-gendered students are equally motivated regardless of School. However, non-binary students have the lowest scores in mastery and high scores in performance avoidance in School 1 as compared to School 3. Is this because they want to hide, but cannot in this less performance-focused system? The overall finding leads to more questions about specific populations such as non-binary and socio-economically disadvantaged students, but require further research between schools that participate in strictly traditional grading practices and schools such as these studied. However, it seems rather clear that there is a positive incremental step toward refocusing on mastery orientation which has more cognitive benefits as compared to performance and lessens performance avoidance which has negative academic effects.
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CHAPTER I: INTRODUCTION

Statement of Problem

The goal of this study is to examine the relationship between grading policies, practices, and student motivation. According to Peters et al. (2017), students reported that motivation for practice (homework) or studying for a test is negatively impacted in a standards-based grading system. As a student in the Peters’ study reflects, “It’s easy to slack off on the first attempt since you know you’ll get a chance to reassess (p. 19).” Anecdotally, there is evidence that this is the case in our own schools where teachers, parents, and students have voiced this very concern. This theme was also echoed in a keynote presentation at the Southern Maine Partnership’s Assessment Literacy Conference 2018 by Jan Chappuis entitled: “If I don’t grade it, they won’t do it.” In this keynote speech, Chappuis argued that, while this is the contention, this is not necessarily the truth. However, this depends on how we, as educators, introduce and use formative assessment: assessment for learning. In research around motivation orientation, the evidence suggests that students who take a mastery approach to their education have more intrinsic motivation. This orientation has been shown to shift to a mastery orientation in classes that reflect learning-centered grading practices. Therefore, this study examines the impact of these policies and practices on student motivation to determine if the specific classroom impact scales up.

Historical Context of the Problem

How does Maine Proficiency-Based Diploma reflect the national standards-based reform movement? Although A Nation at Risk started the movement, America 2000 established the first set of national goals that were federalized through Goals 2000. Soon to follow, the legislation, No Child Left Behind, constricted the states by defining achievement parameters. The final
squeeze was Race to the Top, a federally sponsored grant-winning game which just about prescribed Common Core State Standards and created a mandate to build teacher effectiveness systems. Then, the Every Student Succeeds Act favorably adjusted aid to charter schools and embossed teacher effectiveness into law. The Maine Legislature reacted to these mandates starting in 1994 through to Maine’s Proficiency-Based Diploma (2012) and its quasi-repeal (2018).

**1983 - *A Nation at Risk***

The current reform period, generally acknowledged to have begun with the release of *A Nation at Risk* in 1983, is striking for several reasons, not least for its staying power. Education reform has not only remained on the national radar screen for most of this period, but it also has now moved to the very top of the domestic political agenda.

(Schwartz et al., 2000, p. 174)

*A Nation at Risk* was a report commissioned by Secretary of Education Bell in 1981 after establishing the Nation Commission on Excellence in Education (Gardner, Larsen, & Baker, 1983). It laid out a grim picture of the state of our education system which was controversial at the time. Still today, many people find themselves at odds with each other over the veracity of the claims made in the thirty-one-page report. For example, Diane Ravitch, a historian, claims, “...it set in motion a false narrative...It began the long march to destroy public education.” While Former US Education Secretary Arne Duncan states, “I think there was a level of truthfulness that was very appealing to me” (The Education Gadfly, 2013). Ironically, President Ronald Reagan had been interested in and was trying to eliminate the Department of Education before and at the time of the release of this report. However, due to the stir that was created, he solidified its existence (Vinovskis, 2009; Seaborg, 1993).
The report laid out recommendations for states to enact which fall into five categories: Content; Standards and Expectations; Time; Teaching; Leadership and Fiscal support. Under the category of Content, they noted five subject areas, plus foreign language for college-bound students, and established how much of each subject should be taken during a four-year high school career. For Standards and Expectations, they asked four-year institutes of higher learning to raise admission criteria and for all educational bodies to have challenging, measurable standards for both academics and behavior. For Time, they called for increasing academic time both inside and outside the school doors through more homework, better behavior, and more time to name a few. With regard to Teaching, they asked for actions to be taken to improve teacher preparation programs and teacher effectiveness and to give financial incentives to address recruitment and retention. In the final section, Leadership and Fiscal Support, they articulated the existing responsibilities of the administration on the federal, state, and local levels around raising money and support in creating adequate learning environments to enact the aforementioned recommendations (Gardner et al., 1983). These recommendations would prove to be the smallest doll in what would become a nesting doll of constant education reform for the next 30 years.

**Textbooks Set Standards**

Throughout the ensuing decade, many states and professional educational organizations leapt into action. The biggest call to action was around increasing the quality of standards connected to the textbook-driven curricula. The report stated, “We should expect schools to have genuinely high standards rather than minimum ones...” (Gardner et al., 1983, p. 13). In California, Bill Honig was elected the State Superintendent and, in reaction to this blatant criticism of the watered-down version of content promulgated by textbooks, Honig created a
framework for creating new standards. If the textbook companies wanted to keep business, they would have to create new standards-focused materials. At the same time, a league of southern governors banded together to create standards. The National Assessment of Educational Progress (NAEP) would be the achievement measure of students based on those new standards. To them, this would create its own results-driven momentum toward continuously creating rigorous standards. This was the beginning of NAEP testing on a national level prompted by legislation and the massive surge into accountability. Meanwhile, the National Council of Teachers of Mathematics (NCTM) would create their own set of standards over a three-year period (Ravitch, 1993). These standards would be the framework for which many more professional education organizations, and states themselves, would build their own sets of standards.

**Tug-o-War**

The promotion of any framework by the federal government would lose steam fairly quickly due to the animus created over a pedagogical difference on how to build the different types of standards in the different content areas including math. Compounding the internal conflict which arose was the limiting nature of the federally touted NCTM framework to be in a subordinate position to the esteemed position of local control over education (Hamilton, Stecher, & Yuan, 2008). Shavelson and Towne (2002) articulate this tug-o-war between federal and state control which will continue to cast a shadow over the standards-based reform movement:

> The nation takes pride in reaffirming the constitutional limitations on the federal role in education, yet recently has tentatively embraced the idea of national standards. The system is one of dualities: a national ethos with local control; commitment to excellence and aspiration to equality; and faith in tradition and appetite for innovation. (p. 11)
As a frame of reference, this quote was written just after the No Child Left Behind Act, which reauthorized ESEA, while the Common Core State Standards would not appear for seven more years.

**America 2000 - Goals Unrealized**

President George H. W. Bush and members of the National Governors Association were very aware of the political tightrope needing to be walked between federal and state control. Therefore, they tried to pass through Congress a set of goals which they called America 2000. The four goals were: community involvement for success; “break-the-mold” schools which would have private start-up money but ultimately be federally funded; a voucher system; and voluntary national testing using standards modeled by the NCTM framework (Schwartz, Robinson, Kirst, & Kirp, 2000). Two of the goals echoed the recommendations in *A Nation at Risk*, drumming up financial and intellectual support at local levels and calling for accountability testing using standards. The two divergent goals aimed to keep the opposition quiet by suggesting alternative schooling options. Politicians on both sides of the aisle were so skeptical of the federal involvement or lack thereof that this piece of legislation did not pass. However, the then Governor Bill Clinton was at the governor’s table, and as a result, he would be heavily influenced to pass similar legislation after he became president in 1994 (Schwartz et. al., 2000).

**10 Years: National Report Card**

After the presidential election of Bill Clinton, the Office of Educational Research and Improvement put out a series of findings in 1995 which gave the first insight into how standards-based reform was affecting our schools since *A Nation at Risk*. On the student achievement side of things, the conclusions were all positive over the decade span analyzed. Students were taking more rigorous academic coursework, math and science scores were up, fewer students were
dropping out and college attendance was on the rise in spite of increasing tuition (Smith, 1995a).
On the teacher side of things, it was hit or miss. The teaching profession was growing, as was
compensation, and more teachers had master’s degrees. However, class sizes remained stagnant,
and there were still teachers teaching outside of their subject expertise in order to fill vacancies
in shortage areas. This may have been due to the inability to retain teachers or lack of financial
means to attract teachers (Smith, 1995b). Even so, the increased success of students did not
seem to slow down the momentum toward standards-based reform as is evidenced in President
Clinton’s education legislation.

1994 - Goals 2000

1994 was a distinct mile marker in the standards-based reform movement, as it was the
date President Bill Clinton signed into law the Goals 2000: Educate America Act (Vinovskis,
2009). The Act federalized the national education goals, which were: (1) School Readiness, (2)
School Completion, (3) Student Achievement and Citizenship, (4) Teacher Education and
Professional Development, (5) Mathematics and Science, (6) Adult Literacy and Lifelong
Learning, (7) Safe, Disciplined and Alcohol- and Drug-Free Schools, and (8) Parental
Participation (United States Congress, 1994). What started as President George H. W. Bush’s
original four educational goals, ended up as eight goals for systemic change (Heise, 1994; United
States Congress, 1994; Vinovskis, 2009). These goals were tied to both the reauthorization of
the Elementary and Secondary Education Act (retitled: Improving America’s Schools Act), as
well as grant money which was allocated to those states who developed a plan for
implementation of Goals 2000. Therefore, every state receiving grant money or benefitting from
ESEA was responsible for “the development or adoption of State content standards and State
opportunity-to-learn standards, and State assessments linked to such standards,” (Birman, 2013; Hamilton et al., 2008; Lewis 1995; US Congress 1994).

**Right to Learn - Not Yet**

The “opportunity-to-learn standards” was the only voluntary piece of this legislation, if states were receiving this federal money. This new type of standard would articulate the provision of sufficient time and quality resources, including human and material, in which to maximize a learner’s potential. These standards were hotly contested by both parties until it was agreed that they would be voluntary (Hamilton et al., 2008; Vinovskis, 2009). It was feared at that time that this type of standard would create an opportunity-to-sue. This is because, if a state says they will provide a certain environment and cannot, parents could sue for not providing for their children (Heise, 1994). There is no evidence that this happened because, by and large, states ignored this piece of Goals 2000. It would not be until No Child Left Behind that a few of the ideas of opportunity-to-learn standards, not therein named, would be actualized (Hamilton et al., 2008).

There was an enormous amount of flexibility embedded in the IASA because the federal government wanted to be a partner, not an oversight operation. This is how the legislation was sold to Congress to gain the bipartisan support it needed to pass. States were to monitor their own achievements against the high standards they would be setting to gain federal funds. They had until 1997 to implement standards and another couple of years to create assessments which aligned. At that point, they would have to make adequate yearly progress to continue benefiting from funding. Most importantly, and more specifically, the legislation was set-up for giving school systems flexibility in using their funds if they implemented high standards for all of their
students, regardless of their ability level. This was a unique approach to a more holistic reform that had not been seen to that point (McDonnell, 2005; Schwartz et al., 2000).

**States Left Behind, But No Child**

So, if *A Nation at Risk* was the template, and Goals 2000 became the hot press for subsequent federal and state education legislation, then the No Child Left Behind (NCLB) Act of 2001, the reauthorization of ESEA, was the force which pushed down hard on the press to stamp out model schools. However, schools were not coming out of the press pristine and new, but instead worse for wear (Graham, 2013). This would be the educational legacy left behind by President George W. Bush (Hoff, 2008).

For 14 years, NCLB had been the law of the education land, owing its extended life through almost the entirety of President Barack Obama’s administration due to partisan issues in the Congress (Mcguinn, 2016). In the supplanting of IASA and Goals 2000, this new doll shell was hefty in its design. Accountability became the centerpiece of this iteration with annual standardized state testing for grades 3 through 8, including the use of the NAEP reading and math tests in 4th and 8th grades, now required. School systems who failed to make AYP for multiple years in a row, according to the assessment data, faced increasing sanctions from sending students to passing schools in the district and free tutoring to facing a state-led overhaul of the failing school. Teachers and administrators alike could be reorganized within the district at best or straight out lose their jobs. The final component which differentiates NCLB from its predecessor is that all teachers had to become highly qualified (HQT) and paraprofessionals hired with Title I monies had to either have completed two years of college successfully, have an associate’s degree, or pass a pedagogy and content exam. The conditions for HQT were set by
each state and found to not be as rigorous to attain as was hoped for on its inception (“Overview of”, 2008).

**Obama’s Contribution to NCLB**

For President Obama’s part, he saw no clear path to achieving reauthorization. Instead, he used his executive order power to give stimulus money in the form of grants, to create Race to the Top, and to provide NCLB waivers. One would expect each of these interventions to come with the same price that has echoed throughout the Standards-Based Reform Movement. School districts must establish high standards in order to receive funding. However, the ante was upped because this money was also tied to creating charter school options, new teacher evaluation systems connected to student performance, joining the Common Core State Standards (CCSS), and creating assessments for the CCSS (Mcguinn, 2016). President Obama, in a speech given about No Child Left Behind, says, “Money alone is not enough; we also need reform...That's why, instead of just pouring money into the system that's not working, we launched a competition called Race to the Top” (“Remarks”, 2011). Essentially, his administration gamified the process of creating change where every change you made was worth a certain amount of points and, if you ended the prescribed timeline with the most points, your state won the money. Every state could play, but not every state would win (US Department of Education, 2009).

**Obama Passes His Own ESEA?**

In December of 2015, with bipartisan support, the reauthorization of ESEA passed under the new name Every Student Succeeds Act (ESSA), thus adding the next layer, perhaps the final layer, of the nesting doll created by the federal government (Mcguinn, 20016). The legislation shifted back the power of oversight of achievement and reform to the states. It also requires local systems to address necessary changes in partnership with all stakeholders. Ironically, it
prohibits the US Department of Education from using coercive action to get states to change “any of the challenging State academic standards adopted or implemented by a State,” and more specifically,

(1) adoption of the Common Core State Standards developed under the Common Core State Standards Initiative or any other academic standards common to a significant number of States, or assessments tied to such standards; or (2) participation in such partnerships.

Even with this reversal to local control, the Obama administration increased the original scope of NCLB with this legislation through increased funding of certain charter school programs, adding options to the current national assessment system, and the addition of educator effectiveness language from the NCLB waivers (Every Student Succeeds Act of 2015).

1994 - Maine State Standards

As a response to the IASA Goals 2000, the Maine Department of Education started working on creating standards in 1994. The Maine Learning Results (MLR), as they are called, has two components: Guiding Principles and the Content Area Standards for each of eight content areas. The Guiding Principles provide a framework based on research for looking at students’ work and dispositions toward learning which will better prepare them for life beyond secondary school. The Content Area Standards explain what students should know and be able to do within each academic subject by certain mile markers in their elementary and secondary school careers. The State of Maine adopted these standards into law in 1997. In 2011, Maine joined the Race to the Top competition. To earn points toward winning grant money, Maine revised its standards by replacing the English Language Arts and math sections with the
Common Core State Standards in these content areas. Regardless, Maine did not accumulate enough points in that round to win, nor would they in subsequent rounds (Maine DoE, 2014).

**2002 to 2007 - Local Accountability**

The NCLB Act not only reconfirmed the necessity to adopt high standards but also to measure the standards using two means using a standardized test, the Maine Education Assessment (MEA), and valid and reliable local assessments. Maine began to develop a Local Assessment System (LAS) in earnest in early 2002 to coordinate with the Maine Learning Results (MLR). In 2006, Harris and Fairman put out a white paper on the state of standards-based education in Maine as related to the creation of local assessment systems at that time. The findings were mixed.

Although there are many substantive challenges yet to be resolved, there is strong support among Maine educators for the concepts of learning standards, assessment of students’ progress, and accountability, which constitute the Learning Results and development and implementation of LASs. (p. 9)

Yet, they also say, “the complexity of the task and the lack of time, funds, and human capacity has slowed but not stopped progress toward full implementation” (p. 9). In 2006, Susan Gendron, Maine’s Commissioner of Education, received a report that teachers were spending too much time on assessing and not enough time on teaching. "We tried to design a system that was unrealistic," Gendron said. So, she said she would request Maine legislators to repeal the local assessment system law (Edwards, 2007). In 2007, it was repealed.

**Proficiency-Based Diplomas**

In 2012 Maine adopted its Proficiency-Based Diploma law: An Act to Prepare Maine People for the Future Economy, L.D. 1422. In this law, students can only graduate after
demonstrating proficiency in graduation standards set forth at the local level based on the Maine Learning Results (including Common Core State Standards) and the Guiding Principles. There are eight content areas: English Language Arts; Mathematics; Science and Technology; Social Studies; World Language; Health and Physical Education; Visual and Performing Arts; and Career and Education Development. This law had been amended three times since its inception (2013, 2015, 2017) to include things such as extensions to implementation, annual reporting of progress toward full implementation, and a phased-in protocol for getting to all eight content areas. For example, school districts were given extensions to implement this law at the latest for the class of 2021 (“An Act”, 2012). The class who graduates in 2021 must show proficiency in English Language Arts, mathematics, science and technology, and social studies. Each subsequent year, the graduating class will add another content area of the student’s choosing until all eight content areas are included for the class of 2025 (20-A, 2015).

Maine was the first in the country to adopt such a law and regulations. There is no clear evidence in writing that indicates why Maine chose this course of action or if this type of system would yield results. However, Vermont, New Hampshire, Rhode Island, Connecticut and Oregon have also chosen to support schools who are using proficiency-based education practices (Silvernail et al. 2013).

As indicated by Stump and Silvernail (2015), there had been much trouble with the implementation of the law. The rules had been repealed and were again being re-drafted, but the outcome of deliberations over new rules in 2017-18 was a new policy being enacted to have L.D. 1422 (proficiency-based diplomas) be an option with the traditional Carnegie Unit system being its counter. On July 10, 2018, Republican Governor Paul LePage signed L.D. 1666, the bill that overturned the mandate making this law optional for any school district (“An Act to Ensure”,
2018). Maine’s decision to keep this method of awarding diplomas is not unique as seven other states (AK, AZ, GA, IA, OH, OR, UT) have this same level of flexibility built into their regulations (Stump et al., 2017).

**The Future of Education Connects to the Past**

If you had looked around Maine’s Department of Education website a couple of years ago, it was clear that they had a future planned for the State of Maine. This future would be realized when students no longer progressed through their education by grade level, but by the demonstration of mastery in standards. Equally clear was the national evolution through the standards-based movement had a tremendous effect on Maine’s path. Maine’s Department of Education’s (MDoE) five core areas of reform were a reflection of this: effective, learner-centered education; great teachers and leaders; multiple pathways for learner achievement; comprehensive school and community supports; coordinated and effective state support. One could match up many of the aforementioned policy mandates with these goals. The recommendations of *A Nation at Risk Standards and Expectations* were covered by the first area and are always the centerpiece of each initiative. Goals 2000 talks about opportunity-to-learn standards that were directly connected to providing student choice and multiple pathways and was the first to document the necessity of early childhood readiness and adult literacy education like the task “Seamless integration of educational programs from early childhood into adulthood.” NCLB required Highly Qualified Teachers (HQT) which connected with the Great Teacher and Leaders section of the legislation. Finally, ESSA put the onus back on the states to provide on-going evaluation of its standards, teachers, and students through the involvement of stakeholder groups. This fell in line with area four and five of the MDoE’s reform agenda (Maine DoE, 2015). However, taking a look at the Maine Department of Education’s website in
In 2019, one would have to dig around to find the five priorities articulated whereas the futuristic vision of moving through education based on standards is gone.

**Historical Summary**

As is enumerated above, Maine does reflect the federal trends of legislative expectations of a standards-based system. However, Maine went one step further to take the lead in the area by legislatively changing from the traditional system of education to a truly standards-based approach in its Proficiency-based Diploma model. We have seen this with Vermont being the second in the nation to support Proficiency-based Education as a key to their flexible and personalized pathways legislations (Vermont AoE, n.d.). Though the expectations of the Maine model were well laid-out on Maine’s DoE website, the exact implementation, as in Vermont, was up to local control to implement (Maine DoE, 2015). As Edwards (2007) predicted, the changes were too “unrealistic” and crumbled under its own weight. Maine has mirrored the federal government; as the tug-o-war continues between federal and state control, it continues between state and local as well.

**Conclusion**

It would appear that the heart of this historical overview points to the cyclical nature of the reform movement in education. The need for clearer student learning outcomes is evident, but how one gets there continues to remain elusive. On top of which, if students are at the center of the educational paradigm, the need to have positive motivational effects is equally paramount to clear targets in terms of student success.
Purpose of the Study

The purpose of this research is to examine the relationship between grading practices and student motivation orientations. This research compares the degree to which a school uses learning-centered grading practices with student motivation orientations.

A secondary objective of this study is to explore this grading-motivation relationship and determine if the relationship differs by race, gender, after school activity participation, student academic self-perception, and/or adult influence.

Research Questions

The following research question(s) were examined in the study:

1. What is the relationship between the degree to which a school uses learning-centered grading practices and student adoption of motivation orientations?
2. What is the variation in student motivation orientations between schools by grade, race, gender, after school activity participation, and/or student academic self-perception?
3. What is the variation in student motivations between schools by the degree to which adults in the school generally attribute their own learning to one of these motivation orientations or how they believe students should be motivated to learn?

Significance of the Study

This study contributes to a growing body of research around the impact of school environments on motivation orientations. Specifically, it will provide a starting point from which further studies can be done addressing student motivation to learn in different types of grading environments. The findings of this study may support deeper conversations about grading practices and learning.
CHAPTER II: LITERATURE REVIEW

Proficiency-Based Education, as it is called in Maine, is a complex system inspired by many schools of thought. This paradigm shift has its roots in the upheaval created by the Standards-Based Movement. In this section, the schools of thought will be laid out in three parts. The first part deals with the pedagogy which make up the shift, and the second part describes the models created to address the shift. These two parts will follow ever more notable patterns to the third part: the conclusion that language is important. Thus, key operational definitions follow as this is important for clarity of the remainder of the section and dissertation. Once the language has been codified, a second section will briefly examine the most current research related to student learning orientations in terms of motivation both generally and specifically related to middle school.

Underpinnings of Proficiency-Based Education

In this section, three major facets of a fully functioning Proficiency-Based Education system will be addressed. The first is the concept of Mastery Learning, which basically says the acquisition of skills and knowledge build over time. The second is the concept of Standards-Based Grading, which is a practice of recording and reporting this time-based acquisition. The final facet is the premise that all decisions from when, what, and how to assess to the how to fund for resources are decided in concert with students or, at the very least, with student needs above all else.

Mastery Learning

In the early 1970s, Benjamin Bloom was working on an instructional strategy that would be the foundation of what today we understand as proficiency-based education. He called it mastery learning. In this method of teaching, one does a pre-assessment of prior knowledge,
engages students in general group instruction, monitors progress formatively throughout the units, provides specific/timely/actionable feedback, modifies instruction to correct for gaps in learning, and then gives another assessment to those who need it or enrichment/extension for those who did well the first time (Guskey, 2010). The reason Bloom founded this method was that he noticed once things were graded, students moved on from the learning in that unit to the next despite the fact they may not have mastered the material. He believed that, given enough time and feedback, all students can learn. Therefore, Bloom proposed creating a formative assessment loop which gave students personal feedback and time to remediate their mistakes (Guskey, 1994). Chappuis et. al (2012) describe formative assessment as assessment “for” learning rather than assessment “of” learning which is how they describe summative assessment. “The purpose of one is to improve achievement, to support learning, and the purpose of the other is to measure, to verify, learning” (p. 5).

John Hattie (2012), in his analysis of over 850 meta-analyses on teaching and learning, reports that mastery learning has a 0.57 effect size. He suggests that any strategy above a 0.40 effect size is one which supports student achievement. This effect size indicates more than what a student would get by just sitting in a regular classroom. The effect size of mastery learning is consistent between his first analysis in 2009 of students K-12 and his later analysis of higher education students. Although Hattie’s book was a meta-analysis of meta-analyses, there are a couple of specific individual meta-analyses which found student gains both academically and attitudinally toward learning. One analysis of which found a stronger effect for weaker students (Le, Wolfe, and Steinberg, 2014). Another meta-analysis of group-based mastery learning techniques found that each technique outpaced the standard teaching techniques, knowledge
retention was higher, achievement gaps slowly closed over time, and, once again, student affects improved (Guskey & Gates, 1986).

Although the benefits of mastery education are clear in these analyses, there is a problem of definitions, which is the main problem with all of our current proficiency systems. The crux of the problem is that too few people can define mastery. Thus, having students demonstrate this on more than base level skills or tasks proves challenging. Taking a complex task, breaking it apart, and then calling the completion of all the pieces “mastery” is false which leads to implementation errors. Bloom, himself, did not give a definition, but Wiggins (2014) does:

Mastery is effective transfer of learning in authentic and worthy performance. Students have mastered a subject when they are fluent, even creative, in using their knowledge, skills, and understanding in key performance challenges and contexts at the heart of that subject, as measured against valid and high standards. (p. 13)

Therefore, the teacher should show the complex objective of learning, break it down into meaningful parts, build it back up, and then re-show the whole. After that teaching, students will engage in mastery learning where the input is the content standard, but the output is the performance with the content. Mastery, at the moment of answering the question “to what degree of output?” can be defined as the result of meeting appropriately high standards (Wiggins, 2014).

**Student (Learner)-Centered Learning**

Student-centered learning (SCL) has become another great buzzword in education with, yet again, many definitions (Lea, Stephenson, & Troy, 2003). In a twenty-two-page informational briefing, the New England Secondary Schools Consortium (NESSC) says, “Student-centered learning: schools are organized to facilitate student learning first and foremost,
and major decisions, programs, and expenditures prioritize student-learning needs above other concerns” (NESSC, n.d., p. 3). They go on to delineate the traditional system of school from one that is student-centered based on pedagogy and finance considerations. The major components of such a system are: differentiated learning experiences both inside and outside the school walls where students have flexibility in when and how they will demonstrate their learning.

Lea et al. (2003) state that SCL is a method where teaching and learning are co-authored by both the students and the teacher. Teachers have to ask the learners what their needs are, so as to shape the learning experiences to fit. They draw the comparison to that of a consumerist model where consumers lead the market to produce goods and services based on their desires. The assertion is, in turn, this will better serve an increasingly diverse population of learners.

In a mixed-method analysis of the efficacy of SCL, students in a higher-education setting were asked about their perceptions with respect to their hopes and expectations. Students had a positive affect toward SCL as a concept but also wanted to be assured they would be properly supported by teachers in this process. They wanted to be involved in a dialogic experience which would guide their increased responsibility for directing their own learning. Paying lip service to SCL can lead to demotivation and decreased achievement in outcomes for most (Lea et al., 2003).

The American Psychological Association (1997) defined SCL in terms of a four section; 14-point framework from the psychology of learning vantage. The first six factors relate to how learners continuously construct new, deep levels of knowledge by connecting to the familiar in an environment appropriate for the content. With this in mind, learners must also continue to evaluate their learning and the process thereof. The next three factors relate to the necessity to provide opportunities where learners can explore their interests on topics that they feel are the
right level of difficulty. Learners must feel a sense of self-efficacy, mixed in with the right amount of anxiety, to approach challenging tasks. The next two factors relate to allowing students to demonstrate their learning in different ways and creating group work where learners speak about their understanding, listen to the understanding of others, and reflect on differences without making value judgments. The final factors relate to differentiation based on learners’ abilities and demographic differences which need to be considered and adjusted for in the learning context. Assessment during the learning process either by the teacher or the learner can provide helpful feedback on how these adjustments may best be made as learners work toward appropriately high goals (APA, 1997).

**Standards-Based Grading**

According to Ken O’Connor and Rick Wormeli (2011), grades must meet four criteria. Grades must be: accurate representations of that, and only that, which you are grading standards, readily understood by its audience, consistent for students regardless of their teachers, and supportive of the learning process first and foremost. To be accurate and meaningful, grading academic standards separate from evaluating behaviors is necessary. To be consistent, grading practices must be defined system-wide and aligned with performance standards. To support learning [standards], assessments must regularly provide feedback which is encouraging and directive (Marzano, 2010). To summarize Marzano, O’Connor and Wormeli, Brookhart (2011) said, “Standards-based grading is based on the principle that grades should convey how well students have achieved standards. In other words, grades are not about what students earn; they are about what students learn” (p. 12).

However, there are two major logistical concerns with this method of grading. The first is the number of pages a report card must be to have all subjects report out on all learning goals
for all standards. Parents and teachers have reported issues of the cumbersome nature of this type of reporting (Spencer, 2012). The second is the final grade computation. Measuring progress over time can be difficult because any one score on a single assessment can be affected by a myriad of factors. Thus, school systems have to determine whether or not they want the final score to be determined by an algorithm to predict future outcomes based on a trend or professional judgment. Either way, there is no exact measurement tool that supports the facility of this task (Hooper and Cowell, 2014).

**Putting Theory to Work**

In this section, four examples of proficiency-based education models will be described. Each system will assert a definition and, if related research exists, an account of the model’s effectiveness.

**Outcomes-Based (Performance-Based) Education**

On the heels of Bloom’s Mastery Learning came Bill Spady’s Outcomes-Based Education (OBE) model. Spady is the world authority and father of OBE, although his model has roots in other educational best practices (Yusoff, Fuaad, Yasin, & Mohd, 2014). However, according to Killen (2000), “OBE, like most concepts in education, has been interpreted in many different ways” (p. 2). In an interview by Brandt (1993), Spady reiterated his frustration about this common occurrence. He retorted that policymakers create a system for accountability which is equal to test scores that are boiled down from academic content. In turn, the results are labeled “outcomes.” He lamented that in a ten-year time, his model went from the measuring of high-order performance to basic recall. Le, Wolfe, and Steinberg (2014), in differentiating from Competency Education, states that Outcomes-Based approaches, like Standards-Based, “are
applied to systems in which performance is translated back into grades or numeric averages and
remains coupled with time-based accountability” (p. 3).

For Spady, outcomes equal performance using knowledge and skills necessary for
success in college, career, and life (Brandt, 1993). He identifies ten outcomes which qualify
someone as successful in life regardless of direction. These are learner and thinker, listener and
communicator, implementer and performer, problem finder and solver, planner and designer,
creator and producer, teacher and mentor, supporter and contributor, team member and partner,
and leader and organizer (Spady, 1994). All parts of learning are designed with this end in mind,
and subjects should not be segregated. There should be expectations of all students to
demonstrate high-level outcomes by providing multiple means of learning and allow different
methods of demonstration. Contrary to Le et al., Spady warns about staying away from time-
based requirements like the Carnegie Unit. He reiterates Bloom’s previous understanding that
when seat time is used as an endpoint for assessing learning, so too does the learning for students end (Brandt, 1993).

Yusoff et al. (2014) conducted a meta-analysis of research and empirical evidence to find
the effect size of OBE. In each study selected, he ran an analysis of the program outcomes and
learning outcomes as evidence of the achievement of OBE. This work was done in Malaysia
around higher education success. The overall effect size of the 20 studies was 0.9 where 0.8 is
equal to a large effect size. This study speaks highly to the veracity of this type of program.
However, Yoseff cautions that his findings indicate thoughtful implementation of OBE will yield
the best results.

Mass Customized Learning
Bea McGarvey, of Maine, and Chuck Schwahn literally wrote the book on Mass Customized Learning called *Inevitable*. In this model of educating, they have students as the drivers of decisions on how they will meet standards. They admonish the industrial age model of schooling and suggest that we base organizational structures and learning outcomes on real-world applications. “The industrial age is to mass production as the information age is to mass customization.” They view this as a way to enhance the profession by giving opportunities for more choice and targeted supports to students. The client load of a doctor is used as an example of a professional who delivers one-on-one support and this is where they foresee the teaching profession (Mass Customized Learning, 2011a; Mass Customized Learning, 2011b).

Maja Wilson (2014) has reservations about this model of student-centered education. She likens the experience students are getting to a Starbucks and not a doctor’s office. You can go up to the counter and get a holiday cup instead of a regular cup, but the coffee is the same. In other words, the term customized or personalized gives the illusion of choice rather than actually making education better. Maja wants to know how teachers can interact on a personal level with a mass of students when we allow students this level of “customization”? Ultimately, she worries about the degradation of community that schools provide, noting that we already have issues with teen loneliness and isolation. To this Schwahn and McGarvey (2014) retort that a focus on student choice and control leads to an increase in intrinsic motivation toward learning. In a video created by Mass Customized Learning (2011c), a student named Lori walks us through the process of creating her learning plan. She is guided by both a teacher advisor assigned to her and her parents. She speaks of being encouraged to balance independent classes online with those she can take with friends who are working on the same standards as she.
Student choice and flexibility of time and place lead to a meaningfully customized experience that reflects the technological information age in which we live (Schwahn and McGarvey, 2014).

As there is a lack of qualitative or quantitative research on Mass Customized Learning specifically, a broadened search did lead to one large, seemingly robust, study published in 2015 by Pane et al. on “personalized learning.” This was a mixed-methods study of the achievement of 62 public schools. The study itself indicates that no school uses one model. “Although there is not yet one shared definition of personalized learning…” (Pane et al., 2015). However, they are all bound by five core attributes: in-depth individual student learning profiles, student choice around content and structure as it relates to demonstrating learning, demonstration of learning at the pace of the student, flexible learning environments (within or outside of school), and a curricular emphasis on college and career readiness.

This study measured outcomes in a wide variety of ways: administrator/teacher/student surveys, interviews, site visits, and national standardized testing results. In terms of gains over the two-year period of analysis using Northwest Evaluation Association’s Measures of Academic Progress (NWEA MAP) math and reading results, the effect size on the average student was medium for math and small for reading at 0.27 and 0.19 respectively. Results were not significant for high schoolers. Compared to the national average and virtual versions of similar populations gleaned from the NWEA system, the vast majority of students in these schools are making gains, more so for those in the bottom quartile of achievement than the top. In terms of education quality versus a national sample, survey results were paired with site visits and interviews to substantiate that personalized-learning schools are: more likely to use technology to personalize learning, more likely to have administrative and collegial support, more likely to have useful data at their disposal, and will use instructional practices supportive of competency-
based learning. Interestingly, of the five core attributes listed previously, competency-based progression was the least commonly seen due to a compulsion to keep students on grade level for the sake of colleges as explicated in this report by administrators. As compared to a national sample, students in a personalized-learning school feel: 1) there is a high level of rigor in both ELA and Math, 2) there is an ability to make choices about their learning, and 3) there is more teacher support. However, they also felt that: 1) schoolwork was not engaging or enjoyable, 2) out-of-school work was not connected or useful, and 3) school was uncomfortable or not enjoyable (Pane et al., 2015). As an overarching criticism, supported by the results of this survey, Alfie Kohn (2015) had this to say: “Personal learning tends to nourish kids' curiosity and deepen their enthusiasm. "Personalized" or "customized" learning--not so much.”

**Expeditionary Learning**

The basic pedagogical premise of Expeditionary Learning (EL), developed in 1991, is in-line with the constructivist models of the 1970s and 1980s such as inquiry-based learning, problem-based learning, discovery learning, and the like (Kirschner, 2006). Maine has a very successful example of an EL school, *King Middle School* in Portland. “A documentary film crew is visiting King Middle School this week, reminding the students and staff that what they do every day is considered special on the national level” (Bouchard, 2009, p. A2). For these reasons, this section of the paper will use EL as the exemplar to examine constructivist pedagogy in creating a student-centered model for learning.

The EL model is a hybrid of best practices taken from the Harvard Graduate School of Education and Outward Bound. They espouse ten principles which connect to elements of mastery learning, outcomes-based learning, and student-centered learning. For example, the first component of EL is to create an environment that balances the mental and emotional needs of the
student. This connects directly to the APA Learner-Centered Framework, as aforementioned. The second disposition of EL is to allow time for students to explore and understand important things, as one would do in mastery learning. A final connection, which can be linked to Outcomes-Based Learning, is the character building where students learn to serve others. However, there is one principle that is unique to this model, being reverent and a caretaker of the earth and others. This obviously has its roots in the Outward Bound philosophy of character education (Expeditionary Learning, n.d.).

For all the real-world education standards that they teach using the exploration of intriguing problems, EL has had its problems with misappropriation of their language. One school designer observed a teacher use the word “expedition” to describe the work happening in the classroom; however, though the teacher demonstrated active pedagogy and engaging lessons, the “expedition” did not include several linked in-depth investigations (case studies), fieldwork, or experts from the community. (Klien and Riordan, 2011, p. 46)

Although not meant maliciously, EL is finding it commonplace to have teachers come to professional-development opportunities and then implementing their understanding which, in turn, is proliferated throughout their districts. They argue that this alteration in terms and practice leads to an inconsistent achievement profile for EL. For this reason, they postulate that better examples and professional development might be a way of suring-up the efficacy of their program.

On that note, EL has had no solid evidence that they were making an impact on student achievement. The results of poorly executed studies had shown the promise of EL, but nothing to which they could point to tout the accomplishments of their program. So, Nichols-Barrer and
Haimson of Mathematica Policy Research (2013) were commissioned to do an in-depth study. Their study included a total of five EL middle schools from New York City and Washington, D.C. They found the three-year rates of achievement in reading and math to be equal to seven and ten extra months of learning respectively. Although their findings were positive, they were left with three questions: Can this study be generalizable? Are gains achieved in more than these content areas? Which of the many strategies lead to this increase in achievement output? With this information, EL advertises these findings on their website, “Independent Research Study Demonstrates Gains Over Time for Students In EL Education Middle Schools” (Expeditionary Learning, n.d.). The independent researchers saw the result but could not pin it on the programmatic shift specifically.

In a critique of constructivist education practices, Kirschner, Sweller, and Clark (2006) examine indirect learning in relation to what we know about how humans process learning. What they found is that indirect learning can lead to misconceptions which alter understanding and lead to lower achievement. In other words, students who have to learn how they learn while they are learning are multitasking. This created a cognitive load which was too high to attend to the pedagogical parts of the expedition. Of schools that showed gains in achievement, it was noted that teachers implemented increasing amounts of direct instruction. They also point out that students, who are never allowed to or do not choose to do independent learning after they have solidified their foundational knowledge, will suffer what is called the expertise reversal effect. Ironically, this is bared out in a self-study by Klein and Riordan (2011) of the effectiveness of their own professional-development practices which they delivered in the style of an expedition, so the teachers could feel what it was to be a student. “...When asking teachers to reflect on the pedagogy and processes of an experience, teachers often become so immersed in the content that
they lose sight of the processes through which skills are built (and which are transferable across content areas)” (p. 47). “EL can make more explicit the skills being taught through the vehicle of the content” (p. 50).

**Competency-Based Education/Proficiency-Based Education**

While there is no universally shared model of what Competency-Based Education (CBE) is due to the lack of research on the success of any one model, there are some commonalities that all models share. Some common synonyms are mastery learning or proficiency-based education (PBE). It starts with formative assessment which measures current levels of competency to provide feedback which enables students to move toward higher competencies at their own pace. Competencies are not minimal skills, but integrated skill sets which are then applied. They are clear to students, as is the path toward achievement of them. Furthermore, schools are to provide multiple opportunities for students to demonstrate mastery when they are ready. These are learning-based systems, as opposed to time-based. Finally, the emphasis is on student voice, choice, and support which leads to success in life beyond the k-12 classrooms. (Le, Wolfe, and Steinberg, 2014; Laine, Cohen, Nielson, and Palmer, 2015; NESSC, n.d.).

Maine’s Department of Education (2015) described their fundamental understanding of PBE in the following terms:

The general goal of proficiency-based education is to ensure that students acquire the knowledge and skills that are deemed to be essential to success in school, higher education, careers and adult life. If students struggle to meet minimum expected standards, they receive additional instruction, practice time and academic support to help them achieve proficiency, but they do not progress in their education until expected standards are met.
Maine had an articulated five-point plan to have all schools operate under this system (Maine DoE, 2015). And, it is the only state in the union which had a Proficiency-Based Diploma law (NESSC, n.d.).

The one area in which Laine et al. (2015) foresee issues arising with a CBE system is the need to figure out time issues such as attendance and testing requirements. Many state funding formulas and credit-earning protocols are attendance based. Laine et al. ask the question, “in what ways could the state’s funding formula be based more on mastery of content and less on seat time or average daily attendance?” Also, assessment timelines for district, state, and federal accountability purposes are often inflexible. The arbitrary 8th-grade science assessment may not find all students ready.

**Standards-Based Education Research**

There is a dearth of actual research on standards-based education. Of the academic studies which exist, most are of a k-12 school orientation with a few coming from the higher education arena. Within this small body of research, three major themes appear. The first is that standards-based education is not being enacted with fidelity. While components of this paradigm shift are embraced, there is variation in the implementation between school districts and even within schools (Cox, 2011; Howley et al., 1999; McMunn et al., 2003; Peters et al., 2017). The next theme is that high-quality information was generated, although there was a significant time investment (Guskey et al., 2010; Swan et al., 2014). Along the same lines, higher education students found this level of detailed information produced a clarity that allowed them to better learn (Buckmiller et al., 2017). Finally, grades in a standards-based system and external assessment scores are typically moderately correlated (Howley et al., 1999; Ross and Kostuch,
This is important to note because much of the funding which schools receive is predicated on the achievement of students per these statewide assessments.

The most relevant connection to Maine that one could extrapolate from the research is that implementation of best practices in standards-based grading varies from school to school and from teacher to teacher (Silvernail et al., 2013). Cox (2013) indicates that this may be the case because there are not enough examples of successful system-wide implementations. Further, Cox addresses the issue of incomplete compliance as coming from a place of differing philosophies on what grades should mean. While Cox is referring specifically between teachers in one district, this contention is echoed by Howley’s earlier research (1999) concluding that “there are certain beliefs about grading that differ from school to school (p. 16).” This is followed up 18 years later by Peters et al. (2017) in lamentation of this still being a very real obstacle to implementation due to the vice-like grip we have on this traditional practice. McMunn et al. (2003) suggest that we use standards-based practices to support the professional development of teachers and districts in order to overcome these adoption issues.

Guskey et al. (2010) and Swan et al. (2014) worked together on a statewide project in the state of Kentucky to implement a standardized standards-based report card. Using a pilot district, they conducted an anonymous survey of both teachers and parents. They found that those who volunteered to implement this new report card had a favorable reaction to being able to give much more depth and clarity with the exception of how much time it took. Parents had a very similar response. This was attributed to the fact that those who opt-in to the study already have a favorable disposition toward the standards-based principles. This would also allow them to better educate the parents with whom they work. Likewise, Buckmiller (2017) did a qualitative study of 21 students in a higher-education technology class which was run by a
teacher who implemented standards-based grading. The adult students went through three
distinct phases; apprehension, transition, and change. Like the parents in Kentucky, students
acknowledged a deeper level of learning due to the increased level of feedback provided.

While Ross and Kostuch (2011) speak about the moderate convergence of report card
grades with external assessments, they frame some of their study in the context of student self-
efficacy. They do this to support their use of social cognition theory as their framework. They
acknowledge that report cards are a place in which students can build this sense of themselves as
accomplished. However, they warn of the opposite effect taking place for lower achieving
students. Therefore, if report cards are a show of mastery and a place to fuel self-efficacy, then it
is a dangerous practice to include anything other than achievement into grades (Howley, 1999).

Operational Definitions

- Learning-centered (e.g., standards-based, proficiency-based, competency-based, mastery-
based) grading practices are those in which habits of work and learning are separated
from purely academic measures of achievement. All academic assessments are
connected to agreed upon state/local standards (e.g., Common Core State Standards).
Academic achievement is measured by the best, most recent available evidence. Students
are given multiple opportunities to demonstrate their learning. Formative assessments,
such as homework and classwork, are only used to provide feedback to support student
progress to their next steps.

- Habits of Work and Learning are those supportive behaviors which provide a foundation
for student success but are not directly connected to individual achievement of academic
standards. For example, attendance, class participation, group work, late work, academic
dishonesty, respecting others, bringing required materials to class, etc....
• Traditional grading is that which the measures of student academic achievement are based on weighted averages of both formative and summative assessments. Within this measure is reflected Habits of Work and Learning, such as taking points off for late work or including group grades, behavior, and effort. Brookhart et al.’s (2016) review titled “A Century of Grading” summarizes this; “Empirical studies of teachers’ grading practices over the past 20 years...document how teachers use both cognitive and noncognitive evidence, primarily effort, and their own professional judgment in determining grades” (p. 826).

• Motivation orientation is a predisposition toward learning “in which the focal end state or result is competence” (Elliot and Thrash, 2001, p 144). This can be achieved through mastery, performance, performance avoidance, and mastery avoidance as measured in this study by the modified 2x2 survey attached in the appendix for this chapter.
  ○ Mastery - desire to attain the highest level of competence
  ○ Mastery avoidance - desire to not lose that which you have attained
  ○ Performance - desire to do better than others or get good marks
  ○ Performance avoidance - desire to not appear worse than others or get bad marks

Student Motivation Research

General Overview

There are many theories around student motivation, such as expectancy-value, attribution, social cognitive, interest, emotion/affect, self-efficacy, and intrinsic/extrinsic. It is not in the purview of this dissertation to tackle the breadth of all motivational theories, but instead, the focus will be tailored to goal orientation theory. There will be three sections which constitute this part of the literature review. The first section will lay out the origin of the theory around
which this research is based. The second section will follow the work of Andrew Elliot, whose iteration of goal orientation this dissertation follows. The final section will detail key findings of work directly related to the middle-school level, as it is the focus of this dissertation.

**Lineage of Current Motivation Theories**

Many authors, in the motivation theory space, often site Dr. Richard White as the catalyst for instigating the shift away from a theory of motivation based around drive to one around competence. Dr. White (1959) wrote a paper whose aim was to illuminate the notion of drive as being inadequate to wholly summarize why animals and people explore novel environmental phenomenon even when their base needs had been met. He wrote, “we also need to consider the selective continuance of transactions in which the animal or child has a more or less pronounced effect upon the environment—in which something happens as a consequence of his activity” (p. 322). White dubs this effectance motivation, a concept which is predicated on competence in understanding and mastering the environment rather than a drive to get needs met. Harter (1974, 1975) took up this torch to concur that cognitive challenge was a pleasure unto itself. However, she states that solving a problem in and of itself does not bolster feelings of efficacy. Humans have a desire to attempt puzzles that are optimally challenging. Interestingly, in that time period, girls often sought approval or they would give up on mechanical problem-solving. Harter (1975) noted that this may have been due to what we would today call stereotype threat.

In 1978, Diener and Dweck looked at motivation in terms of mastery versus helplessness. In their lab, they noted that these were the prevalent orientations students took. What’s more, students who were mastery-oriented viewed critique as helpful. These students did not attribute support as telling of their ability. They used self-instruction and self-monitoring to support finding solutions. On the other end of the spectrum, students who had a helpless orientation
viewed support as a personal critique of their abilities and did not attempt any self-help troubleshooting.

Outside of the lab, Eison (1979) saw something interesting in the field which was confounding. In his dissertation, he attempted to measure two different orientations. The first was the learning orientation which focused in on the acquisition of knowledge. The second was the grade orientation which, as it states, focuses on the grade regardless of the amount of learning. He does caveat that most students will be a mix. His conclusion was that learning orientation, while being great at indicating emotional stability, creativity, and less stress, also correlates with high test anxiety, worse study habits, and lower academic grades. We will see this trend repeat in future work.

On parallel tracks, Nicholls (1984) and Dweck (1985) develop, or refine in the case of Dweck, a more nuanced lens through which to view motivation. Nicholls bifurcates motivation between the task and the ego. In task orientation, students are concerned with mastering the task at hand. He concludes that such students feel “more intrinsically motivated” (p. 331), and goes on to say that, “children whose teachers used coercion and social comparison...reported less intrinsic interest in school” (p. 332). This speaks to his concept of the ego orientation which is about students wanting to do well to appear smart or not appear dumb.

Dweck’s (1985) iteration of motivation orientation starts her off on the path of growth mindset. In this paper, she connects fixed mindset (e.g., intelligence is static) with a performance orientation. That is to say, students want to perform well for the sake of others’ opinions of them. Children who have a growth mindset (e.g., intelligence is fluid) were more learning-oriented. She, like others before her, saw patterns of behavior which were highly linked to the orientation of the student. For example, learning orientation was correlated to intellectual
risk-taking, whereas performance orientation was related to risk avoidance. As far as gender, she cites that, in math, bright and less bright girls were more likely to try to avoid failure by picking simpler tasks and believing they were not smart enough.

Ames and Archer (1988) codify the multiple orientation nomenclature under two umbrellas: mastery goals and performance goals. In their study, they were looking to determine if student perceptions of their classroom environment, as placing more or less focus on mastery, had any tangible effect on their use of sophisticated strategies, attitudes, choices of tasks, and attributions of success (Elliot and Dweck, 1988; Nolen, 1988; Nicholls et al., 1989). They found that there was a predictive element to classes who were more mastery focused. It increased strategy use, sustained involvement in complex tasks, and attributed effort to success. This would be echoed by others (Meece et al., 1988; Harackiewicz & Elliot, 1993) who added that interest and intrinsic motivation were heightened by such an environment regardless of student ability level. However, Elliot and Dweck (1988) found that in a performance goal environment low performers are self-critical, but high-ability students took a mastery approach to feedback, even though they opted to keep challenge low to avoid perceived public shame.

With this background set, Maehr and Midgley (1991) advocated using a schoolwide intervention structure based on the work of Epstein (1989) who came to the acronym TARGET. This stands for Task: the ability to differentiate to provide optimal challenge; Authority: sharing decision making with students; Reward and Recognition: targeted and valid; Grouping: heterogeneous and homogeneous grouping to appropriately raise and lower the level of social comparison; Evaluate: feedback on formative and summative assessment; and Time: creating an appropriate learning schedule conducive to the growth of all. Ames (1992) contends that this structure supports student adoption of a mastery orientation. In a recent article, where students
were placed into a control group and a TARGET group for physical education class, this assumption was corroborated (Cecchini-Estrada & Méndez-Giménez, 2017).

Andrew Elliot

Since 1993, Andrew Elliot has been the most prolific research voice on achievement goal orientation. Elliot and Harackiewicz (1996) did a study to substantiate a trichotomous framework for viewing motivation. In this work, they showed that mastery and performance-approach (proving one knows) orientations did not show negative correlations with intrinsic motivation, but performance-avoidance (avoiding failure) did. Not far behind, Skaalvik (1997) proposed valencing ego orientation in a similar fashion (self-enhancing versus self-defeating). His findings on Norwegian middle school students did not mirror those of Elliot, which may be due to the different paradigm of motivation. However, he reiterated that less normative feedback would enhance the learning environment by keeping schools more task (mastery) focused (Dweck, 1986; Ames & Archer, 1988; Meece et al., 1988; Elliot and Dweck, 1988; Nicholls et al., 1989; Maehr & Midgley, 1991; Ames, 1992; Elliot, 1999).

Next, Elliot and Church (1997) took the trichotomous framework into the classroom setting. There they found that positive intrinsic motivation was most correlated to mastery, high grades to performance-approach, and neither to both. However, both outcomes were negative in relation to performance-avoidance. In a supplemental paper, Elliot (1999) bolstered his framework’s legitimacy adding that, depending on the circumstances, one could valence mastery in a similar way. An example would be elderly people wanting to avoid losing their abilities to drive. This idea was tested and validated by Elliot and McGregor in 2001. It is important to note that while many studies have reaffirmed this fourth factor as legitimate, there is little to no implication of the meaningfulness of mastery avoidance in the classroom, save a 2011 study by
Nir Madjar et al. They found task-mastery avoidance goals (e.g., wanting not to prove I lost anything) to be indicative of nothing, but intrapersonal mastery-avoidance goals (e.g., wanting not to do worse than my best) to be a boon to mastery-approach goals.

In a design testing how outcomes are affected by orientation, Elliot et al. (2005) looked at two variables; whether getting to the outcome was mediated through gatekeeping steps (contingent) or not (noncontingent). In the contingent design, subjects who had a performance-approach orientation outperformed mastery-approach subjects. In a non-contingent environment, outcomes were similar. Males performed better in the study in general. This highlights the game of school as previously indicated with performance-approach students making higher grades, but Elliot et al. caution that depth of knowledge and other previously mentioned dispositional benefits are only seen in mastery subjects.

Finally, Elliot et al. (2011) argue for a new framework around which to view achievement goal orientations. In this study, they bifurcate the mastery orientation into two: task and self. Task-orientation is about competence measured against the criteria of the task. Self-orientation is about competence measured against past or projected accomplishment on tasks. Other orientation is competence measured against achievement relative to other people. The valences were still approach and avoidance. One wants to best the task, do better than before, prove competence compared to others; or one wants to not fail the task, not do worse than before, disprove incompetence compared to others. Ultimately, through their study, this framework was found to be valid and reliable. They hypothesized in their discussion that grading schemas may support subject orientations in one of the three orientations.

In his most recent work, Sommet and Elliot (2017) attempt to explore the what, the why, and the combination which leads to different achievement. They do this in order to substantiate
the contribution achievement goal orientation has had to motivation theory, as has been fired upon by self-determination theorists as being “no longer statistically significant” (p. 1141). In their four-tiered study, Sommet and Elliot measured outcomes as a product of goal orientation, reasoning, goals from reasoning and vice versa, and the “goal complex” (the power of both) from both and vice versa. Ultimately, what they found was that, despite issues around multicollinearity, one-time surveying, unicultural sampling, and choice of outcomes measured, these constructs are both independently viable and symbiotically functional. In other words, do not throw the baby out with the bathwater just yet.

**Middle School as a Turning Point**

Within the goal orientation theory model, there were some notable studies pointing out a glaring moment in the educational journey where students transition away from learning for learning (mastery) and toward learning for performing (performance). The implications for which were indicated in the previous general section, but will be reiterated in these studies.

In an update of their 1989 paper on “stage-environment fit” theory, Eccles et al. (1993) review the literature on early adolescent motivation, the difference between elementary and traditional middle-school environments, the challenges this difference creates, and implications for more research in this area. Across the board, the transition between elementary and a traditional middle school siloed by subjects (ELA, math, etc.) had deleterious consequences. Self-esteem, interest in math, ability beliefs in English, and social activities all decreased. In the review of the differences, they suggest that, “the environmental changes often associated with transition to traditional middle grade schools are likely to be especially harmful since they emphasize competition, social comparison, and ability self-assessment at a time of heightened self-focus” (Eccles et al., 1993, p. 559). Also, choice is minimized while early adolescents
desire freedom, adult relationships are less strong, and cognitive tasks are taxonomically lowered. In the final analysis, they call for restructuring traditional middle schools to ameliorate the shortcomings of this transition.

Midgley et al. (1995) conducted a survey study comparing the school focus between task (mastery) and performance as perceived by elementary students/teachers and middle school students/teachers. Elementary students and teachers indicated that their schools were task (mastery) focused. In contrast, the middle-school students and teachers found their schools to be performance focused. More teachers at the elementary level felt they could have an impact on student learning because they believed the ability to learn was not fixed. The importance of this, aside from adding weight to the negative impact of the transition, is that the climate of the school can influence whether school becomes about learning or performing. As aforementioned in this literature review (Ames and Archer, 1988), this is concerning when such an influence could lead students to use surface-level processing strategies, not challenge themselves, and give up more readily.

Anderman and Midgley (1997) conducted the first longitudinal study to look at the transition to middle school as it relates to goal orientation. Factors of gender, goals, competence, and grades were analyzed to determine whether or not the hypothesized decline in self-concept, grades, and transition from mastery to performance would occur. The answers were mixed and specific for different groups. For example, a significant decline in grades across the transition was seen in low-ability girls and high-ability boys, but not high-ability girls. The perceived environmental change from mastery to performance did occur for all, but did not necessarily change their personal goal orientations. Also, there was a flip flop which was content specific, where math went from mastery to performance focus and English the opposite.
Anderman et al. (1999) conducted a study between two middle schools in the same district who differed significantly in their instructional foci. Alpha Middle School was characterized as using instructional strategies that were more traditional or performance-oriented, whereas Beta Middle School was more task (mastery)-oriented and used multiple strategies that supported student autonomy, such as positive student/teacher relationships, heterogeneous grouping, and flexible scheduling. While the transition into both middle schools was demarcated by a drop in task (mastery) goal emphasis and student’s sense of competence, students in the Beta school had less of a drop. For both schools, however, the finding that students were more performance-oriented in math and English echoes the Anderman and Midgley (1997) study. Also, males tended to be more performance-oriented as compared to females at both schools.

Ten years later in Korea, Bong (2009) conducted a study to test the validity of using Elliot and McGregor’s (2001) 2 x 2 achievement goal framework. She surveyed 1,196 students from early elementary through middle school. Bong found that the framework was valid for all but the youngest age group. She also examined the relationship of these factors with the following variables: self-efficacy, help-seeking avoidance, anxiety, cognitive and self-regulatory strategy use, and math performance. The data collected reaffirm previous work in this area where the transition between lower to mid-elementary and upper elementary to middle school is evident in terms of the higher mean performance orientation of the latter. In this study, middle-school students who were mastery-oriented showed a higher positive correlation with math self-efficacy and performance, and strategy use, whereas they showed a negative correlation with help-seeking avoidance. Performance-oriented students showed a positive correlation with anxiety which was almost equal to students who were performance avoidant. Performance-
avoidant students showed a negative correlation with math achievement. Mastery avoidance had the highest positive correlation to anxiety.

Summary

The research suggests strongly that the ecosystem of a school has a palpable effect on students. Middle school is a time of transition in multiple facets: socially, emotionally, academically, and physically. These factors, native to this age group, are relatively ubiquitous and fixed. However, the influence of these factors is juxtaposed with malleable factors of the delivery of material and feedback loop for and of learning. While there is limited evidence to suggest that the delivery methods improve students mastery orientation, there is no research on how feedback for and of learning can either serve as a proxy of climate or the impact of this on the goal orientations. The next three chapters describe, analyze, and evaluate the impact of grading practices on goal orientations.
CHAPTER III: METHODOLOGY

Introduction and Objectives of the Study

The purpose of this research was to examine the relationship between grading practices and student motivation in terms of goal orientation. This research compared the degree to which a school exhibits learning-centered grading practices against the degree to which students differ in their motivation orientations. A secondary objective of this study was to explore this learning-centered grading practices-student motivation relationship to determine if the relationship differs by grade, gender, race, primary language, after school activity participation, and/or student academic self-perception. The final objective was to determine how school adult motivation orientations impact student motivation orientations or how they feel students should be motivated.

This study was quantitative in nature using an anonymous teacher self-survey and an anonymous student self-survey. Whereas the dimensions collected for each were numerically measured through the use of a seven-point Likert scale, the most effective manner in which to capture these facets of influence against the proposed outcomes of student motivation orientations was through a series of one-way multivariate analysis of covariance (MANCOVA) with follow-up one-way univariate.

Methodology

The following research question(s) were examined in the study:

1. What is the relationship between the degree to which a school uses learning-centered grading practices and student adoption of the four motivation orientations defined in this study?
2. What is the variation in student motivation orientations between schools by grade, race, gender, after school activity participation, and/or student academic self-perception?

3. What is the variation in student motivations between schools by the degree to which adults in the school generally attribute their own learning to one of these motivation orientations or how they believe students should be motivated to learn?

**Hypotheses**

**Hypothesis 1:** Students will be more strongly motivated by learning and/or losing what they have (mastery/mastery avoidance) when their school context is more learning-centered and/or or less traditional. They will be less worried about getting good and/or bad grades (performance/performance avoidance).

**Hypothesis 2:** Schools which are higher in learning-centered grading practices will be higher in mastery and mastery avoidance and lower in performance and performance avoidance, as compared to a more traditional grading school within each demographic.

**Hypothesis 3:** The motivation orientation of educators and their beliefs of how a student should orient themselves will have an in-kind influence on student motivation orientations.

**Sample and Sampling Procedures**

“To understand fully environmental effect on motivation, it is important to seek out schools and classrooms that vary on key environmental characteristics” (Eccles et al., 1993, p. 167). This study took place in four middle schools in two different northern states. Schools were chosen based on a review of written policies around assessment and reporting practices found in their student handbooks. Within each of these schools, teachers were evaluated for both their personal approach to learning and their perceptions of educational practices used systemically and personally in their contexts. In these middle schools, sixth through eighth
graders who were mainstreamed for their core content were surveyed about their motivation orientations toward learning. They were also asked questions about the flexibility of grading practices and attitudes in their schools. In total 1,652 students and 93 educators were surveyed between the four schools.

For all sample populations, a survey was administered electronically through the school administration. These surveys were anonymous and specifically did not collect names. A parent notification was sent out to allow them to opt-out their children. Even still, students had the ability to answer any, all, or none of the survey. This was true for teachers as well. Along with the survey specific information, demographic information was collected. However, all demographic data that could be identifiable was expunged before returning the aggregate data back to the school districts from whom it was collected.

As is explained in the following Data Analysis section of this chapter, only schools 1 and 3 were used for the analysis given that the teacher response rates in School 2 and 4 were found to be too small to compare schools with any confidence.

School 1 is a grade 6 through 8 middle school in the Northwest of the contiguous United States. Grades 7 and 8 are blended, meaning students are grouped together for instruction. This school is situated in a suburb of a greater metropolitan area. They have an average free and reduced lunch percentage of 30%. According to the school administrators, they are in their fourth year of shifting their grading practices from traditional averaging practices to the use of the most recent evidence. In fact, they have developed a computer program which supports teachers and students to track student progress through standards. They separate Habits of Work and Learning (HOWLs) from academics to assure that scores are reflective of the standards alone (academic and behavioral).
School 3 is a grade 5 through 8 middle school in the Northeast of the contiguous United States. Students are taught separately per grade level. They have an average free and reduced lunch percentage of 62%. Another distinguishing feature of School 3 is that they have a relatively large refugee population. The administration qualified this group as being mostly families who were professionals in their countries of origin. This school is also situated in a suburb of a greater metropolitan area and separate HOWLs from academics. In their student handbook, they indicate that HOWLs and achievement on standards are reported in terms of progress toward each. However, the administration was not confident on how well their staff was doing in terms of fidelity to this new grading practice of separation.

Instrumentation

As learning-centered grading practices is a term unique to this dissertation, standards-based education has also been used as a proxy. Even still, there has been limited attempts to operationalize a definition for standards-based education and thus create a tool to measure this type of education (Guskey, personal communication, July 8, 2018). However, there were two very similar instruments found that measure similar components of a standards-based education. From these was adapted a survey, which was administered to teachers, that reflects the definition which was arrived at from the overlapping characteristics described in the operational definitions section of Chapter 2. There were some researcher-created questions included as well. The final teacher survey consisted of a total of 48 questions: eight demographic questions, 23 grading questions, one question on the purpose of homework, seven classroom climate questions inclusive of a question about teacher self-efficacy, four questions about goal orientation for the teacher, and five questions about student goal orientations from the teacher perspective. A
description of the validation process and reliability of the two adapted tools, from which the majority of these questions were pulled, are addressed in the sections that follow.

In 2013-14, the Nellie Mae Education Foundation supported the development of a survey called the CBE (Competency-Based Education) 360. The American Institutes for Research (AIR) developed this survey to measure the depth of implementation of competency-based strategies in schools. This instrument is one of the only tools having been developed to measure such practices and “shows promise” in terms of validity and reliability. There were no published validity data. However, the Cronbach’s alpha for most of the items measure at or above .70 in a factor analysis which is a strong measure of reliability. In terms of validity, the AIR reported that there was a distinct ability to group items into six distinct areas: Learning Targets, Measuring of Learning, Instructional Approaches and Supports, Assessment of Learning, Pacing and Progress, and When/Where Learning Takes Place (Hayes et al., 2016).

The other instrument used was created by the Regional Educational Laboratory Northeast and Islands for the Institute of Education Sciences. While they do not give the same specific data for each item, as does the AIR survey, they do substantiate the process by which they assure the “useful, valid, and reliable” data without publishing the quantitative data. The process was as follows: the study committee created an abundance of items, an advisory committee gave feedback, the study committee edited, this process was repeated multiple times, cognitive interviews were performed with seven students after they completed the first draft of the survey, and this information led to a final edit of the survey by the committees (Ryan et al., 2016). Although this survey instrument was created for student use, it provided a useful confirmation for items picked to create an adapted teacher survey.
The student survey about motivation orientations was adopted from the work of Elliot and McGregor (2001). This was a rework from the original trichotomous survey to a 2x2 framework for goal orientation. In their analysis, they were able to substantiate successful the construct validity and reliability of this updated version of the motivation orientation survey. In other words, the four clusters of questions asked yielded a reliable pattern of results that were distinct from each other. In addition to this updated survey, students were asked for demographic data. They were asked these questions to examine the possible interaction between these motivation orientations, after school activities involvement, and self-concept as a student. Finally, students were asked about their school climates as an additional weight for factoring how flexible their schools are in terms of grading and support.
Data Analysis

The Impact of Assessment Practices on Motivation Orientations

All data were analyzed using IBM SPSS 2019 version 26 statistical software.
Teacher Data Analysis Plan

As there was limited data on the validity and reliability of the two surveys used to create the teacher survey, and as there were two surveys altered to form one, a factor analysis was used to determine if the newly formed survey had an underlying simple structure. Next, each individual question was measured using an ANOVA with a post hoc Bonferroni correction to determine if there were between school differences. Then, Individual Sample t tests were performed to determine the schools who did differ using a Cohen’s d to determine the effect of the difference. Finally, these schools, as independent variables, who were found to be different were analyzed through a MANCOVA to determine if the question item(s) upon which they differed, as dependent variable(s), was(were) still significant after being controlled for the differing demographics (e.g., race, gender, teaching experience, grades taught, and subjects taught), as covariates. In essence, was it the school that made any differences or the teacher demographics making the differences?

In the teacher survey, there were so few respondents that it was important to retain as much data as possible. Therefore, all responses were preserved. Only Schools 1 and 3 gave all of their teachers the ability to complete the survey during professional development time.

Table 3.1

<table>
<thead>
<tr>
<th>School</th>
<th>Total Number</th>
<th>Percentage Core Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>37</td>
<td>96</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>29</td>
</tr>
</tbody>
</table>

Note: Core Content refers to English Language Arts, Mathematics, Science, and Social Studies
This yielded a high response rate for School 1 (N=36) and School 3 (N=37). The other two schools were not given professional development time and represented relatively low response rates: School 2, N=9 and School 4, N=13. A distinction is made in Table 1 to quantify “core content” teachers. The purpose of illuminating this is to acknowledge that special education teachers have individualized programs which track student progress per their Individualized Education Plans (IEPs) and “allied arts” teachers (e.g., art, music, physical education, world language) tend to see all students and for substantially less time. It is quite common for these groups of teachers to utilize grading strategies which are more learning-centered and/or their effects on students would be spread equally across multiple grade levels. So, it was determined that Schools 2 and 4 did not have sufficient enough return rates from their core content teachers to prevent a large skew in results, nor would the total number of cases in each school allow for a justifiable comparison. Therefore, only the data from schools 1 and 3 were used for the purposes of this dissertation.

**Student Survey Data Analysis Plan**

In the student survey, four methods of data cleaning were used: exclusion for erroneous responses, exclusion for “straight-lining”, exclusion using the Mahalanobis Distance to detect outliers, and exclusion listwise for incomplete data. In 1981, Herzog and Bachman coined the term “straight-line” responses as it relates to questionnaires. They defined it as “an increased tendency to use an identical category for all items” (p. 551). In this study, there were 12 questions representing four constructs (three questions per construct). It was reasoned based on previous studies that it would be unlikely for anyone to answer equally for all four constructs. Therefore, anyone who answered the same for six or more questions was considered a
“straightliner” and their data was excluded. The Mahalanobis Distance is used to detect extraneous data points by using distance from the centroid of a dataset measuring multiple variables. This was calculated for each case. A predictive outlier analysis was conducted using this distance to exclude those cases. Erroneous responses were any response which could not be verified as legitimate. For example, under the demographic “Gender” a student responded “Apache Attack Helicopter”. After a cursory search online, it was found that this response was not valid. It was then assumed that respondents such as this would not take the rest of the survey seriously. Thus, they were excluded. Finally, listwise exclusions for incomplete data are reported where applicable. Before the data cleaning was undertaken the total N=948 (School 1 = 496, School 3 = 452). After the data cleaning was complete the total N=712 (School 1 = 378, School 3 = 334); a yield of 75% of the original data set. Again, Schools 2 and 4 were left out of this analysis as there is no legitimate manner in which to compare their teacher scores against the other schools, thus the student scores were deemed equally incomparable.

Next, a MANCOVA was run on for students in Schools 1 and 3 as a whole controlling for grade level, race, gender, primary language, after school activity participation, and student academic self-perception. This was conducted to determine the relationship between the four motivation orientations as dependent variables and two schools as independent variables. A follow-up ANCOVA with a Bonferroni correction was carried out for each metric yielding a statistically significant result. This same process was followed separately within each school.

Finally, a cross comparison of schools was made to determine how schools differed grading practices-wise and the motivation outcomes for students based on grade level, race, gender, primary language, after school activity participation, and student academic self-perception. Not only is this comparison between school (females in School 1 versus females in
School 3), but between each school’s unique within school differences (e.g., how the three genders differ in School 1 versus School 3).

**Delimitations of the Study**

There are a couple of delimitations for students in this study. The first is having students take a survey once in the middle of the academic year. This has the potential to produce results that are more a snapshot of that moment in the year. Although this gives us an idea of whether or not there are differences between the schools, it makes it difficult to say for certain that students have a steadfast difference in how they are motivated toward or away from learning. Also, the purpose of this survey is to see how broad-based practices affect student motivation overall, the generality of “how do you approach learning”, as measured by the survey, may not be a true reflection of how students motivate themselves to learn in any specific context (i.e., math class, ELA class, etc.).

For teachers, this study pulls from two similar surveys to codify teacher perception of practices deemed “standards-based;” there is no professional agreement for what constitutes standards-based education (Guskey, personal communication, July 8, 2018). As was laid out in the literature review, there is a lineage of educational programs which all approximate a version of standards-based education. However, this study does not distinguish between these programs, nor does it determine which practices in these programs are linked to differing levels of student motivation. Therefore, the limit for usefulness of this study is predicated on the selection of those practices which best represent a standards-based philosophy as hence defined and as best represented with those data that show a difference between schools.

In terms of the environment of this study, it is the assumption that grading practices equates to a distinct ethos for learning. The hypothesis is that schools that align with more
learning-centered grading practices produce students who are more mastery and less performance-oriented and less avoidance focused, vice versa in a more traditional school. However, there may be a hidden curriculum of messaging which permeates a school from inside and outside around the value of a traditional model versus a learning-centered model. Through the survey, this messaging may not be caught due to a propensity for a response bias. For example, teachers who know the school policy may feel compelled to answer aligned with the policy regardless of their actual practices. Students in the pilot asking things such as, “is wanting to do better than someone mean?”, show this natural proclivity.

**Limitation of the Study**

A large limitation of this study is the inability to recruit schools. Despite 50 email communications to 50 unique schools, ten phone conversations to another ten unique schools, only four schools were willing to participate. For the email communication, it was quite common to get one email back but never a second. The phone conversations ended in either one of two ways, schools did not have the time or they needed affirmative parental consent and student assent. This left four schools who graciously agreed to be a part of this study. All of these schools contended via self-description in their student handbooks that they were “proficiency-based,” yet only School 1 defined it in terms of grading practices which differed from the traditional practice of averaging all scores. All schools claimed to separate HOWLs from academic scores in their literature. Therefore, it was decided that there may be enough of a difference between schools to continue.

A limitation that was controlled for the best way it could be was the difference in socio-economic status. While all the schools were of a similar size, their populations differed significantly by socio-economic status. In a pilot study, it was determined that students at the
middle-school level did not know the level of schooling their parents had attained, nor could they reliably tell what their parents did for a living. Sirin (2005) confirms this in his meta-analysis on the effect of socioeconomics on student achievement. He found, “when students provided the data about their family’s SES, the magnitude of the relationship between SES and academic achievement was the smallest” (p. 439). Therefore, these questions were left off the student survey. However, administration did give aggregate numbers for free and reduced lunches. This was used as a contextual piece in examining the findings.
CHAPTER IV: FINDINGS

Teacher Survey Dataset

As stated in the previous chapter, the tool for measuring teacher grading practices was a survey comprised of 30 questions of which 23 were directly related to grading practices. These questions were adopted from their original surveys based on the relevance to grading and the commonality of questions between the two surveys. Due to this, it was prudent to first run a principal components analysis (pca) to determine if there was a substantial underlying framework that would adequately delineate grading practices into meaningful factors. The analysis was set-up to extract factors based on Eigenvalues greater than 1 with varimax rotation of whose coefficients were suppressed if smaller than 0.30. The initial attempt produced one variable of the 23 which did not have a correlation whose absolute value was above 0.3 with at least one other variable (EvidenceBasedGrading) and was thus removed from the analysis. Upon rerunning, there were seven factors with Eigenvalues greater than 1, all of which accounted for 65% of the variance. This run was not sufficient in yielding results whose factors were readily apparent. The primary reason for this was the abundance of multiple loadings.

The next run would have been informed by the initial scree plot, however an inflection point was not obvious.
That being the case, there is a rule some statisticians use where the percentage of the variance explained by each factor cannot be less than 10 (Urdan, 2017). This required only two factors to be used which explained 18.1% and 14.2% of the variance (32.3% total variance). A forced factoring of 2 was run to determine if this would produce an understandable result. When thinking about the purpose of the study and analyzing the survey questions, it became clear that there were two factors around which this study was centered; Learning-Centered Grading questions and Tradition grading questions. For example, factored separately was a question asking, “Assessments or parts of assessments are able to be taken again for full credit.” and a reversed scored question “Scores (academic and/or behavior) are reduced if students reassess (for
example: averaged with the old score.” Upon analyzing the Rotated Component Matrix, it was decided that two factors do indeed delineate between these grading paradigms. One of the questions loaded in both factors (ExtraCreditGiven) and one did not produce a coefficient greater than 0.30 (OnePaceClass); thus, they were eliminated from the groupings with each grouping left with 10 variables each.

Next, a reliability check was conducted to assure these two groups of ten each had the highest internal consistency value possible. Both groups started with a Cronbach’s α just over 0.50, anything much under 0.70 is not considered acceptable (Urdan, 2017). The Learning-Centered Grading scale ended up with a Cronbach’s α= 0.76 after removing one of the variables (TeacherAssessOnly), while the Traditional Grading scale had a Cronbach’s α = 0.73 after removing three of the variables (GroupWorkNotInc, Reassess FullCredit, HOWLsSeparate).

This resulted in the creation of a Learning-Centered Grading variable comprised of nine variables (IndividualizedGoals, CoCreatedRubrics, FormativeFeedback, MustShowProfB4MovingOn, AssessOptions, StudentTracking, Able2MoveOnB4Others, ClearAssessTarget, Differentiation) and a Traditional Grading variable comprised of seven variables (LateWorkPenalty, MissingWorkPenalty, HomeworkIncluded, StandardizedScoring, ReassessPenalty, Cheating Penalty, ProfJudge). Combining each of their respective variables and dividing by the total number of variables used in each of the groups the respective singular variable was created. Both of these newly derived variables were explored to determine if the data were normal for both schools. Across the board, the preliminary test of normality, Kolmogorov-Smirnov, was not significant. However, School 3 had an outlier (case numbers 310) which was removed without changing the normality or producing further outliers.
School 1 teachers \((N = 37)\), as compared to School 3 \((N = 35)\), had lower averages when answering Traditional Grading questions \((M = 3.43, 3.78\) respectively). As for Learning-Centered Grading questions, School 1, as compared to School 3, teachers had lower averages \((M = 4.45, 4.50)\) respectively. Independent t tests were used to compare the two grading types, Traditional Grading and Learning-Centered Grading, for these groups of teachers from these two schools. The assumptions of homogeneity of variances was met using the Levene’s F test, \(F(70) = 0.32\) and 1.99, \(p = .575\) and .162 respectively. Therefore, equal variances are assumed in both cases. Neither the Traditional Grading variable nor the Learning-Centered Grading variable produced a significant \(t\) value, \(t(70) = -1.38\) and -0.31, \(p < 0.171\) and 0.755 respectively. The difference between the means were not statistically significant.

A deeper analysis was conducted to determine if the individual questions differed between these two schools. Each of the 23 grading practice questions were compared between schools. After exploring the data by question, it was determined that, across the board, the preliminary test of normality, Kolmogorov-Smirnov, was significant. This generally indicates non-normal data and necessitates a non-parametric version of the \(t\)-test. However, de Winter and Dodou (2010) discovered, through their simulation study of various distribution datasets measured using a 5-point Likert scale, that using the parametric or nonparametric analysis was equally valid. The only caveat was to run both to assure that they indicate significant differences for the same datasets being measured because there are a very few exceptions. Similar results were found by both researchers who use computer simulated data and real-world data (Norman, 2010; Mircioiu & Atkinson, 2017). These studies found that large datasets \((N>30)\) yield equivalent results due to the Law of Large Numbers which states that the more trials you have the closer to the actual value of a variable you will get. As the datasets to be compared in this
study are just above the “greater than 30 cases” mentioned in these studies, both nonparametric and parametric tests will be checked out of an abundance of caution. However, parametric tests alone will be used when analyzing the student datasets due to the N from each school being seven to ten times larger than necessary to allow for such a decision to be made.

The Mann-Whitney U tests and the Independent Samples t tests produced the same results in terms of finding a significant difference between the two schools. Only three of the questions produced a significant difference: “Scores (academic and/or behavior) are reduced if students reassess (for example: averaged with the old score).”, “Extra credit or bonus points are awarded on assessments.”, and “Student scores are based on the most recent evidence and NOT averaged.” School 1 teachers (N = 37), as compared to School 3 (N = 36), had lower averages when answering the Reassessment Penalty and Extra Credit questions (M = 2.22, 1.89 versus M = 3.17, 3.83, respectively). As for the Evidence Based question, School 1, as compared to School 3, teachers had higher average (M = 5.30, 3.61 respectively). Independent t tests were used to compare for the purposes of this study. The assumptions of homogeneity of variances was met using the Levene’s F test for both the Reassessment Penalty and Evidence Based questions, F(71) = 3.75, 0.85, p = .057 and .359 respectively. Therefore, equal variances are assumed in both cases. However, assumptions of homogeneity of variances were not met for the Extra Credit question, F(59.35) = 8.45, p = .005, so equal variances are not assumed. The analysis of the Reassessment Penalty, Extra Credit, and Evidence Based questions did produce significant t values respectively: t(71) = -2.763, p<.007; t(59.35) = -4.901, p<.000; t(71) = 4.951, p<.000. The effect size of these differences, as measured by Cohen’s d, was estimated at 0.65, 1.15, and 1.16, respectively. The Reassessment Penalty had a moderate effect size, whereas the Extra Credit and Evidence Based questions were large.
Finally, a MANCOVA was used to determine if any of the demographic variables would interact in such a way as to create nonsignificant findings amongst the three dependent variables (Reassess Penalty, Extra Credit Given, Evidence Based Grades). In this way, the two schools are analyzed on a more even playing field and conclusions can be more confidently made. The original covariates were: Teaching Experience with the School, Total Teaching Experience, Grade(s) Taught, Subject Area Taught, Highest Degree Attained. Grade(s) Taught were eliminated from the analysis because one school lost four cases due to listwise exclusion. However, it should be noted that this was decided because it did not change the outcome. Table 1 shows the means and adjusted means for each dependent variable. There was a statistically significant difference between schools on the combined dependent variables after controlling for the previously mentioned demographic data, \( F(3, 65) = 16.746, p < 0.001, \) Wilks’ \( \Lambda \) =0.564, partial \( \eta^2 = 0.436. \)

Table 4.1


<table>
<thead>
<tr>
<th>Grading Practices</th>
<th>School 1</th>
<th></th>
<th>School 2</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reassessment Penalty</td>
<td>Extra Credit Given</td>
<td>Evidence Based Grading</td>
<td>Reassessment Penalty</td>
<td>Extra Credit Given</td>
<td>Evidence Based Grading</td>
</tr>
<tr>
<td>School 1</td>
<td>M (SD)</td>
<td>M_adj</td>
<td>M (SD)</td>
<td>M_adj</td>
<td>M (SD)</td>
<td>M_adj</td>
</tr>
<tr>
<td>1</td>
<td>2.23 (1.27)</td>
<td>2.23 (0.25)</td>
<td>1.89 (1.27)</td>
<td>1.92 (0.26)</td>
<td>5.30 (1.27)</td>
<td>5.27 (0.24)</td>
</tr>
<tr>
<td>3</td>
<td>3.17 (1.65)</td>
<td>3.15 (0.25)</td>
<td>3.83 (2.01)</td>
<td>3.80 (0.27)</td>
<td>3.61 (1.63)</td>
<td>3.64 (0.25)</td>
</tr>
</tbody>
</table>

An ANCOVA was performed to verify that these Grading Practices are mutually exclusive and statistically significantly different after controlling for the same demographics as the MANCOVA. After adjusting for demographics, statistically significant differences remained
the same for Reassessment Penalty \((F(1, 66) = 7.801, p = 0.007, \text{partial } \eta^2 = 0.106)\), Extra Credit Given \((F(1, 66) = 23.07, p < 0.001, \text{partial } \eta^2 = 0.259)\), and Evidence Based Grading \((F(1, 66) = 20.80, p < 0.001, \text{partial } \eta^2 = 0.240)\). Post hoc analysis with a Bonferroni adjustment, where \(p < 0.0167\), yielded the following results: Reassessment Penalty average was significantly lower in School 1 versus School 3 \((M_{\text{diff}} = -0.974, 95\% \text{ CI } [-1.671, -0.278], p = 0.007)\), Extra Credit Given average was significantly lower in School 1 versus School 3 \((M_{\text{diff}} = -1.833, 95\% \text{ CI } [-2.594, -1.071], p < 0.001)\), and Evidence Based Grading was significantly higher in School 1 versus School 3 \((M_{\text{diff}} = 1.609, 95\% \text{ CI } [0.904, 2.313], p < 0.001)\).

There were two other comparisons to be made between these schools. One was on teacher self-reporting of their Motivation Orientations as measured on a Likert scale by one question per orientation. Similarly measured was the teacher’s opinions on how a student should be motivated. The distinction being that there were two questions related to Performance Orientation that were combined into one variable score: “Students should focus on doing as well or better than their peers.” and “Students should focus on getting good scores.” School 1 had lower means versus School 3 on Mastery, Performance, and Performance Avoidance, but were higher on Mastery Avoidance \((M = 5.73, 5.54, 5.81, 4.14 \text{ versus } M = 5.97, 5.56, 5.88, 3.86)\). As in the previous analysis, Independent \(t\) tests are reported here, after assuring that the Mann-Whitney \(U\) tests produced the same findings of significance. The assumptions of homogeneity of variances was met using the Levene’s \(F\) test for all four motivation orientations, \(F(71) = .004, .095, 1.27, .121, p = .948, .759, .265, \text{ and } .729\) respectively. Therefore, equal variances are assumed in all cases. The analysis did not produce significant \(t\) values, \(t(71) = -1.06, -0.4, -0.23, .72, p < .294, .965, .820, .247\), respectively.
In terms of how they marked how students should orient themselves in the four categories, the same process was followed comparing the Mann-Whitney U tests to the Independent t tests yielding the same findings of significance. Therefore, the Independent t tests results for Mastery, Performance, Performance Avoidance, and Mastery Avoidance are as follows: assumptions of homogeneity of variances was met using the Levene’s F test for all four motivation orientations, \( F(71) = .98, .12, 1.05, .43, \ p = .326, .726, .309, \) and .516 respectively. Therefore, equal variances are assumed in all cases. The analysis again did not produce significant t values, \( t(71) = .40, -.30, .88, -.15, \ p < .689, .765, .384, .880, \) respectively. There were no significant differences between schools on how teachers ranked themselves for the different motivation orientations, nor how they ranked how students should be motivated.

**Student Survey Dataset**

As with the teacher analysis, the variables for Mastery, Performance, Performance Avoidance, and Mastery Avoidance are not normally distributed within these school datasets on the whole. However, due to the Law of Large Numbers, all analyses were done using parametric tests. An exploratory factorial analysis was conducted for the 12 Motivation Orientation questions for student data on the whole and separated by schools (inclusive of School 2 and 4). This was done with all data and cleaned data. As previously stated, the data sets were cleaned in four ways (Straight-lining, Mahalanobis Distance Prediction of Outliers, Erroneous Responses, and Missing Data Listwise). Each way produced the same results which are reflected in Elliot and McGregor’s (2001) validation and reliability study. Table 4 holds a summary of the ANCOVA analyses for the student data in this next section. The final section ends with a table which is a combination of two tables for used to summarize the differences within each school as also measured by through multiple ANCOVA analyses.
Table 4.2

*Motivation Orientations by Demographic when Controlling for All Others where School 3 had a Statistically Significantly Higher Average*

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>No diff</td>
<td>+</td>
<td>No diff</td>
<td>+</td>
</tr>
<tr>
<td>Grade Level</td>
<td>7th</td>
<td>6th</td>
<td>6th</td>
<td>6th</td>
</tr>
<tr>
<td>Gender</td>
<td>Other Than Male</td>
<td>Other Than Male</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>No diff</td>
<td>OT</td>
<td>OT</td>
<td>White, OT</td>
</tr>
<tr>
<td>Primary Language</td>
<td>No diff</td>
<td>English</td>
<td>No diff</td>
<td>English</td>
</tr>
<tr>
<td>After School Activity Involvement</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Student Academic Self Perception</td>
<td>No diff</td>
<td>No diff</td>
<td>Work</td>
<td>Work</td>
</tr>
</tbody>
</table>

Note: School 1 had only one adjusted mean score higher than School 3 (Mastery by Race-White). All other means and adjusted mean scores were lower for School 1. Statistical Significance was measured at $p < 0.05$ except for School which was adjusted $p < 0.0083$.

As with the teacher data set, a MANCOVA was carried out to best control for population differences in terms of demographics (covariates are Race, Primary Language, Gender, Grade Level, After School Activity Involvement, and Student Academic Self Perception). This allows us to see if, on the whole, the different schools alone have an impact on student motivation orientations. The dependent variables being measured are Mastery, Performance, Performance Avoidance, and Mastery Avoidance. Table 2 shows the means and adjusted means for each dependent variable. There was a statistically significant difference between schools on the
combined dependent variables after controlling for the aforementioned demographic data, \( F(4, 675) = 3.330, p = 0.010, \) Wilks’ \( \Lambda = 0.981, \) partial \( \eta^2 = 0.019. \)

Table 4.3

Means, Adjusted Means, Standard Deviations and Standard Errors for the Four Motivation Types for Each School

<table>
<thead>
<tr>
<th>Motivation Orientation</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>School (N)</td>
<td>M (SD)</td>
<td>M_{adj} (SE)</td>
<td>M (SD)</td>
<td>M_{adj} (SE)</td>
</tr>
<tr>
<td>1 (378)</td>
<td>4.90 (1.29)</td>
<td>4.96 (0.06)</td>
<td>3.79 (1.60)</td>
<td>3.89 (0.09)</td>
</tr>
<tr>
<td>3 (308)</td>
<td>5.13 (1.15)</td>
<td>5.08 (0.07)</td>
<td>4.33 (1.66)</td>
<td>4.22 (0.09)</td>
</tr>
</tbody>
</table>

Note: \( N = \) sample size

A follow-up univariate one-way ANCOVA was performed for each dependent variable to determine which individual variable or variables were statistically different using the same covariates as in the MANCOVA. A Bonferroni adjustment was made so statistical significance was accepted at \( p < 0.0083. \) There were statistically significant differences in adjusted means for Performance \( (F(1, 678) = 17.768, p = 0.006, \) partial \( \eta^2 = 0.011), \) and Mastery Avoidance \( (F(1, 682) = 8.520, p = 0.004, \) partial \( \eta^2 = 0.012). \) However, there were no statistically significant differences in adjusted means for Mastery \( (F(1, 678) = 1.482, p = 0.224, \) partial \( \eta^2 = 0.002 \)) and Performance Avoidance \( (F(1, 678) = 4.492, p = 0.034, \) partial \( \eta^2 = 0.007). \) The adjusted means for Performance and Mastery Avoidance motivation orientations were statistically significantly
higher for School 3 versus School 1, but there was no statistically significant difference for Mastery or Performance Avoidance (see Table 4.3).

Table 4.4

Pairwise Contrasts for Adjusted Means for Four Motivation Types for Schools 1 and 3

<table>
<thead>
<tr>
<th>Motivation Orientation</th>
<th>Difference in adjusted means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School 3 vs School 1</td>
</tr>
<tr>
<td>Mastery</td>
<td>0.182 (-0.005, 0.370)</td>
</tr>
<tr>
<td>Performance</td>
<td>0.337 (0.099, 0.575)*</td>
</tr>
<tr>
<td>Performance Avoidance</td>
<td>0.206 (0.015, 0.397)</td>
</tr>
<tr>
<td>Mastery Avoidance</td>
<td>0.324 (0.106, 0.542)*</td>
</tr>
</tbody>
</table>

Note. *= statistically significant difference ($p < 0.0083$) based on Bonferroni adjustment; 95% confidence interval (CI) is simultaneous confidence interval based on Bonferroni adjustment.

Demographic Differences Between Schools

To see if and how each demographic category differed between schools, ANCOVAs were run by category controlling for all other demographic variables. Overall, unadjusted means and adjusted means were lower for School 1 versus School 3 for each Motivation Orientation. This is readily seen in the tables generated for each demographic. There is only one exception where the adjusted means for the Mastery for the “White” race demographic is only slightly higher for School 1 versus School 3 (adjusted mean difference = 0.01).
Grade Level

Table 4.5

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by Grade Level

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance</th>
<th>Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Grade Level</td>
<td>School (N)</td>
<td></td>
<td>(SE)</td>
<td>(SE)</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>6</td>
<td>1 (137)</td>
<td>5.26 (1.28)</td>
<td>3.60 (1.57)</td>
<td>4.82 (1.25)</td>
</tr>
<tr>
<td></td>
<td>3 (114)</td>
<td>5.32 (1.07)</td>
<td>4.49 (1.72)</td>
<td>5.15 (1.24)</td>
</tr>
<tr>
<td>7</td>
<td>1 (114)</td>
<td>4.63 (1.19)</td>
<td>3.82 (1.64)</td>
<td>4.91 (1.40)</td>
</tr>
<tr>
<td></td>
<td>3 (108)</td>
<td>5.05 (1.15)</td>
<td>4.15 (1.63)</td>
<td>5.13 (1.19)</td>
</tr>
<tr>
<td>8</td>
<td>1 (127)</td>
<td>4.76 (1.32)</td>
<td>3.96 (1.58)</td>
<td>5.01 (1.29)</td>
</tr>
<tr>
<td></td>
<td>3 (86)</td>
<td>4.99 (1.22)</td>
<td>4.33 (1.60)</td>
<td>5.19 (1.25)</td>
</tr>
</tbody>
</table>

An ANCOVA was performed to detect differences in the four different motivation orientations between schools in terms of grade level when controlling for gender, race, primary language, after school activity participation, and student academic self-perception. Only the 7th grade was statistically significantly different in terms of Mastery, $F(1, 215) = 4.363, p = 0.038$, partial $\eta^2 = 0.020$. School 3 had a statistically significantly higher student self-report on Mastery Orientation than did School 1, an adjusted mean difference of 0.331, 95% CI [0.019, 0.642], $p =$
In terms of the three remaining Motivation Orientations (Performance, Performance Avoidance, Mastery Avoidance), only 6th graders were statistically significantly different, $F(1, 244) = 13.193, p < 0.001$, partial $\eta^2 = 0.051$; $F(1, 244) = 6.452, p = 0.012$, partial $\eta^2 = 0.026$; $F(1, 244) = 12.574, p < 0.001$, partial $\eta^2 = 0.049$. As with the Mastery Orientation, the adjusted mean differences were statistically significantly higher for School 3 versus School 1: $0.744, 95\% \text{ CI } [0.341, 1.147], p < 0.001$; $0.389, 95\% \text{ CI } [0.087, 0.691], p = 0.018$; $0.619, 95\% \text{ CI } [0.275, 0.963], p < 0.001$.

**Gender**

In the student survey, students were asked to identify in one of five ways: Female, Male, Transgender/gender-noncomforming/non-binary, Other, or Don’t Want to Answer. Due to the very small $N$ in the options other than Female and Male, the data were transformed to create one variable labeled “Other Than” which provided a large enough $N$ in both schools to confidently compare against the other two gender variables. Also, this $N$ for each school represented 6% of the school population which is extremely high when, as reported on national surveys, the expected percentage nationally is 0.58% (Flores et al., 2016). However, in 2017 Gay & Lesbian Alliance Against Defamation (GLAAD) contracted with Harris Poll to conduct a poll in which 12% of individuals between the ages of 18-34 identified as transgender or gender non-conforming. This, and the uniformity between the schools, lends credence to the decision to analyze this population between schools and against their cis-gender peers within their own schools.
Table 4.6

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>School (N)</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (SD)</td>
<td>M adj (SE)</td>
<td>M (SD)</td>
<td>M adj (SE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1 (180)</td>
<td>4.95</td>
<td>5.01</td>
<td>3.95</td>
<td>5.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.28)</td>
<td>(0.09)</td>
<td>(1.47)</td>
<td>(1.24)</td>
</tr>
<tr>
<td></td>
<td>3 (138)</td>
<td>5.29</td>
<td>5.23</td>
<td>4.20</td>
<td>5.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.14)</td>
<td>(0.10)</td>
<td>(1.71)</td>
<td>(1.26)</td>
</tr>
<tr>
<td>Male</td>
<td>1 (172)</td>
<td>5.00</td>
<td>5.06</td>
<td>3.72</td>
<td>4.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.25)</td>
<td>(0.09)</td>
<td>(1.66)</td>
<td>(1.36)</td>
</tr>
<tr>
<td></td>
<td>3 (146)</td>
<td>5.01</td>
<td>4.94</td>
<td>4.44</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.14)</td>
<td>(0.10)</td>
<td>(1.62)</td>
<td>(1.21)</td>
</tr>
<tr>
<td>Other Than</td>
<td>1 (26)</td>
<td>3.90</td>
<td>3.94</td>
<td>3.17</td>
<td>4.42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.24)</td>
<td>(0.25)</td>
<td>(1.89)</td>
<td>(1.19)</td>
</tr>
<tr>
<td></td>
<td>3 (24)</td>
<td>4.94</td>
<td>4.90</td>
<td>4.35</td>
<td>5.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.15)</td>
<td>(0.26)</td>
<td>(1.63)</td>
<td>(0.93)</td>
</tr>
</tbody>
</table>

In terms of Gender when controlling for all other variables, student identifying in the “Other Than” category from School 3 had a statistically higher average for Mastery, $F(1, 43) = 6.694, p = 0.013$, partial $\eta^2 = 0.135$, adj M diff $= 0.965$ CI $[0.213, 1.717], p = 0.013$, and Performance Avoidance, $F(1, 43) = 5.957, p = 0.019$, partial $\eta^2 = 0.122$, adj M diff $= 0.800$ CI $[0.139, 1.461], p = 0.019$. Male identifying students from School 3 had statistically higher average for Performance, $F(1, 311) = 7.959, p = 0.005$, partial $\eta^2 = 0.025$, adj M diff $= 0.520$ CI $[0.157,
0.883], \( p = 0.005 \), and Mastery Avoidance, \( F(1, 311) = 6.398, p = 0.012 \), partial \( \eta^2 = 0.020 \), adj M diff = 0.420 CI [0.093, 0.747], \( p = 0.012 \). Females did not differ statistically between schools.

**Race**

Table 4.7

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by Race*

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Race</th>
<th>School (N)</th>
<th>Mastery (M) (SD)</th>
<th>Mastery (Madj) (SE)</th>
<th>Performance (M) (SD)</th>
<th>Performance (Madj) (SE)</th>
<th>Performance Avoidance (M) (SD)</th>
<th>Performance Avoidance (Madj) (SE)</th>
<th>Mastery Avoidance (M) (SD)</th>
<th>Mastery Avoidance (Madj) (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>1 (261)</td>
<td>4.99 (1.28)</td>
<td>5.00 (0.07)</td>
<td>3.87 (1.59)</td>
<td>3.91 (0.10)</td>
<td>5.05 (1.27)</td>
<td>5.06 (0.07)</td>
<td>3.83 (1.47)</td>
<td>3.81 (0.09)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (186)</td>
<td>5.02 (1.14)</td>
<td>4.99 (0.08)</td>
<td>4.21 (1.74)</td>
<td>4.15 (0.11)</td>
<td>5.14 (1.17)</td>
<td>5.14 (0.09)</td>
<td>4.10 (1.31)</td>
<td>4.12 (0.10)</td>
</tr>
<tr>
<td></td>
<td>Other Than</td>
<td>1 (117)</td>
<td>4.71 (1.30)</td>
<td>4.84 (0.11)</td>
<td>3.60 (1.59)</td>
<td>3.77 (0.15)</td>
<td>4.58 (1.34)</td>
<td>4.65 (0.12)</td>
<td>3.88 (1.45)</td>
<td>3.86 (0.14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (122)</td>
<td>5.31 (1.14)</td>
<td>5.19 (0.11)</td>
<td>4.51 (1.51)</td>
<td>4.34 (0.14)</td>
<td>5.17 (1.30)</td>
<td>5.11 (0.12)</td>
<td>4.23 (1.42)</td>
<td>4.26 (0.13)</td>
</tr>
</tbody>
</table>

The ANCOVAs for Race was statistically significantly different for the categories of students who identified as other than white to include American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino/Latina, Native Hawaiian or Other Pacific Islander, More than one, or a non-white write-in. As with gender, this provided the biggest N with which to run a comparison. The adjusted means for each orientation were statistically higher for School 3 versus School 1: Mastery - \( F(1, 232) = 4.575, p = 0.033 \), partial \( \eta^2 = 0.019 \), adj M diff = 0.351 CI [0.028, 0.674], \( p = 0.033 \); Performance - \( F(1, 232) = 7.066, p = 0.008 \), partial \( \eta^2 = 0.030 \), adj
M diff = 0.569 CI [0.147, 0.990], p = 0.008; Performance Avoidance - \( F(1, 232) = 6.399, p = 0.012 \), partial \( \eta^2 = 0.027 \), adj M diff = 0.459 CI [0.101, 0.816], p = 0.012; Mastery Avoidance - \( F(1, 232) = 4.055, p = 0.045 \), partial \( \eta^2 = 0.017 \), adj M diff = 0.400 CI [0.009, 0.791], p = 0.045.

For the category white, Mastery Avoidance was the only motivation category for which School 3 had a higher average, \( F(1, 440) = 5.379, p = 0.021 \), partial \( \eta^2 = 0.012 \), adj M diff = 0.311 CI [0.047, 0.575], p = 0.021. No other Motivation Orientation was statistically significantly different.

**Primary Language**

School 1 also had more students whose Primary Language was English (N=362) versus School 3 (N=258). School 1 (N=16) had more students who spoke multiple languages at home inclusive of English (MIE) versus School 3 (N=6). Therefore, it is with very low confidence that the between schools results for MIE are reported. Although, there was no comparison, it is important to note that only School 3 had students whose primary language spoken at home was Other Than English (OTE) (N=44).

Table 4.8

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by Primary Language*

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Gender</th>
<th>School (N)</th>
<th>Mastery M (SD)</th>
<th>Mastery M_adj (SE)</th>
<th>Performance M (SD)</th>
<th>Performance M_adj (SE)</th>
<th>Performance Avoidance M (SD)</th>
<th>Performance Avoidance M_adj (SE)</th>
<th>Mastery Avoidance M (SD)</th>
<th>Mastery Avoidance M_adj (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 (362)</td>
<td>4.91 (1.30)</td>
<td>4.94 (0.06)</td>
<td>3.79 (1.59)</td>
<td>3.83 (0.08)</td>
<td>4.93 (1.31)</td>
<td>4.94 (0.06)</td>
<td>3.85 (1.47)</td>
<td>3.82 (0.07)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (258)</td>
<td>5.07 (1.17)</td>
<td>5.02 (0.07)</td>
<td>4.19 (1.66)</td>
<td>4.14 (0.09)</td>
<td>5.13 (1.21)</td>
<td>5.12 (0.08)</td>
<td>4.11 (1.34)</td>
<td>4.15 (0.09)</td>
</tr>
</tbody>
</table>
Table 4.8 (continued).

<table>
<thead>
<tr>
<th></th>
<th>MIE 1 (16)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>OTE 3 (44)</th>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.75</td>
<td>4.71</td>
<td>3.77</td>
<td>3.62</td>
<td>4.42</td>
<td>4.38</td>
<td>3.81</td>
<td>3.72</td>
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<tr>
<td></td>
<td>(1.01)</td>
<td>(0.27)</td>
<td>(1.67)</td>
<td>(0.42)</td>
<td>(1.30)</td>
<td>(0.34)</td>
<td>(1.33)</td>
<td>(0.32)</td>
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<td></td>
<td>4.71</td>
<td>5.28</td>
<td>4.78</td>
<td>5.17</td>
<td>5.28</td>
<td>5.37</td>
<td>4.06</td>
<td>4.31</td>
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<tr>
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<td>(0.27)</td>
<td>(0.83)</td>
<td>(1.53)</td>
<td>(0.71)</td>
<td>(1.32)</td>
<td>(0.57)</td>
<td>(0.95)</td>
<td>(0.54)</td>
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<tr>
<td></td>
<td>3.77</td>
<td>5.38</td>
<td>4.78</td>
<td>5.17</td>
<td>5.28</td>
<td>5.37</td>
<td>4.06</td>
<td>4.31</td>
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</tr>
<tr>
<td></td>
<td>(1.67)</td>
<td>(0.45)</td>
<td>(1.53)</td>
<td>(0.71)</td>
<td>(1.32)</td>
<td>(0.57)</td>
<td>(0.95)</td>
<td>(0.54)</td>
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</tr>
<tr>
<td></td>
<td>3.62</td>
<td>5.08</td>
<td>5.08</td>
<td>5.26</td>
<td>5.26</td>
<td>4.40</td>
<td>4.40</td>
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</tr>
<tr>
<td></td>
<td>(0.42)</td>
<td>(1.50)</td>
<td>(1.50)</td>
<td>(1.25)</td>
<td>(1.17)</td>
<td>(1.46)</td>
<td>(0.23)</td>
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</tr>
<tr>
<td></td>
<td>4.42</td>
<td>5.26</td>
<td>5.26</td>
<td>5.26</td>
<td>5.26</td>
<td>4.40</td>
<td>4.40</td>
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<tr>
<td></td>
<td>(1.30)</td>
<td>(1.50)</td>
<td>(1.17)</td>
<td>(1.25)</td>
<td>(1.17)</td>
<td>(1.46)</td>
<td>(0.23)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>4.38</td>
<td>5.26</td>
<td>5.26</td>
<td>5.26</td>
<td>5.26</td>
<td>4.40</td>
<td>4.40</td>
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<tr>
<td></td>
<td>(0.34)</td>
<td>(1.50)</td>
<td>(1.17)</td>
<td>(1.25)</td>
<td>(1.17)</td>
<td>(1.46)</td>
<td>(0.23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>3.81</td>
<td>4.40</td>
<td>4.40</td>
<td>4.40</td>
<td>4.40</td>
<td>4.40</td>
<td>4.40</td>
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<td></td>
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<tr>
<td></td>
<td>(1.33)</td>
<td>(0.23)</td>
<td>(0.23)</td>
<td>(0.23)</td>
<td>(0.23)</td>
<td>(0.23)</td>
<td>(0.23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>MIE = Multiple including English, OTE = Other than English</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The ANCOVA carried out for Primary Language produced a statistically significant difference in the English speaking population where School 3’s means were statistically higher than School 1 for Performance, $F(1, 613) = 6.339$, $p = 0.012$, partial $\eta^2 = 0.010$, adj $M$ diff$ = 0.312$ CI $[0.069, 0.555]$, $p = 0.012$, and Mastery Avoidance, $F(1, 613) = 8.191$, $p = 0.004$, partial $\eta^2 = 0.013$, adj $M$ diff$ = 0.327$ CI $[0.103, 0.551]$, $p = 0.013$. There were no other statistically significant differences between the adjusted means of these schools.

**After School Activity Participation**

Table 4.9

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by After School Activity Participation*

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASAP School (N)</td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
</tr>
<tr>
<td>NI 1 (135)</td>
<td>4.73 (1.29)</td>
<td>4.79 (0.10)</td>
<td>3.50 (1.55)</td>
<td>3.63 (0.13)</td>
</tr>
<tr>
<td>3 (104)</td>
<td>4.90 (1.18)</td>
<td>4.83 (0.11)</td>
<td>4.05 (1.59)</td>
<td>3.89 (0.15)</td>
</tr>
</tbody>
</table>
Table 4.9 (continued).

<table>
<thead>
<tr>
<th></th>
<th>1 (37)</th>
<th>3 (42)</th>
<th>1 (143)</th>
<th>3 (46)</th>
<th>1 (63)</th>
<th>3 (116)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>4.69 (1.17)</td>
<td>5.12 (1.16)</td>
<td>5.03 (1.31)</td>
<td>5.26 (1.14)</td>
<td>5.09 (1.30)</td>
<td>5.27 (1.09)</td>
</tr>
<tr>
<td></td>
<td>4.72 (0.19)</td>
<td>5.10 (0.17)</td>
<td>5.06 (0.10)</td>
<td>5.17 (0.18)</td>
<td>5.05 (0.15)</td>
<td>5.29 (0.10)</td>
</tr>
<tr>
<td></td>
<td>3.46 (1.52)</td>
<td>4.14 (1.75)</td>
<td>3.92 (1.59)</td>
<td>4.41 (1.75)</td>
<td>4.30 (1.61)</td>
<td>4.60 (1.62)</td>
</tr>
<tr>
<td></td>
<td>3.59 (0.26)</td>
<td>4.03 (0.24)</td>
<td>3.98 (0.12)</td>
<td>4.23 (0.22)</td>
<td>4.36 (0.20)</td>
<td>4.57 (0.15)</td>
</tr>
<tr>
<td></td>
<td>4.65 (1.36)</td>
<td>5.20 (1.22)</td>
<td>5.08 (1.33)</td>
<td>5.41 (1.16)</td>
<td>5.10 (1.29)</td>
<td>5.17 (1.21)</td>
</tr>
<tr>
<td></td>
<td>4.64 (0.21)</td>
<td>5.20 (0.19)</td>
<td>5.11 (0.10)</td>
<td>5.31 (0.18)</td>
<td>5.12 (0.16)</td>
<td>5.16 (0.12)</td>
</tr>
<tr>
<td></td>
<td>3.89 (1.42)</td>
<td>4.07 (1.40)</td>
<td>3.90 (1.60)</td>
<td>4.25 (1.31)</td>
<td>3.61 (1.40)</td>
<td>4.09 (1.32)</td>
</tr>
<tr>
<td></td>
<td>3.97 (0.25)</td>
<td>4.00 (0.23)</td>
<td>3.89 (0.13)</td>
<td>4.28 (0.23)</td>
<td>3.65 (0.17)</td>
<td>4.07 (0.13)</td>
</tr>
<tr>
<td>Both</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NC &amp;</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: NI = Not Involved, NC = Non-competitive, Comp = Competitive

After adjusting for Race, Gender, Primary Language, Grade Level, and Student Academic Self-Perception, there was not a statistically significant difference in any motivation orientation between the schools for After School Activity Participation.

Student Academic Self Perception

Table 4.10

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for Each School by Student Academic Self Perception

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SASP</td>
<td>School (N)</td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Strug</td>
<td>1 (33)</td>
<td>4.31 (1.26)</td>
<td>4.40 (0.22)</td>
<td>3.24 (1.68)</td>
</tr>
<tr>
<td></td>
<td>3 (30)</td>
<td>4.10 (1.04)</td>
<td>4.01 (0.23)</td>
<td>3.69 (1.59)</td>
</tr>
<tr>
<td></td>
<td>Strug</td>
<td>Student Struggles in School</td>
<td>Work</td>
<td>Student works hard to do well</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>----------------------------</td>
<td>------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>1 (194)</td>
<td>4.68 (1.24)</td>
<td>4.76 (0.09)</td>
<td>3.46 (1.54)</td>
<td>3.55 (0.11)</td>
</tr>
<tr>
<td>3 (136)</td>
<td>5.10 (1.18)</td>
<td>4.99 (0.10)</td>
<td>3.93 (1.57)</td>
<td>3.79 (0.13)</td>
</tr>
<tr>
<td>1 (115)</td>
<td>5.22 (1.27)</td>
<td>5.17 (0.11)</td>
<td>4.11 (1.48)</td>
<td>4.14 (0.15)</td>
</tr>
<tr>
<td>3 (98)</td>
<td>5.18 (0.99)</td>
<td>5.22 (0.12)</td>
<td>4.60 (1.65)</td>
<td>4.57 (0.16)</td>
</tr>
<tr>
<td>1 (36)</td>
<td>5.62 (1.18)</td>
<td>5.59 (0.18)</td>
<td>5.04 (1.32)</td>
<td>5.07 (0.23)</td>
</tr>
<tr>
<td>3 (44)</td>
<td>5.84 (0.92)</td>
<td>5.86 (0.16)</td>
<td>5.39 (1.41)</td>
<td>5.26 (0.21)</td>
</tr>
</tbody>
</table>

Note: Strug = Student Struggles in School, Work = Student works hard to do well, Nat = Student is Naturally good at school, Excel = Student excels at school.

The ANCOVAs performed for Student Academic Self Perception only yielded two statistically significant difference out of the sixteen comparison. There were no statistically significant differences for any group except for students who say they work for their academic success and only for Performance Avoidance and Mastery Avoidance, $F(1, 323) = 4.230$, $p = 0.041$, partial $\eta^2 = 0.013$, adj M diff = 0.298 CI [0.013, 0.584], $p = 0.013$ and $F(1, 323) = 6.416$, $p = 0.012$, partial $\eta^2 = 0.019$, adj M diff = 0.421 CI [0.094, 0.748], $p = 0.012$, respectively.
## Within School Differences for School 1

Table 4.11

*Statistically Significantly Higher Average on the Four Motivation Orientation by Demographic when Controlling for All Other Demographics Within School 1*

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>6 &gt; 7,8</td>
<td>8,7 &gt; 6</td>
<td>No diff</td>
<td>8 &gt; 6</td>
</tr>
<tr>
<td>Gender</td>
<td>M,F &gt; OT</td>
<td>No diff</td>
<td>F&gt;M</td>
<td>F &gt; M</td>
</tr>
<tr>
<td>Race</td>
<td>No diff</td>
<td>No diff</td>
<td>White &gt; OT</td>
<td>No diff</td>
</tr>
<tr>
<td>Primary Language</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>After School Activity</td>
<td>No diff</td>
<td>Comp &gt; NC</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Statistical Significance was measured at $p < 0.05$. 
## Grade Level

### Table 4.12

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 1 by Grade Level*

<table>
<thead>
<tr>
<th>Grade Level (N)</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M &lt;sub&gt;adj&lt;/sub&gt; (SE)</td>
<td>M (SD)</td>
<td>M &lt;sub&gt;adj&lt;/sub&gt; (SE)</td>
</tr>
<tr>
<td>6 (137)</td>
<td>5.26 (1.28)</td>
<td>5.22 (0.11)</td>
<td>3.60 (1.57)</td>
<td>3.53 (0.13)</td>
</tr>
<tr>
<td>7 (114)</td>
<td>4.63 (1.19)</td>
<td>4.64 (0.11)</td>
<td>3.82 (1.64)</td>
<td>3.84 (0.14)</td>
</tr>
<tr>
<td>8 (127)</td>
<td>4.76 (1.32)</td>
<td>4.79 (0.11)</td>
<td>3.96 (1.58)</td>
<td>4.02 (0.14)</td>
</tr>
</tbody>
</table>

The ANCOVAs performed produced the following results for between grade differences in School 1:

There were statistically significant differences between the grades for Mastery, \(F(2, 370) = 7.734, \ p = 0.001\), partial \(\eta^2 = 0.040\). The Post-hoc Bonferroni correction revealed that 6th-graders were statistically higher compared to 7th-graders. The adjusted mean difference was 0.581 with a 95% confidence interval of 0.208 to 0.954, \(p = 0.001\) and 6th-graders were higher than 8th-graders with an adjusted mean difference which was equal to 0.432 with a 95% confidence interval of 0.064 to 0.800, \(p = 0.015\).

There were statistically significant differences between the grades for Performance, \(F(2, 370) = 3.496, \ p = 0.031\), partial \(\eta^2 = 0.019\). The Post-hoc Bonferroni correction was statistically
higher for 6th-graders versus 7th-graders with an adjusted mean difference equal to 0.581 and a 95% confidence interval of 0.208 to 0.954, \( p = 0.001 \) and 6th-graders were higher versus 8th-graders with an adjusted mean difference equal to 0.432 whose 95% confidence interval was 0.064 to 0.800, \( p = 0.015 \).

There were no significant differences between the grades in terms of Performance Avoidance.

There were statistically significant differences between grades for Mastery Avoidance, \( F(2, 370) = 9.598, p < 0.001, \) partial \( \eta^2 = 0.049 \). The Post-hoc Bonferroni correction revealed a statistically higher mean for 8th-grade versus 6th-grade with an adjusted mean difference equal to 0.492 and a confidence interval of 0.039 to 0.946, \( p = 0.028 \).

### Gender

Table 4.13

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Female</td>
<td>180</td>
<td>4.95 (1.28)</td>
<td>3.95 (1.47)</td>
<td>5.13 (1.24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.93 (0.09)</td>
<td>3.91 (0.11)</td>
<td>5.10 (0.09)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.10 (0.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>172</td>
<td>5.00 (1.25)</td>
<td>3.72 (1.66)</td>
<td>4.75 (1.36)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.98 (0.09)</td>
<td>3.74 (0.11)</td>
<td>4.76 (0.10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.57 (0.11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Than</td>
<td>26</td>
<td>3.90 (1.24)</td>
<td>3.17 (1.89)</td>
<td>4.42 (1.19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.12 (0.24)</td>
<td>3.30 (0.30)</td>
<td>4.55 (0.25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.97 (0.28)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The ANCOVAs performed produced the following results for between gender differences in School 1:

There was a statistically significant difference between genders for Mastery, $F(2, 370) = 5.680, p = 0.004$, partial $\eta^2 = 0.030$, The Post-hoc Bonferroni correction yielded two statistically significant differences; Females had a statistically higher difference versus Other Than with an adjusted mean difference equal to 0.814 and a confidence interval from 0.193 to 1.435, $p = 0.005$ and Males also had a statistically higher difference versus Other Than with an adjusted mean difference equal to 0.864 and a confidence interval from 0.241 to 1.487, $p = 0.003$.

There was no statistically significant difference between genders in Performance orientation.

There was a statistically significant difference between genders as it relates to Performance Avoidance, $F(2, 370) = 4.351, p = 0.014$, partial $\eta^2 = 0.023$. The Post-hoc Bonferroni correction produced a difference which was statistically higher for Females versus Males with an adjusted mean difference equal to 0.339 and a confidence interval from 0.018 to 0.660, $p = 0.034$.

There was a statistically significant difference between genders as it relates to Mastery Avoidance, $F(2, 370) = 6.418, p = 0.002$, partial $\eta^2 = 0.034$. The Post-hoc Bonferroni correction revealed a statistically higher difference between Females versus Males with an adjusted mean difference equal to 0.533 and a confidence interval from 0.172 to 0.893, $p = 0.001$. 
Race

Table 4.14

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 1 by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>M</th>
<th>M_adj</th>
<th>M</th>
<th>M_adj</th>
<th>M</th>
<th>M_adj</th>
<th>M</th>
<th>M_adj</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(SD)</td>
<td>(SE)</td>
<td>(SD)</td>
<td>(SE)</td>
<td>(SD)</td>
<td>(SE)</td>
<td>(SD)</td>
<td>(SE)</td>
</tr>
<tr>
<td>White</td>
<td>261</td>
<td>4.99</td>
<td>4.96</td>
<td>3.87</td>
<td>3.84</td>
<td>5.05</td>
<td>5.02</td>
<td>3.83</td>
<td>3.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.28)</td>
<td>(0.08)</td>
<td>(1.59)</td>
<td>(0.09)</td>
<td>(1.27)</td>
<td>(0.08)</td>
<td>(1.47)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Other Than</td>
<td>117</td>
<td>4.71</td>
<td>4.77</td>
<td>3.60</td>
<td>3.68</td>
<td>4.58</td>
<td>4.65</td>
<td>3.88</td>
<td>3.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.30)</td>
<td>(0.12)</td>
<td>(1.59)</td>
<td>(0.14)</td>
<td>(1.34)</td>
<td>(0.12)</td>
<td>(1.45)</td>
<td>(0.13)</td>
</tr>
</tbody>
</table>

The ANCOVAs performed produced the following results for between race differences in School 1:

There was no statistically significant between race differences as it relates to Mastery, Performance, or Mastery Avoidance orientations.

There was a statistically significant difference between races based on Performance Avoidance, $F(1, 371) = 6.877, p = 0.009$, partial $\eta^2 = 0.018$. The Post-hoc Bonferroni correction revealed a statistically higher difference between White versus Other Than with an adjusted mean difference equal to 0.371 and a 95% confidence interval from 0.093 to 0.649, $p = 0.009$. 

### Primary Language

Table 4.15

**Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 1 by Primary Language**

<table>
<thead>
<tr>
<th>Primary Language</th>
<th>Mastery N</th>
<th>M (SD)</th>
<th>M adj (SE)</th>
<th>Performance M</th>
<th>M adj (SE)</th>
<th>Performance Avoidance M</th>
<th>M adj (SE)</th>
<th>Mastery Avoidance M</th>
<th>M adj (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>362</td>
<td>4.91 (1.30)</td>
<td>4.90 (0.06)</td>
<td>3.79 (1.59)</td>
<td>3.78 (0.08)</td>
<td>4.93 (1.31)</td>
<td>4.92 (0.07)</td>
<td>3.85 (1.47)</td>
<td>3.84 (0.07)</td>
</tr>
<tr>
<td>MIE</td>
<td>16</td>
<td>4.75 (1.01)</td>
<td>4.81 (0.31)</td>
<td>3.77 (1.67)</td>
<td>4.08 (0.38)</td>
<td>4.42 (1.30)</td>
<td>4.72 (0.32)</td>
<td>3.81 (1.33)</td>
<td>4.02 (0.36)</td>
</tr>
<tr>
<td>OTE</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: MIE = Multiple including English, OTE = Other than English

The ANCOVAs performed produced no statistically significant difference between primary home language speakers as it relates to Mastery, Performance, Performance Avoidance, or Mastery Avoidance orientations for School 1.
### After School Activity Participation

Table 4.16

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 1 by After School Activity Participation*

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
</tr>
<tr>
<td>ASAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>4.73 (1.29)</td>
<td>4.81 (0.11)</td>
<td>3.50 (1.55)</td>
<td>3.68 (0.13)</td>
</tr>
<tr>
<td>NC</td>
<td>4.69 (1.17)</td>
<td>4.67 (0.20)</td>
<td>3.46 (1.52)</td>
<td>3.37 (0.25)</td>
</tr>
<tr>
<td>Both</td>
<td>5.03 (1.31)</td>
<td>4.99 (0.10)</td>
<td>3.92 (1.59)</td>
<td>3.81 (0.13)</td>
</tr>
<tr>
<td>Comp</td>
<td>5.09 (1.30)</td>
<td>5.03 (0.16)</td>
<td>4.30 (1.61)</td>
<td>4.20 (0.19)</td>
</tr>
</tbody>
</table>

Note: NI = Not Involved, NC = Non-competitive, Comp = Competitive

The ANCOVA performed produced the following results for differences between After School Activity Participation levels in School 1:

There were no statistically significant differences between After School Activity Participation levels as it relates to Mastery, Performance Avoidance, or Mastery Avoidance orientations.

There was a statistically significant difference After School Activity Participation levels for Performance, $F(3, 369) = 2.752, p = 0.043$, partial $\eta^2 = 0.022$. The Post-hoc Bonferroni correction revealed one statistically higher difference between Competitive versus Non-
competitive participation with an adjusted mean difference equal to 0.826 and a 95% confidence interval from 0.005 to 1.648, $p = 0.048$.

### Student Academic Self Perception

Table 4.17

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 1 by Student Academic Self Perception*

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$ (SD)</td>
<td>$M_{adj}$ (SE)</td>
<td>$M$ (SD)</td>
<td>$M_{adj}$ (SE)</td>
</tr>
<tr>
<td><strong>SASP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strug</td>
<td>33</td>
<td>4.31 (1.26)</td>
<td>4.44 (0.22)</td>
<td>3.24 (1.68)</td>
</tr>
<tr>
<td>Work</td>
<td>194</td>
<td>4.68 (1.24)</td>
<td>4.72 (0.09)</td>
<td>3.46 (1.54)</td>
</tr>
<tr>
<td>Nat</td>
<td>115</td>
<td>5.22 (1.27)</td>
<td>5.14 (0.12)</td>
<td>4.11 (1.48)</td>
</tr>
<tr>
<td>Excel</td>
<td>36</td>
<td>5.62 (1.18)</td>
<td>5.53 (0.21)</td>
<td>5.04 (1.32)</td>
</tr>
</tbody>
</table>

Note: Strug = Student Struggles in School, Work = Student works hard to do well, Nat = Student is Natural good at school, Excel = Student excels at school.

The ANCOVA performed produced the following results for differences in Student Academic Self Perception with School 1:

There were statistically significant differences for Mastery orientation between the different self-perceptions, $F(3, 369) = 7.040, p < 0.001$, partial $\eta^2 = 0.054$. The Post-hoc Bonferroni correction yielded a statistically higher difference for Excel versus Struggle and Work with adjusted mean differences equal to 1.094 and 0.814 respectively. Also, 95%
confidence intervals from 0.287 to 1.900 and from 0.214 to 1.414, respectively, \( p = 0.002 \) for both. Natural was statistically higher versus Struggle and Work with adjusted mean differences equal to 0.703 and 0.423 and 95% confidence intervals from 0.037 to 1.369 and from 0.030 to 0.816, \( p = 0.032 \) and 0.027, respectively.

There were statistically significant differences for Performance orientation between the different self-perceptions, \( F(3, 369) = 12.435, p < 0.001, \) partial \( \eta^2 = 0.092 \). The Post-hoc Bonferroni correction revealed a statistically higher difference Excel versus Struggle, Work, and Natural with adjusted mean differences equal to 1.634, 1.509, and 0.873 and 95% confidence Intervals from 0.654 to 2.615, from 0.780 to 2.238, and from 0.114 to 1.632, \( p < 0.001, 0.001 \) and = 0.015, respectively. Natural was statistically higher versus Work with an adjusted mean difference equal to 0.636 and a 95% confidence interval from 0.158 to 1.114, \( p =0.003 \).

There were statistically significant differences for Performance Avoidance orientation between the different self-perceptions, \( F(3, 369) = 4.895, p = 0.002, \) partial \( \eta^2 = 0.038 \). The Post-hoc Bonferroni correction revealed statistically higher differences for Excel and Natural versus Work with adjusted mean differences equal to 0.6.13 and 0.428, respectively. Also, 95% confidence intervals from 0.004 to 1.223 and from 0.028 to 0827, \( p = 0.047 \) and 0.028, respectively.

There were statistically significant differences for Mastery Avoidance orientation between the different self-perceptions, \( F(3, 369) = 4.353, p = 0.005, \) partial \( \eta^2 = 0.034 \). The Post-hoc Bonferroni correction revealed statistically higher differences for Struggle versus Excel, Natural and Work with adjusted mean differences equal to 1.006, 1.001, and 0.879, and 95% confidence intervals from 0.084 to 1.927, from 0.240 to 1.763, and from 0.166 to 1.593, \( p = 0.024, 0.003, \) and 0.007, respectively.
### Within School Differences for School 3

**Table 4.18**

*Statistically Significantly Higher Average on the Four Motivation Orientation by Demographic when Controlling for All Other Demographics Within School 3*

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>6 &gt; 7,8</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Gender</td>
<td>F &gt; M</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Race</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Primary Language</td>
<td>No diff</td>
<td>OT &gt; Eng</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>After School Activity</td>
<td>Comp &gt; NI</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Academic Self Perception</td>
<td>Excel &gt; 3; Nat &gt; Work, Nat &gt; Strug</td>
<td>Excel &gt; 3; Nat &gt; Work</td>
<td>Excel &gt; Work, Strug; Nat &gt; Strug; Work &gt; Strug</td>
<td>No diff</td>
</tr>
</tbody>
</table>

*Note: Statistical Significance was measured at $p < 0.05$.集中*
Grade Level

Table 4.19

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by Grade Level

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>M&lt;sub&gt;adj&lt;/sub&gt;</td>
<td>M</td>
<td>M&lt;sub&gt;adj&lt;/sub&gt;</td>
</tr>
<tr>
<td>Grade Level (N)</td>
<td>(SD)</td>
<td>(SE)</td>
<td>(SD)</td>
<td>(SE)</td>
</tr>
<tr>
<td>6 (114)</td>
<td>5.32 (1.07)</td>
<td>5.34 (0.10)</td>
<td>4.49 (1.72)</td>
<td>4.52 (0.15)</td>
</tr>
<tr>
<td>7 (108)</td>
<td>5.05 (1.15)</td>
<td>5.05 (0.10)</td>
<td>4.15 (1.63)</td>
<td>4.13 (0.15)</td>
</tr>
<tr>
<td>8 (86)</td>
<td>4.99 (1.22)</td>
<td>4.98 (0.11)</td>
<td>4.33 (1.60)</td>
<td>4.33 (0.17)</td>
</tr>
</tbody>
</table>

The Ancova performed produced the following results for between grade differences in School 3:

There were statistically significant differences between the grades for Mastery, \( F(2, 300) = 3.329, p = 0.037 \), partial \( \eta^2 = 0.022 \). Post-hoc Bonferroni produced no statistical differences between grades for Mastery.

There were no significant differences between the grades in terms of Performance, Performance Avoidance, or Mastery Avoidance.
Table 4.20

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by Gender

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>M (SD)</td>
<td>M_adj (SE)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Female</td>
<td>138</td>
<td>5.29 (1.14)</td>
<td>5.30 (0.09)</td>
<td>4.20 (1.71)</td>
</tr>
<tr>
<td>Male</td>
<td>146</td>
<td>5.01 (1.14)</td>
<td>5.00 (0.09)</td>
<td>4.44 (1.62)</td>
</tr>
<tr>
<td>Other Than Male</td>
<td>24</td>
<td>4.94 (1.15)</td>
<td>4.99 (0.22)</td>
<td>4.35 (1.63)</td>
</tr>
</tbody>
</table>

The Ancova performed produced the following results for between gender differences in School 3:

There was a statistically significant difference between genders for Mastery, $F(2, 300) = 3.175, p = 0.043$, partial $\eta^2 = 0.021$. The Post-hoc Bonferroni correction yielded a statistically higher difference for Females versus Males with an adjusted mean difference equal to 0.306 and a confidence interval from 0.01 to 0.610, $p = 0.049$.

There was no statistically significant difference between genders in terms of Performance Avoidance, or Mastery Avoidance orientations.
### Race

Table 4.21

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by Race*

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>186</td>
<td>5.02 (1.14)</td>
<td>5.06 (0.08)</td>
<td>4.21 (1.74)</td>
<td>4.31 (0.12)</td>
<td>5.14 (1.17)</td>
<td>5.16 (0.09)</td>
<td>4.10 (1.31)</td>
<td>4.12 (0.10)</td>
</tr>
<tr>
<td>Other Than White</td>
<td>122</td>
<td>5.31 (1.14)</td>
<td>5.24 (0.10)</td>
<td>4.51 (1.51)</td>
<td>4.34 (0.15)</td>
<td>5.17 (1.30)</td>
<td>5.15 (0.11)</td>
<td>4.23 (1.42)</td>
<td>4.20 (0.13)</td>
</tr>
</tbody>
</table>

The ANCOVAs produced no statistically significant difference between races in terms of Mastery, Performance Performance Avoidance, or Mastery Avoidance orientations for School 3.

### Primary Language

Table 4.22

*Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by Primary Language*

<table>
<thead>
<tr>
<th>Primary Language</th>
<th>N</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
<th>M (SD)</th>
<th>M_adj (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>258</td>
<td>5.07 (1.17)</td>
<td>5.08 (0.07)</td>
<td>4.19 (1.66)</td>
<td>4.18 (0.10)</td>
<td>5.13 (1.21)</td>
<td>5.13 (0.08)</td>
<td>4.11 (1.34)</td>
<td>4.12 (0.09)</td>
</tr>
</tbody>
</table>
Table 4.22 (continued).

<table>
<thead>
<tr>
<th></th>
<th>MIE</th>
<th>OTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>N</td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>M</td>
<td>5.28</td>
<td>5.50</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.83)</td>
<td>(0.99)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>5.21</td>
<td>5.45</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.43)</td>
<td>(0.17)</td>
</tr>
<tr>
<td>M</td>
<td>4.78</td>
<td>5.08</td>
</tr>
<tr>
<td>(SD)</td>
<td>(1.53)</td>
<td>(1.50)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>4.75</td>
<td>5.13</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.63)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>M</td>
<td>5.28</td>
<td>5.26</td>
</tr>
<tr>
<td>(SD)</td>
<td>(1.32)</td>
<td>(1.25)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>5.28</td>
<td>5.27</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.49)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>M</td>
<td>4.78</td>
<td>5.27</td>
</tr>
<tr>
<td>(SD)</td>
<td>(1.53)</td>
<td>(1.46)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>4.75</td>
<td>5.26</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.63)</td>
<td>(1.25)</td>
</tr>
<tr>
<td>M</td>
<td>5.28</td>
<td>5.28</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.43)</td>
<td>(0.49)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>5.28</td>
<td>5.27</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.43)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>M</td>
<td>4.06</td>
<td>4.40</td>
</tr>
<tr>
<td>(SD)</td>
<td>(0.95)</td>
<td>(1.46)</td>
</tr>
<tr>
<td>M(adj)</td>
<td>4.02</td>
<td>4.34</td>
</tr>
<tr>
<td>(SE)</td>
<td>(0.56)</td>
<td>(0.22)</td>
</tr>
</tbody>
</table>

Note: MIE = Multiple including English, OTE = Other than English

The ANCOVAs produced no statistically significant difference between primary language in the home in terms of Mastery, Performance Avoidance, or Mastery Avoidance orientations.

There was a statistically significant difference between primary language in the home in terms of Performance, $F(2, 300) = 6.081, p = 0.003$, partial $\eta^2 = 0.039$. The Post-hoc Bonferroni correction yielded a statistically higher difference for Other Than English versus English with an adjusted mean difference equal to 0.946 and a 95% confidence interval from 0.287 to 1.606, $p = 0.002$.

After School Activity Participation

Table 4.23

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by After School Activity Participation

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M(adj) (SE)</td>
<td>M (SD) (SE)</td>
<td>M (SD) (SE)</td>
</tr>
<tr>
<td>ASAP</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>104</td>
<td>4.90 (1.18)</td>
<td>4.92 (0.10)</td>
<td>4.05 (1.59)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.08 (0.15)</td>
<td>5.00 (1.25)</td>
<td>5.05 (0.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.21 (1.41)</td>
<td>4.18 (0.14)</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>42</td>
<td>5.16 (1.15)</td>
<td>5.04 (0.17)</td>
<td>4.14 (1.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.07 (0.24)</td>
<td>5.20 (1.22)</td>
<td>5.15 (0.19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.07 (1.40)</td>
<td>4.12 (0.21)</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.23 (continued).

<table>
<thead>
<tr>
<th></th>
<th>46</th>
<th>5.25 (1.15)</th>
<th>5.20 (0.16)</th>
<th>4.41 (1.75)</th>
<th>4.37 (0.23)</th>
<th>5.41 (1.16)</th>
<th>5.31 (0.18)</th>
<th>4.25 (1.31)</th>
<th>4.27 (0.21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both</td>
<td>116</td>
<td>5.29 (1.07)</td>
<td>5.33 (1.62)</td>
<td>4.60 (0.14)</td>
<td>4.62 (1.21)</td>
<td>5.17 (1.11)</td>
<td>5.19 (1.32)</td>
<td>4.09 (1.32)</td>
<td>4.09 (0.13)</td>
</tr>
</tbody>
</table>

Note: NI = Not Involved, NC = Non-competitive, Comp = Competitive

The ANCOVAs performed produced the following results for differences between After School Activity Participation levels in School 3:

There were no statistically significant differences between After School Activity Participation levels as it relates to Performance Avoidance, or Mastery Avoidance orientations.

There was a statistically significant difference After School Activity Participation levels for Mastery, $F(3, 299) = 2.922, p = 0.034, \text{partial } \eta^2 = 0.028$. The Post-hoc Bonferroni correction revealed a statistically higher difference between Competitive versus Not Involved participation with an adjusted mean difference equal to 0.416 and a 95% confidence interval from 0.034 to 0.797, $p = 0.025$.

There was a statistically significant difference After School Activity Participation levels for Performance, $F(3, 299) = 2.627, p = 0.050, \text{partial } \eta^2 = 0.026$. The Post-hoc Bonferroni correction revealed no statistical differences.
Student Academic Self Perception

Table 4.24

Means, Adjusted Means, Standard Deviations, and Standard Errors for the Four Motivation Orientations for School 3 by Student Academic Self Perception

<table>
<thead>
<tr>
<th>Motivation Orientations</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SASP</td>
<td>N</td>
<td>M (SD)</td>
<td>M adj (SE)</td>
<td>M (SD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strug</td>
<td>30</td>
<td>4.10 (1.04)</td>
<td>4.20 (0.19)</td>
<td>3.69 (1.59)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.77 (0.28)</td>
<td>4.28 (1.16)</td>
<td>4.30 (0.22)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.28 (1.52)</td>
<td>4.17 (0.25)</td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td>136</td>
<td>5.10 (1.18)</td>
<td>5.10 (0.09)</td>
<td>3.93 (1.57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.94 (0.13)</td>
<td>5.07 (1.15)</td>
<td>5.08 (0.10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.08 (1.41)</td>
<td>4.29 (0.12)</td>
<td></td>
</tr>
<tr>
<td>Nat</td>
<td>98</td>
<td>5.18 (0.99)</td>
<td>5.15 (0.11)</td>
<td>4.60 (1.65)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.54 (0.16)</td>
<td>5.29 (1.24)</td>
<td>5.28 (0.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.28 (1.29)</td>
<td>3.98 (0.14)</td>
<td></td>
</tr>
<tr>
<td>Excel</td>
<td>44</td>
<td>5.84 (0.92)</td>
<td>5.85 (0.16)</td>
<td>5.39 (1.41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.43 (0.23)</td>
<td>5.70 (1.10)</td>
<td>5.70 (0.18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.70 (1.19)</td>
<td>4.08 (0.21)</td>
<td></td>
</tr>
</tbody>
</table>

Note:  Strug = Student Struggles in School, Work = Student works hard to do well, Nat = Student is Natural good at school, Excel = Student excels at school.

The ANCOVA performed produced the following results for differences in Student Academic Self Perception with School 3:

There were statistically significant differences for Mastery orientation between the different self-perceptions, $F(3, 299) = 14.893, p < 0.001$, partial $\eta^2 = 0.130$. The Post-hoc Bonferroni correction yielded a statistically higher difference for Excel versus Natural, Work, and Struggle with adjusted mean differences equal to 0.697, 0.750, and 1.645, respectively.

Also, 95% confidence intervals from 0.195 to 0.199, from 0.271 to 1.230, and from 0.988 to 2.301, and $p = 0.02$, < 0.001, and < 0.001, respectively. Natural was statistically higher versus
Struggle with adjusted mean difference equal to 0.948 and 95% confidence intervals from 0.334, 1.456, \( p < 0.001 \).

There were statistically significant differences for Performance orientation between the different self-perceptions, \( F(3, 299) = 12.533, p < 0.001, \text{partial } \eta^2 = 0.112 \). The Post-hoc Bonferroni correction revealed a statistically higher difference Excel versus Struggle, Work, and Natural with adjusted mean differences equal to 1.666, 1.495, 0.894 and 95% confidence intervals from 0.701 to 2.632, from 0.789 to 2.200, and from 0.156 to 1.633, \( p < 0.001, 0.001 \) and \( = 0.009 \), respectively. Natural was statistically higher versus Work with an adjusted mean difference equal to 0.600 and a 95% confidence interval from 0.060 to 1.141, \( p = 0.020 \).

There were statistically significant differences for Performance Avoidance orientation between the different self-perceptions, \( F(3, 299) = 9.006, p < 0.001, \text{partial } \eta^2 = 0.083 \). The Post-hoc Bonferroni correction revealed statistically higher differences for Excel versus Work and Struggle with adjusted mean differences equal to 1.406 and 0.625, respectively. Also, 95% confidence intervals from 0.665 to 2.148 and from 0.083 to 1.167, \( p < 0.001 \) and \( = 0.014 \), respectively. Natural and Work are statistically higher than Struggle with adjusted mean differences equal to 0.982 and 0.782, respectively. Also, 95% confidence intervals from 0.326 to 1.638 and from 0.148 to 1.416, \( p = 0.001 \) and \( 0.007 \), respectively.

There were no statistically significant differences for Mastery Avoidance orientation.
Table 4.25

*Side by Side Comparison of Statistically Significant Within School Averages on the Four Motivation Orientation by Demographic when Controlling for All Other Demographics*

<table>
<thead>
<tr>
<th>Demographics</th>
<th>School</th>
<th>Mastery</th>
<th>Performance</th>
<th>Performance Avoidance</th>
<th>Mastery Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>1</td>
<td>6 &gt; 7,8</td>
<td>8,7 &gt; 6</td>
<td>No diff</td>
<td>8 &gt; 6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6 &gt; 7,8</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>M,F &gt; OT</td>
<td>No diff</td>
<td>F &gt; M</td>
<td>F &gt; M</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>F &gt; M</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Race</td>
<td>1</td>
<td>No diff</td>
<td>No diff</td>
<td>White &gt; OT</td>
<td>No diff</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Primary Language</td>
<td>1</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No diff</td>
<td>OT &gt; Eng</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>After School Activity</td>
<td>1</td>
<td>No diff</td>
<td>Comp &gt; NC</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Participation</td>
<td>3</td>
<td>Comp &gt; NI</td>
<td>No diff</td>
<td>No diff</td>
<td>No diff</td>
</tr>
<tr>
<td>Student Academic Self</td>
<td>1</td>
<td>Excel,Nat &gt; Strug,Work</td>
<td>Excel &gt; Nat, Work, Strug; Nat &gt; Work</td>
<td>Excel,Nat &gt; Work</td>
<td>Strug &gt; Excel,Nat,Work</td>
</tr>
<tr>
<td>Perception</td>
<td>3</td>
<td>Excel &gt; Nat, Work, Strug; Nat &gt; Work</td>
<td>Excel &gt; Nat, Work, Strug; Nat &gt; Work</td>
<td>Excel &gt; Work, Strug; Nat,Work &gt; Strug</td>
<td>No diff</td>
</tr>
</tbody>
</table>

Note: Means were higher for the group(s) to the left of the “/” as compared to the right. Statistical Significance was measured at $p < 0.05$. 
CHAPTER V: CONCLUSIONS

At the outset of this dissertation, the specific contribution to be offered to the current body of research by this study was whole-picture focused. That is to say, most studies have sought to find antecedents to specific motivation orientations or they look for the specific context as it relates to certain demographics (i.e., females in math classes). The study’s big question examined if student motivation orientations differ based on the degree to which their school contexts used learning-centered grading practices. The typical anecdotal problem is that students appear to lose “motivation” when in such a context. However, the type of motivation being referred to as it relates to that which was studied is performance motivation, where students perform for the grade and/or to be as good as or better than others. In a learning-centered environment, the focus is on the learning which is tantamount to a mastery motivation. This is not the traditional focus of parents, students, teachers, or colleges. Eison (1979) wrote of this tendency, and it is still an issue 40 years later,

There seems to be an overwhelming tendency, among students, parents, teachers, and even educational researchers, to think of learning (i.e., achievement) and grades as being one and the same. Let me suggest that it is this unchallenged assumption which produces difficulty in demonstrating a clear relationship between achievement motivation and academic achievement. (p. 113)

By and large, this study is a follow-up to the work of Elliot et al. (2011) as they hypothesized that grading schemas may shift student motivation orientations. Unlike that study, the latest iteration of their motivation orientation survey was not used. In this study, three research questions were addressed to see if motivation focus was augmented by differing grading
contexts. In this examination of the data, all means are reported as adjusted means unless otherwise stated.

Before addressing the student data, it is imperative to examine the learning contexts of School 1 and School 3. Learning-centered grading, as defined in this study, is a multitude of practices which focus on student choice, giving multiple opportunities to prove competence, delineating behavior from academics, and using the most current, best evidence to demarcate how students have progressed on the continuum of learning. Traditional grading revolves around weighting assignments, averaging that with all attempts toward progress, providing little to no choice, and reflecting behavioral attributes as a rewards or penalties in final scores.

Teachers in School 1 and 3 were statistically different in three of the 23 grading-related questions which were used to capture the overall grading context in which students found themselves. Of the three, the most important was the Evidence-Based Grading variable because it is the essence of what it means to be learning-centered (Standardized Scoring being its counter), while Giving Extra-Credit or Penalizing Reassessment are symptoms of a traditional grading schema. The other feature which is important to consider in interpreting these three variables is where the averages fall for each school. Both schools marked themselves below a four on average on the seven-point Likert scale for Penalizing Reassessment and Giving Extra-Credit. This indicates that the use of these practices for both schools is waning, in the case of School 3, or nearly eliminated, in the case of School 1. However, the data show that the average score for teachers at School 3 is at 3.61 and School 1 is at 5.27 for the use of Evidence-Based Grading. This divide is substantial as there is no overlap between the two schools who straddle the middle of the Likert scale. Therefore, marking below a 4 (School 3) indicates a more
traditional grading context and marking above a 4 (School 1) indicates a more learning-centered grading context.

1. What is the relationship between the degree to which a school uses learning-centered grading practices and students self-reported adoption of the four motivation orientations defined in this study?

Hypothesis 1: Students will be more strongly motivated by learning and/or losing what they have (Mastery/Mastery Avoidance) when their school context is more learning-centered and/or less traditional. They will be less worried about getting good grades, not getting bad grades, doing better than others, and/or not looking stupid (Performance/Performance Avoidance).

On the whole, accepting that the Evidence-Based Grading data indicate that School 1 is a more learning-centered context than School 3, the question is if students were more Mastery/Mastery Avoidance focused as hypothesized? The answer is simply no. The data indicate that the schools were showed difference in average scores based on either Mastery or Performance Avoidance orientations. However, School 3 was both more Performance and Mastery Avoidance-oriented. This pattern of significant difference was echoed in between males from the two different schools and between English speakers. In other words, it can be concluded that the main between school differences is that English-speaking males in School 3 are more Performance focused and Mastery Avoidant. As has been suggested in multiple studies (Elliot and Dweck, 1988; Meece et al., 1988; Nolen, 1988; Nicholls et al., 1989; Harackiewicz & Elliot, 1993), Mastery is linked to complex strategy use, success attributed to effort, heightened intrinsic motivation for all ability levels, whereas Performance leads to simple strategy use and higher grades. Mastery avoidance proves little more than a possible boon to mastery goals depending on how the questions are asked (Nir Madjar et al., 2011). The implication is that the
context of School 1 has diminished the impact of students needing to get good grades, do better than others, and not lose what they have. Although it appears this only happened for one gender, it is important to note that males tend to be more performance-oriented in general and also in specific contexts such as math and science (Anderman et al., 1999; Elliot et al., 2005).

2. How might motivations vary between schools by grade, gender, race, primary language, student academic self-perception, or after school activity participation?

Hypothesis 2: Schools who are higher in learning-centered grading practices will be higher in Mastery and Mastery Avoidance and lower in Performance and Performance Avoidance as compared to a more traditional grading school within each demographic.

Between schools, there are only two groups of students who show statistically higher Mastery Orientations. The first group is 7th-graders in School 3 with the difference gone in the 8th-grade. The small difference can readily be explained because School 1’s configuration has educators teaching 7th and 8th graders within the same classroom (multi-age model). This may indicate a need for School 1 to look at its structure in order to slow the dramatic drop in Mastery orientation. The other significant finding as it relates to grade level is that Performance, Performance Avoidance, and Mastery Avoidance were all higher for 6th-graders in School 3. The difference being gone in 7th and 8th grade means that there are no differences in scores by the 8th grade-level for either school. This indicates, on the surface, that the difference in grading practices does not matter since all students are equally oriented across motivation types by the 8th-grade.

The second group, who in School 3 were statistically higher than the same students in School 1, were students who identified as Other Than when referring to gender. This is the first study to measure motivation orientations by gender with a non-binary option. For this category
of self-identified students, there was just under a one-point difference between their mean Mastery orientations, whose scores were on either side of the middle point on the Likert scale, and Performance Avoidance orientation. It is important to acknowledge, that these students in both schools rank themselves highest in Performance Avoidance. It makes sense that marginalized students would not want to draw any kind of attention, but especially negative attention, to themselves. Females and Males in School 1 are more mastery-oriented than their non-binary peers and equally so. However, School 3 only shows the common finding that Females show higher Mastery scores than Males. This is a double-edged finding, because this lends optimistic possibility that the school climate may be closing the gap between cis-gender students, while widening the gap for gender non-conforming students. Also, non-binary students in School 1 have the lowest self-reported Mastery orientation of any other category whether between or within schools. It seems more possible that there is another unaccounted for variable in action into which School 1 should look.

Before venturing into demographics for which there is little more than intuition and related logic leaps, the final demographic for which there is research is Student Academic Self Perception. Another way this could be framed is how students perceive the task of doing school. Although not touched upon in the literature review due to the fact that the studies were correlational with outcomes not relevant to this dissertation, there is value in reflecting on them briefly. The general finding is that Mastery orientation is always positively correlated to self-efficacy ratings, which is not so with Performance orientation (Kaplan and Midgley, 1997; Diseth, 2011; Sakiz, 2011; Geitz et al., 2016). With that said, there is no difference in Mastery or Performance orientations for students between schools. Students who self-report as Excelling, Natural, and Hard Working at school are more likely to have higher averages in Mastery,
Performance, and Performance Avoidance respectively in descending order. Again, this pattern of being high in both Mastery and Performance Avoidance is probably related to not having a specific context (math or English class). Being lower in Performance across the board may be an attribute of being in a self-professed Learning-Centered school. However, for students in School 3 who “Work” for their academics, they are more avoidant than their peers in School 1. The implication is that a more Learning-Centered grading context may have a dampening effect on avoidant attitudes. Students might have to work hard, but they know they will be graded on their best evidence of achievement. This brings back the Reassessment Penalty for which School 3 subscribed at a higher rate than did School 1.

For the remaining demographic analysis, there is a recognition that there is no specific research about these demographics as it relates to motivation orientations to this point which would allow for a baseline to be established. Moving forward, this is an acknowledgement that a leap is being made based on related source knowledge. Thus, more research is absolutely necessary in all of the following categories to substantiate or refute the findings and their subsequent interpretations.

For Race, there is a lawsuit ongoing against Harvard by Asian American students who believe they are being discriminated against based on how well they score on standardized tests; for if they were being judged purely on academic ability Asian Americans would be admitted at higher percentages than what is the current reality. Instead, Harvard is admitting comparatively more under-educated and under-performing Black/African American and Latino/a students in the name of diversity (SFFA v. Harvard Corporation, 2017). As it relates to race, School 3 has no differences between the races (white versus other than) within the schools. This null hypothesis of no difference is interesting in light of the findings by race that Asian students score highest on
standardized tests while Black/African American students score the lowest. As the breakdown by specific category yielded a very low N, the analysis was not done to see if the multiple races were different or averaged to no difference with their white peers. In School 1, white students report a higher Performance Avoidance in comparison to students who identify as other than whites. This is a preferred outcome when wanting better results for minority students.

For Primary Language, the between school difference mirrors the overall difference in both gender and overall. This can be explained by the size of the groups having a larger effect on the differences. Just to reiterate the difference being that English speakers, who make up the vast majority of students in both schools, were more performance-oriented and mastery-avoidant in School 3. Again, this appears to be a general effect of School 3 not using learning-centered grading. Students do not have to prove the learning, but have to make the grade or worry about not knowing what they knew.

While socio-economics are not controlled for in this study, there is a well-known correlation between socio-economic status and academic achievement. In Sirin’s (2005) meta-analysis of over 1,600 schools based on data gathered between 1990 to 2000, middle schools have the highest effect size for the impact of socioeconomic status on academics at 0.31, the effect size for suburban schools was also highest at 0.27. These are r values which, in Sirin’s study, he relates to the Cohen d value of 0.5 (medium effect). This is brought into context in the next set of findings. Also, it is important to note that School 3 has double the socio-economic impoverishment as School 1. Therefore, the findings could be looked at another way. Since there is a distinct difference between grading practices, yet both schools have adopted “standards-based practices,” perhaps School 3 is benefiting from the principles of these practices.
This is as one would expect a larger difference in averages if socioeconomics disadvantage is doubled.

There were no differences between those who Primarily speak English at home and those who speak Multiple Languages including English within either school. However, School 3 had an aforementioned group of students who were refugees. The primary home language was Other Than English for these students. As was relayed in a personal communication by the administrator of School 3, the refugee populations in that school came from an upper middle-class background before fleeing various countries for political reasons. This previous socio-economic status appears to have a beneficial effect on academic success. Therefore, it comes as little surprise that, although not statistically significant, they seem to average higher on all motivation orientations.

This particular group of students who primarily speak a different language at home is statistically more Performance oriented than their English-speaking peers because they have to get good grades for their families to become what their parents once were. Their English-speaking peers, who are similarly socio-economically disadvantaged do not have this same socio-economic recent family history. It is important to reiterate that these students did not have a peer group in School 1. In a study by Farideh Salili et al. (2001), they looked at students from Chinese students from Hong Kong, Chinese Canadians and European Canadians. What they found was that performance orientation was substantially high for students in Hong Kong. There was less of a difference between the Canadian groups, but the Chinese Canadian students were more performance-oriented. This shows that culture plays an important role in motivation orientations as is seen in this dissertation.
For After School Activity Participation, it would stand to reason that competitive students would be more performance-oriented than mastery and those not involved in any activities would be more avoidant than their peers. Between Schools, there were no differences in student motivation orientations as it related to the different After School Activity Participation levels. And, indeed, School 1 had only one difference which indicate that their Competitive students assessed themselves higher in Performance orientation than their Non-Competitive students. However, this difference did not exist for School 3 whose only differences lie between their Competitive students scoring themselves higher in Mastery orientation than their Not Involved students. It makes sense that students who are Not Involved may be less likely to be mastery-oriented. Again, this could point to the learning-centered grading effect equalizing of the field for all students in School 1. On the other hand, the fact that Competitive students in School 1 are more performance-oriented than their Non-Competitive peer may be an exacerbation of reducing the Performance orientation in the academic setting.

3. How might motivations vary by the degree to which adults in the school generally attribute their own learning to one of these motivation orientations or how they believe students should be motivated to learn?

_Hypothesis 3: The motivation orientation of educators and their beliefs of how a student should orient themselves will have an in-kind influence on student motivation orientations._

Although out of order, it is best to start with the easiest to answer question posed. There was no between-schools difference with the values on any of the questions with regard to teacher motivation or their perception of how students should be motivated. Therefore, this question is not answerable by this dissertation. The generic nature of asking people “how they are motivated to learn” or “how students should be motivated to learn” may have led to a uniform
response between the schools. After all, teachers “should” answer that mastery is the goal and so is performing well or not bad, and an admonition to not forget what one learned. This generalization problem is one of delimitations mentioned in Chapter 3.

These data being true, it is consequential that School 3 is more traditional in how they calculate and report learning, but they have adopted many practices that are learning-centered. This is evidence that the context was influenced by progressive practices which perhaps mitigated the effects of their socio-economic differences and created smaller gaps where the schools were statistically different, but perhaps not practically different in motivation orientations on the whole and between differing demographics.

**Policy Implications**

As has been made abundantly clear, there is no common definition for learning-centered, standards-based, proficiency-based, or the like. Yet, this did not stop multiple states from trying to implement policies to change how schools delivered education. Maine was the most progressive in tying this concept to graduation. As indicated in the Chapter 2 literature review, this was an uphill battle that was fought over many years ultimately ending in the repeal of the Proficiency-Based Diploma law which is now optional for schools. Although this paradigm shift promised much more in the way of actual evidence of student achievement, it fell short by the magnitude of the change. The biggest question from parents was, “How is my student going to compare to others when applying for college (Performance Orientation)?” and the biggest complaint was that “Students are losing motivation since they know they can just make up the work and homework ‘doesn’t count’ (Performance Orientation)”.

The literature around motivation clearly indicates that Mastery-focused students use deeper strategies, have more intrinsic motivation, persevere in the face of challenge, believe
effort matters, and are more self-efficacious. Performance orientation, on the other hand, is tied
to good grades and not much else. The research also indicates that the environment matters in
terms of educational practices which fall in-line with the definition of learning-centered practices
defined in this dissertation; student choice, flexible grouping, actionable feedback, etc. Based on
this primary research, students in a learning-centered grading school (School 1) were less
performance-oriented (specifically males), males and females evened out in Mastery scores, and
students who were other than white were less performance-oriented. While it may be logical to
jump to creating a policy where schools must use learning-centered grading practices, there is
still much that needs to be studied.

In essence, the government should stay out of the business of education and leave that to
the educators. In the case of Maine, the Constitution leaves it up to the districts to afford a free
and appropriate public education. Perhaps the place of the government is to continue to improve
on how this can be done balancing equity, liberty, and efficiency. However, it is cumbersome to
say the least when they attempt to legislate classroom practices. When this is done, money is
diverted from the good work being done into program development and professional
development toward “another mandate” that most educators discount as another thing that will
pass. Perhaps the balance is offering schools that have performance issues multiple options on
how to implement a change that has a proven track record of success for their specific contexts
such as the TARGET model.

Unfortunately, the option that this research supports is one in which the focus shifts from
performing well on a test to mastering the ability to learn. All indications are that mastery-
oriented students are not surface level thinkers and actors. However, they perform in the high
B’s at best, regardless of their environment (Elliot et al., 2005), whereas their performance-
oriented peers use surface level strategies and outperform mastery students in contexts that are competitive. The unfortunate part is that society is not ready to shift from a test performance orientation to a strategy mastery orientation, nor can one strong-arm society into such an orientation as Maine can attest.

**Future Research**

As of this moment, this is the only study that has looked at alternate gender expressions, and one of the few to mention race, in terms of motivation orientations in comparison to their counterparts (Meece et al., 2006). These demographics should be re-measured and evaluated as comprehensively as others. It is well known that students of minority status, with the exception of Asian Americans, tend to fare poorly in the academic setting. There are many intersectional theories which place the blame of society for instilling a sense of otherness. However, due to the exception of Asian Americans, blame is also being placed on culture. Regardless, this bleeds into all aspects of a student’s life and especially at the middle-school level where one is trying to figure out who they are, who they want to be, or more ominously who they are allowed to be in relation to the social world around them. It would be interesting to see if these results could be replicated and/or refuted. However, they definitely should be more deeply explored, especially in terms of environment and culture.

Socio-economics are a substantial factor in determining educational outcomes. This study cannot definitely make any claims about how the differences in socio-economics would have impacted the results. There still remains legitimate questions around how differing socio-economics affect student motivation orientations. Either the effect of this study was due to the socio-economic difference or the effect of grading practices has been an equalizer. Regardless, there is definitely a gap in the literature around this topic that should be addressed.
A final topic of future research is around grading practices in terms of motivation. It is clear from the current research that Performance orientation leads to high “grades.” This connection is with the traditional grading which reveres averaging and weighting different assessment types that all “count.” It would be fascinating to see how Performance orientation relates to the practice of only giving feedback on formative assessments and giving unlimited opportunities to improve summative assessments (which are formative until one has no more time to give). This study deals with two schools who profess to do more of the latter and, though teachers told a different story, further research should be done between definitely traditional schools and schools like School 1.

**Conclusion**

The purpose of this study was to assess in what ways differences in school contexts, as reported by teachers, affected student self-reported motivation orientations. In terms of teacher practices, the two schools were practically identical in every way except in how they reported student grades. Teachers in School 1 self-reported higher use of Evidence-Based Grading as opposed to School 3. Not only was this difference significant, it split the middle on the Likert scale. School 1 students were less performance-oriented than School 3 students. A deeper look showed that males were the ones in School 1 who benefited from this difference. This is of specific interest because it is counter to the norm; males were equally mastery-oriented as females in School 1. The difference in performance orientation, and lack thereof in Mastery orientation, is of particular interest because Ames (1990) believed deemphasizing performance is more important than eliminating all performance-oriented practices.

Noting that School 1 is different from School 3, controlling for all possible demographics, it is important to address the most typical concern; students are less motivated to
do well when they are given multiple opportunities to do well or it is not fair to others that got it right the first time. Concerns like these are a product of a performance-oriented culture and are replicated in other more extreme examples such as Hong Kong. The emphasis is not on the why to learn content and skills, but explicitly and implicitly the message is one of competition. This is in absence of a valid reason to do so. In other words, knowing your times tables is a mastery endeavor when coupled with a legitimate rationale to do so. This is especially true in an age when Siri or Google can give you the answer to most questions. Thus, one should strive to limit, not eliminate, performance orientation to instances over which we have little to no control.

In education, lip-service is paid to creating authentic and relevant experiences for students to use that which we teach. However, even in the absence of a legitimate rationale to the oft asked question, “why am I learning this?” using grading practices focused on reporting the most recent, best evidence appears to mitigate performance orientation in students. Given that the current research uses measures of student outcomes such as GPA or standardized test scores, it makes sense that performance orientation has the singular benefit of being more positively correlated with these outcomes. These metrics create a performance ecosystem. The next step forward is to create assessments which are reflections of an ability to think critically and process information. Then the question would be, would this type of change to our assessments, from one measuring outcomes to one bent on measuring the skills of mastery, give us the benefits of both mastery and performance orientation? Based on this preliminary research, I believe so.
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Appendices

Appendix A: Student Survey

Student Motivation Survey

ASSENT FOR PARTICIPATION IN RESEARCH
Project Title: The Effects of Grading Policies and Practices on Motivation for Learning at the Middle School Level
Principal Investigator: Justin Stebbins, MS, University of Southern Maine, justin.stebbins@maine.edu
Faculty Advisor: Jeffrey Beaudry, PhD, University of Southern Maine, jeffrey.beaudry@maine.edu

Please read! Your participation is voluntary.

You are being asked to participate in research about what motivates you to learn. There are many things that motivate people such as mastering the material, competition, getting good grades and avoiding bad grades. If you choose to participate, you will take a 20 minute online survey which asks basic questions about your grade level, gender, race and ethnic group, and then questions about participation in activities, how you think you are doing in school, and what motivates you to learn in school. This research may help your school to improve student motivation. Paired with a survey from your teachers, this research is trying to find out if your school environment affects your motivation overall, between different grades, and compared to other middle schools. You will be one of around 2000 students in the United States to take part in this research. Taking part in this research poses no known risks. There is no penalty to you in any way if you choose not to participate. Your school grades will not be affected at all if you choose not to participate. You may answer none of the questions, some of the questions or all of the questions. You may stop taking the survey at any time. The survey is anonymous meaning no names will be taken. No data that could link you to your responses will be given to your school. The information collected will be written in a final published report and presented publicly.

The researcher conducting this study is Justin Stebbins. For questions or more information concerning this research you may contact him at justin.stebbins@maine.edu or 207-730-4882.

If you have any questions or concerns about your rights as a research subject, you may call the USM Research Compliance Administrator at (207) 228-8434 and/or email usmctor@maine.edu.

I understand the above description of the research and the risks and benefits associated with my participation as a research subject. I understand that by proceeding with this survey, I agree to take part in this research and do so willingly.

Demographics

1. What language do you speak MOST at home?
   If neither language, please write it in under Other (for example: Farsi, Madarin Chinese, Urdu, etc)
   Mark only one oval.
   □ English
   □ Spanish
   □ Other: ________________________________

2. Gender?
   Mark only one oval.
   □ Male
   □ Female
   □ Transgender/gender-nonconforming/non-binary
   □ Other
   □ Don’t Want to Answer

https://docs.google.com/forms/d/1Hm-e3gqXuNn9wKLOWznXYnC1KQ_AhyTGf-fDqA5A4M/edit
3. Grade
Pick the one that best applies.
Mark only one oval.

- I am an 8th grader who has been in this school district since 5th grade.
- I am an 8th grader who has been in this school district since 6th grade.
- I am an 8th grader who has been in this school district since 7th grade.
- I am a 8th grader new to this school district.
- I am a 7th grader who has been in this school district since 5th grade.
- I am a 7th grader who has been in this school district since 6th grade.
- I am a 7th grader new to this school district.
- I am a 6th grader who has been in this school district since 5th grade.
- I am a 6th grader who is new to this school district.

4. Race
If you don’t see your race represented, please write it in under other (for example: Pakistani, Somali, Syrian, etc).
Mark only one oval.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino/Latina
- Native Hawaiian or Other Pacific Islander
- White
- More than one
- Other: __________________________

What is your motivation for learning?
This is not a question that we think about, but there are things that certainly drive your desire to learn. Please think about how true each statement is for you; 1 is not at all true of me to 7 very true of me. This is not what you say to other people, but how you feel on the inside when learning new things or taking tests.

5. Sometimes I’m afraid that I may not understand concepts and information as completely as I’d like.
Mark only one oval.

1 2 3 4 5 6 7
Not at all true of me [ ] [ ] [ ] [ ] [ ] [ ] [ ] Very true of me [ ] [ ] [ ] [ ] [ ] [ ] [ ]

6. My goal in school is to avoid performing poorly.
Mark only one oval.

1 2 3 4 5 6 7
Not at all true of me [ ] [ ] [ ] [ ] [ ] [ ] [ ] Very true of me [ ] [ ] [ ] [ ] [ ] [ ] [ ]

https://docs.google.com/forms/d/1fMxExKvX81hSFCOLWnkXynCh1EKQ_PnyT5G1fDqA5sWh/edit
7. I worry that I may not learn all that I possibly could.
   Mark only one oval.
   1 2 3 4 5 6 7
   Not at all true of me  O O O O O O Very true of me

8. I desire to completely master the material presented.
   Mark only one oval.
   1 2 3 4 5 6 7
   Not at all true of me  O O O O O O Very true of me

9. It is important for me to do well compared to other students.
   Mark only one oval.
   1 2 3 4 5 6 7
   Not at all true of me  O O O O O O Very true of me

10. It is important for me to understand the content as thoroughly as possible.
    Mark only one oval.
    1 2 3 4 5 6 7
    Not at all true of me  O O O O O O Very true of me

11. My fear of performing poorly in school is often what motivates me.
    Mark only one oval.
    1 2 3 4 5 6 7
    Not at all true of me  O O O O O O Very true of me

12. I am often concerned that I may not learn all that there is to learn in school.
    Mark only one oval.
    1 2 3 4 5 6 7
    Not at all true of me  O O O O O O Very true of me

13. My goal is to get better scores than most of the other students.
    Mark only one oval.
    1 2 3 4 5 6 7
    Not at all true of me  O O O O O O Very true of me
14. I just want to avoid doing poorly in school.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Not at all true of me  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Very true of me

15. I want to learn as much as possible in school.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Not at all true of me  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Very true of me

16. It is important for me to do better than other students.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Not at all true of me  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Very true of me

School and Teacher Practices

17. In this school, teachers treat students who get good scores better than other students.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Strongly Disagree  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Strongly Agree

18. In this school, teachers think how much you learn is more important than test scores.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Strongly Disagree  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Strongly Agree

19. In this school, teachers work with all students to help them improve.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Strongly Disagree  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Strongly Agree

20. In this school, it is difficult to get a second chance to improve your scores.
   Mark only one oval.
   
   1  2  3  4  5  6  7
   Strongly Disagree  ☐  ☐  ☐  ☐  ☐  ☐  ☐  Strongly Agree
21. In this school, only a few kids get praised for their school work.
   Mark only one oval.

   1  2  3  4  5  6  7
   Strongly Disagree  O  O  O  O  O  O  O  Strongly Agree

22. In this school, any student can be successful.
   Mark only one oval.

   1  2  3  4  5  6  7
   Strongly Disagree  O  O  O  O  O  O  O  Strongly Agree

Extra and Co-curricular Activities

23. Choose those that best describe you.
   Mark only one oval.

   O I am not involved in after school activities.
   O I am involved in non-competitive activities after school (art, music, theater, ecology club, peer helpers...).
   O I am involved in competitive activities after school (dance, tennis, volleyball, football, chess, debate...).
   O I am involved in both non-competitive and competitive after school activities.

Achievement

24. How would you describe yourself as a student?
   Mark only one oval.

   O I excel. I get great scores on almost everything.
   O I'm naturally good at school.
   O I'm good at school when I put in work.
   O I struggle.

25. How are you doing in school compared to how you want to be doing?
   Mark only one oval.

   O I am doing better than I want.
   O I am doing as good as I want.
   O I am doing worse than I want.
   O I don't know.

Thank you taking this survey!
Educator Survey

CONSENT FOR PARTICIPATION IN RESEARCH
Project Title: The Effects of Grading Policies and Practices on Motivation for Learning at the Middle School Level
Principal Investigator: Justin Stebbins, MS, University of Southern Maine. justin.stebbins@maine.edu
Faculty Advisor: Jeffrey Beaudry, PhD, University of Southern Maine. jeffrey.beaudry@maine.edu

Please read! Your participation is voluntary.

You are being asked to participate in research about what your grading practices are. If you choose to participate, you will be asked to take a 20-minute online survey which asks basic questions about the grade level and content you teach, gender, race and then questions about grading practices. You will also be asked about what motivates you to learn and what learning should be about for students. Paired with a survey from students about their motivation for learning, this research is trying to find out if school environment affects motivation overall, between different grades, and compared to other middle schools. This research may help your school to improve student motivation. You will be one of around 200 educators in the United States to take part in this research. Taking part in this research poses no known risks. There is no penalty to you in any way if you choose not to participate. You may answer none of the questions, some of the questions or all of the questions. You may stop taking the survey at any time. The survey is anonymous meaning no names will be taken. No data that could link you to your responses will be given to your school. The information collected will be written in a final published report and presented publicly.

The researcher conducting this study is Justin Stebbins. For questions or more information concerning this research you may contact him at justin.stebbins@maine.edu or 207-232-2364.

If you have any questions or concerns about your rights as a research subject, you may call the USM Research Compliance Administrator at (207) 226-0434 and/or email umorcio@maine.edu.

I understand the above description of the research and the risks and benefits associated with my participation as a research subject. I understand that by proceeding with this survey, I agree to take part in this research and do so willingly.

* Required

Demographic Data

1. How many years have you been a teacher? *
   Mark only one oval.
   - 1 or less
   - 2 to 3
   - 4 to 5
   - 6 to 10
   - 10 or more

https://docs.google.com/forms/d/e/1FAIpQLSdrB7GRVb5z5n-CY4d5cKghYr5b2sXXiQ5W42n55y+RnVgfof/edit
2. What is the highest level of education you have attained? *
   Mark only one oval.
   - Bachelor’s degree
   - Some graduate school
   - Master’s degree
   - post-Master’s course work/more than one Master’s degree
   - PhD/MD/Law degree

3. Grade(s) Taught
   Mark only one oval.
   - 6th
   - 7th
   - 8th
   - 6th, 7th
   - 7th, 8th
   - 6th, 7th, 8th

4. What is your gender? *
   Mark only one oval.
   - Female
   - Male
   - Transgender/gender-nonconforming/non-binary
   - Prefer not to say

5. What language do you speak MOST at home? *
   Mark only one oval.
   - English
   - Spanish
   - Other: ____________

6. How many years have you been in this middle school? *
   Mark only one oval.
   - 1 or less
   - 2 to 3
   - 4 to 5
   - 6 to 10
   - 10 or more
7. Subject Area *
   Mark only one oval.
   - Social Studies
   - Science
   - English Language Arts
   - Mathematics
   - World Language
   - Physical Education/Health/Wellness
   - Art
   - Music
   - STEM
   - GATES
   - Special Education
   - Multiple

8. Which of these best describes you (your family background)? *
   Mark only one oval.
   - American Indian or Alaska Native
   - Asian
   - Black or African American
   - Hispanic or Latino/Latina
   - Native Hawaiian or Other Pacific Islander
   - White
   - More than one
   - Other: ____________________________

Personal Learning Motivation
There are many things which motivate us to learn. Please pick how true the following statements are for you.

9. My goal is to avoid performing poorly. *
   Mark only one oval.

   1 2 3 4 5 6 7
   Not at all true of me  0 0 0 0 0 0 0 Very true of me

10. It is important for me to do as good or better than others. *
   Mark only one oval.

   1 2 3 4 5 6 7
   Not at all true of me  0 0 0 0 0 0 0 Very true of me
11. Sometimes I'm afraid that I may not understand concepts and information as completely as I'd like. *
   Mark only one oval.

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12. I desire to completely master material presented. *
   Mark only one oval.

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**Personal Classroom Practices**

13. Students track their own progress on their learning. *
   Mark only one oval.

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14. Homework is included in the overall academic scores. *
   Mark only one oval.

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15. Homework is given from many reasons, which best defines your primary purpose: *
   Mark only one oval.

   | Reinforces what was just taught | |
   | Creates/Maintains a solid work ethic | |
   | Practice previously mastered material | |
   | I prefer to limit homework given | |
   | No homework is given | |

16. Student scores are based on most recent evidence and NOT averaged. *
   Mark only one oval.

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17. Assessments or parts of assessments are able to be taken again for full credit. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

18. Students are provided different options for assessing their understanding. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

19. Individual goals are set with students leading up to final assessments. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

20. Students who do well are used as a model for other students. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

21. Competition among students enhances learning. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

22. Late work is reduced in score to make it fair for those who turned it in on time. *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7

23. Scores are calculated based on how other students have done (i.e. scoring on a curve). *

Mark only one oval.

Strongly Disagree | Strongly Agree
---|---
1 | 2 | 3 | 4 | 5 | 6 | 7
24. Extra credit or bonus points are awarded on assessments. *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

25. Students are encouraged to ask other students to help them with their work. *  
*Mark only one oval.*

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26. Written feedback is given on all homework and classwork. *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

27. Students work at the same pace on the same material. *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

28. Students are able to move on to the next unit/chapter/standard even when others have not. *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

29. Missing work will reflect negatively in students overall score. *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

30. Student behaviors (respect, responsibility, perseverance, effort, etc) are assessed separate from academics (greeting people in Spanish or using the Pythagorean Theorem). *  
*Mark only one oval.*

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Strongly Disagree  ○ ○ ○ ○ ○ ○ ○  Strongly Agree

https://docs.google.com/forms/d/1w3n4g9m-CY49cKkgFy750Z/0i5W/2n6MOqMvgleM59UvGLR/gfoedt:
31. Material being assessed is clearly explained to students. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

32. Students can NOT move on to the next unit/chapter/standard until they show proficiency in
   the current. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

33. Scores (academic and/or behavior) are reduced if students reassess (for example: averaged
   with the old score). *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

34. I am good at helping all the students in my class make significant improvement. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

35. Material is taught in several different ways. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

36. Students are encouraged to take risks. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree

37. Rubrics/scoring guides are co-created with students. *
   *Mark only one oval.*
   
   1 2 3 4 5 6 7
   
   Strongly Disagree  ○○○○○○○  Strongly Agree
38. Group work is not included in academic scores. *
Mark only one oval.

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39. Academic success is rewarded with prizes or privileges. *
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40. Cheating or plagiarism is a serious offense, thus students scores are negatively impacted. No make-up allowed. *
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41. Professional judgment is important in determining final reported scores. *
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42. Students should be scored on effort not what they produce. *
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43. Students are limited to demonstrating learning on teacher created assessments. *
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**Student Learning Orientation**
Consider the following statements compared to each other and rank them accordingly.
44. Students should focus on not getting bad scores. *
Mark only one oval.

1 2 3 4 5 6 7

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ Strongly Agree

45. Students should focus on doing as well or better than their peers. *
Mark only one oval.

1 2 3 4 5 6 7

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ Strongly Agree

46. Students should focus on mastering the most they can. *
Mark only one oval.

1 2 3 4 5 6 7

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ Strongly Agree

47. Students should focus on getting good scores. *
Mark only one oval.

1 2 3 4 5 6 7

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ Strongly Agree

48. Students should focus on maintaining what they have learned. *
Mark only one oval.

1 2 3 4 5 6 7

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ Strongly Agree

Thank you for completing this survey. Your support is much appreciated.
Appendix C: Parent Opt-Out

Parent Notification Opt-Out Communication

Principal Investigator: Justin Stebbins
Faculty Advisor: Anita Stewart-McCafferty
Study Title: The Effects of School Grading Policies and Practices on Student Motivation

Dear Parents and Guardians,

I am a Ph.D. candidate at the University of Southern Maine. I am conducting a research study of middle school children to assess how differing grading policies affect student motivation to learn. Middle School is familiar with and has given me permission to conduct this research at the school, and is facilitating this communication to you to tell you about the study and give you an opportunity to decide that you do not want your child to participate, if that is your preference.

If you allow your child to participate, they will be asked to complete one short survey. The survey contains two types of questions: your child’s general perception about what motivates their learning and demographics such as child’s gender, their grade, how long they’ve been in the school district, and the education level of their parents. In the pilot of this study, it was noted that the majority of student new nothing about their parents/guardians level of education. This may be a great opportunity for you to share this information with your child should you want.

The survey will take no more than 15 minutes, and students will not miss any instruction time in order to participate. If a child indicates at any time that they do not want to participate, they will be thanked and will return to their classwork. There are no known risks to your child from participating in this study. Their grades and class standing will not be affected in any way if they do, or do not, participate. Your child will not directly benefit from this research. However, their participation may benefit others by informing the development of future instructional policies and practices designed to promote the highest levels of motivation that lead to the deepest learning.

This research is anonymous. No names or other identifying information will be collected. If a report of this study is published or presented at a professional conference, only group results will be communicated and not individual responses. I am happy to answer any questions you have about the study. Please contact Justin Stebbins at justin.stebbins@maine.edu. If you wish to share a concern or complaint, please contact the University of Southern Maine’s Institutional Review Board for Human Participants (IRB) at irbhp@maine.edu, or 607-255-5138.
If you do want your child to participate, no further action is necessary. If you do not wish your child to participate, please fill out and sign the form below and return it to your child’s homeroom teacher or to Principal XX. Alternatively, you can send an email to the researcher with the subject line “Opt Out”, and include your name and your child’s name in the message. Please return the form on the next page or reply via email by XX.

Thank you!