SECTION TWO

Literature Review

Introduction

The primary purpose of this instructional inquiry project was to determine if my use of

Mastery Learning (that includes differentiated reassessment) and Mastery Teaching (that

operates with a standards-based curriculum) had a metacognitive and/or motivational effect on

how my students perceive their learning and whether or not Mastery Teaching had an impact on

their mastery of the material when compared to students assessed in more traditional classrooms

that did not offer reassessment. In Section One, there was an overview of the study with

information regarding the scope, purpose, and significance of the study. Section Two contains an

appraisal of the current literature and examines student-centered approaches to education

(including Mastery Learning, Mastery Teaching, differentiation, and Standards-Based Grading)

and metacognition and motivation as it pertains to student self-reflection and self-efficacy in

social studies classes.

Mastery Learning and Mastery Teaching

Two of the most important contributions to student-centered learning come in the form of

"Mastery Learning," as proposed by Benjamin Bloom (1968), and in Madeline Hunter's

"Mastery Teaching" (1982). The basic philosophical foundation of Bloom's Mastery Learning

(originally known as "Learning for Mastery") is that all students are fully capable of learning

(Guskey, 1988). The caveat to this quasi-guarantee that all students can learn, however, is that it

can only happen if these students are placed in the right circumstances and in an environment

that can foster such educational gains (Anderson & Block, 1977). Bloom (1968) argued that such

a setting can be achieved if students are required to attain "mastery" before moving forward in

their course material. A classroom that emphasizes learning over grades (and one that allows students to mature academically at a sensible pace) helps students validate their education (DeKeyrel, Dernovish, Epperly, & McKay, 2000). Guskey (1987) determined that Bloom's "mastery" piece is made up of two key components, both of which are absolutely fundamental for Mastery Learning instructional programs. The first component comes in the form of a process that involves some form of a corrective/feedback and enrichment process. Such a process requires the systematic administration of a formative assessment, like a quiz or writing activity. Should students fail to achieve mastery, the teacher provides detailed feedback coupled with supplementary activities to correct misunderstandings and learning errors. Daniels, Stupnisky, Pekrun, Haynes, Perry, and Newall (2009) found that students' emotions impact the true mastery of course material and individual achievement of performance-based goals. Students that are full of optimism thanks to previous positive experiences will perform better than those students who entered feeling uncertain and anxious. Sometimes the difference comes in the type of feedback that students receive from their teachers. Since a student's feelings are inherently involved in grading, one of the more difficult decisions comes in the amount of feedback to give a student (Brookhart, 2008). Brookhart concluded that students should be given enough feedback to illustrate what targets they have hit and show them which ones need to be improved in order to demonstrate mastery. Additionally, the impact of classroom assessments on mastery is heavily influenced by the perception of students toward the importance of tests and quizzes and their apparent value (Brookart, Walsh, & Zientarski, 2006). Partly for this reason, Willingham (2009) argues that mastery is more than rote memorization. This is critical as it may be argued that rote memorization can short-circuit student perception that the knowledge is valuable.

Post-assessment remastery comes in the form of additional readings, new instruction, or guided learning, and it jump starts a cyclical process that continues until the learner accomplishes mastery (Wormeli, 2006; O'Connor, 2007). Students that demonstrate mastery are given enrichment activities that challenge them by augmenting their understanding of the topic while those that are struggling complete their remastery. When mastery is achieved by every student, the class moves on to new material (Block & Burns, 1976; Bloom, 1981). When Mastery Learning is implemented properly and remains consistent across units, research shows that the amount of time needed for remastery decreases over the course of the school year (Anderson, 1994).

The second key component of Mastery Learning focuses on class consistency as it relates to the entire instructional and remastery process (Guskey, 1987). In other words, for Mastery Learning to work, teachers need to "stick to the script" and run remastery identically across every one of their units. Doing such helps acclimate students to the routines involved in a Mastery Learning environment. Granted, this means the teacher must spend a great deal of effort making sure that learning targets (or objectives, or guidelines, or benchmarks), instructional practices, feedback and remastery processes, and methods for assessing student mastery, are all aligned with one another (Anderson, 1994). Still, by using such a "road map," teachers can create for their students a trail from current levels of understanding to mastery (Wiggins & McTighe, 2005). Certainly, remastery (which is often referred to as "reassessment" throughout this paper) takes discipline on behalf of the students to go back and improve their understanding. In theory, if students do just that, they not only gain mastery of the concept, but their grades now reflect what they truly know (Wormeli, 2006). Research by Block and Burns (1976), Willent, Yamashita, and Anderson (1983), Guskey and Gates (1986), and Guskey and Pigott (1988)

verified that positive improvements in student learning result from the careful and systematic implementation of Mastery Learning. Kulik, Kulik, and Bangert-Downs (1990) put Mastery Learning to the test when they conducted a meta-analysis of studies including 108 classrooms that implemented such programs in elementary school, high school, and college. The researchers found that Mastery Learning had positive effects on not only the test scores of students but also on student attitudes toward course content and instruction.

One of the biggest weaknesses with Mastery Learning, however, is that it provides no direction regarding the initial delivery of the content material (Guskey, 1988; Slavin, 1989). Mastery Learning is back-loaded in its organization since it focuses on what happens *after* assessment. This is where Mastery Teaching thrives. According to Hunter (1982), Mastery Teaching is front-ended and impacts the initial instruction by providing teachers with a framework to outline the steps necessary for teaching an effective lesson. Despite an overabundance of Mastery Teaching approaches, Brandt (1985) found similarities among all of them that form the crux of its five key steps: (a) anticipatory set and statement of objectives; (b) instruction and modeling; (c) checking for understanding; (d) guided practice; and (e) independent practice. These five steps can work with any subject area, grade level, or student ability, making it a positive tool in student-centered educational practices (Hunter, 1985). The use of such a wide array of strategies by Mastery Teaching helps engage all students, including those behind academically, those with behavioral and emotional problems, English Language Learners (ELLs), and introverted students (Johnson, Uline, & Perez, 2014).

Whereas Mastery Learning produces considerable student assessment data, Mastery Teaching does not always include the tools needed for teachers to gather evidence to justify any positive effects on student learning, save from what could be deduced by casual observation

(Guskey, 1988) or through small-group conversations, electronic (or text-in) polling, white boards, and Socratic Seminars (Fisher & Frey, 2007). For this reason, studies appraising the use of Mastery Teaching have not produced more positive results (Slavin & Karweit, 1984; Stallings & Krasavage, 1986).

Guskey (1988) found that both Mastery Learning and Mastery Teaching, if used together, can actually be quite complementary. To a Mastery Learning program, Mastery Teaching adds the instructional component that gives teachers guidance into how to initially present lessons. Likewise, Mastery Learning can add to Mastery Teaching the organizational strategies that help teachers synthesize student progress as well as create meaningful units tied to learning targets. Guskey (1988), Walberg (1990), and Johnson, Uline, and Perez (2014) argue that the two approaches *together* collectively strengthen education by making teachers better at content delivery while simultaneously developing students as learners because of their environment and reassessment opportunities.

Differentiation and Differentiated Reassessment

Mastery Learning is an approach to education that requires careful attention on the part of the teacher to organize remastery. Students may not be able to independently reread to gain additional understanding of the content. As such, additional approaches to support remastery are vital. A near-universally accepted approach is differentiation, which has teachers craft their lessons and assessments around their students' needs and abilities rather than force students to mold themselves to fit the curriculum (Armstrong, 2008; DuFour, DuFour, Eaker, & Karhanek, 2004, 2009; Farrington & Small, 2008; O'Connor, 2002, 2007; Tomlinson, 1999, 2000a, 2000b, 2003, 2008; Wormeli, 2006). Essentially, "who" they teach shapes "how" they teach

(Tomlinson, 2008). Tomlinson (2000a & 2008) showed how differentiation within a standards-based classroom sees the teacher assign grades explicitly linked to each curriculum standard as the class moves through the units. Tomlinson (2000b) contended that in differentiated instruction, standards function as the ingredients for a dinner that are scattered all around the kitchen – but they are not the meal itself. The meal, she explained, is made by the teachers that know the ingredients and know the academic (dietary) needs of their students. Informed by the students' interests (tastes) and needs, the teachers then serve the meal in a manner that the students eat both wisely and, fingers-crossed, enthusiastically.

Aside from content delivery, differentiation can also be used when it comes to remastery and reassessment (Chapman & King, 2005). Following the first round of assessment and the distribution of feedback, students have a litany of options in which to demonstrate their refurbished understanding of the material. This can include completing an essay, holding an informal discussion with the teacher (oral reassessment), a project, or other forms of performance-based assessment (Tung, 2010). Differentiated reassessment, like Mastery Learning, provides teachers with the ideal quantitative and qualitative reflection of what a student has mastered (Cummins & Davesne, 2009).

Ahmed and Pollitt (2010) advocated the use of computers to assess and reassess students. Using computers to complete various tasks allowed teachers to gather enormous amounts of information about each student as well as measure how much assistance certain students required. The authors argue that computer software offers a unique form of differentiation that requires little extra preparation by the teacher and yields tremendous results. Some students were able to move ahead in their lessons while others were given supplementary time. Through the use of hints, prompts, clues, reassessment, and enrichment activities, all students achieved mastery.

Koong and Wu (2010) confirmed the positive impact that computer-aided testing can have in evaluating what topics students have mastered. Underachieving students did better on interactive multimedia tests than on standard paper-and-pencil examinations. Similarly, using performance-based assessments like essays, experiments, group projects, demonstrations, and portfolios for remastery activities allows students to take an active role in their education (Linn, Baker, & Dunbar, 1991; Herman, Aschbacher, & Winters, 1992; and Wiggins, 1993).

Standards-Based Curricula

Until the 1990s, public schools in the United States lacked clear standards of what high school graduates should know and be able to do (Hamilton, Stecher, & Yuan, 2008). Expectations varied from school-to-school, from district-to-district, and from state-to-state. This all changed when standards-based reform required all students to master challenging subject material and provided for a way to measure progress. According to Budge (2010), because its impact is felt in rural, suburban, and urban school districts alike, standards-based curricula continue to be at the forefront of debates revolving around mastery and No Child Left Behind (NCLB), the infamous legislative leviathan that was replaced in 2015.

Initially, in response to NCLB, all 50 states and Washington, D.C. established Academic Content Standards containing information that all students (grades K-12) should master (Ainsworth, 2003). In Ohio, Academic Content Standards are made up of benchmarks, which are grouped by grade-level clusters or bands (K-2, 3-5, 6-8, 9-10, and 11-12). These benchmarks are key checkpoints that monitor progress made toward standards and break the standard into what students should know and be able to do at a specific time in their schooling (ODE, 2008). The benchmarks are further divided into Grade Level Indicators (GLIs), which contain the knowledge and skills that all students should be able to master at each grade level. They serve as

checkpoints to monitor progress toward the benchmarks. When grouped with benchmarks and Academic Content Standards, GLIs form the backbone of the material taught in any given core subject (ODE, 2008). After 2010, Ohio replaced GLIs with strands and themes as the essential building blocks. Topics replaced benchmarks and represent the areas of learning within a strand (which may span multiple grade levels). While the strands, themes, and topics are not the same as the indicators and benchmarks, they still provide a road map through the curriculum.

Since these Ohio standards were punctiliously aligned with state accountability assessments, they came equipped to provide consistent sets of expectations for students and educators that are rigorous and inclusive (Beck, 2009; Kulm, Dager Wilson, & Kitchen, 2005; Roach & Elliott, 2009). Consequently, curriculum alignment – or more specifically, vertical and horizontal alignment – helps ensure that what is taught and assessed in classrooms is in step with state standards. Vertical alignment puts material in a coherent progression from one grade level or course to the next. Horizontal alignment establishes the connection between standards and assessments in each subject at a particular grade level. Together, vertical and horizontal alignment is designed to be implemented in all Ohio grades levels, from K-12 (Brown, 2010; Case & Zucker, 2005; Kagan, Carroll, Comer, & Scott-Little, 2006; Martineau, Paek, Keene, & Hirsch, 2007).

Standards-Based Grading

Standards-Based Grading (or SBG) directly utilizes standards, benchmarks, and GLIs (which are now "strands" and "themes") as a checklist for the material students need to master before they leave the classroom. The teacher assigns grades specifically to each strand or theme in every unit. For instance, a theme states that by the end of their freshmen year, all students

should be able to *"Explain connections among Enlightenment ideas, the American Revolution, the French Revolution, and Latin American wars for independence."* Therefore, when students complete the 9th grade, they should be able to show how the ideas of Enlightenment thinkers Thomas Hobbes, John Locke, Jean Jacques Rousseau, and Charles de Montesquieu impacted all three revolutions. Since the manner in which this material is taught is moot (although supporters of Mastery Teaching and differentiation will beg to differ), students are presented with the information. They are then assessed in a way that allows them to demonstrate what they know, be it by way of some performance-based assessment or in the form of a traditional multiple choice test. The feedback component of a classroom that uses Standards-Based Grading is where this system differs from the traditional "you failed the test" approach (and also why it falls in the category as a Mastery Learning program). In a SBG classroom, rubrics often replace the customary letter grade and provide students with scores on a four-point scale, including: Level 4 ("Mastery Achievement"), Level 3 ("Proficient Achievement"), Level 2 ("Basic Achievement"), and Level 1 ("Insufficient Achievement"). Level 3 and Level 4 means the student has demonstrated "mastery" for that particular standard/strand/theme, whereas Level 2 and Level 1 shows that the student did not. In such a program, students are given additional time to demonstrate mastery following an assessment in which they do not earn Level 3 or Level 4 for every unit standard covered. For example, a student that completes an in-class essay on the Age of Enlightenment and earns a Level 2 will be given another opportunity to show mastery of that particular standard.

Scriffiny (2008), who switched her routine high school math class's grading system to SBG, offered numerous reason why teachers should abandon the points-based system, including (a) grades have more meaning with SBG; (b) SBG forces teachers to rethink the value they give

to homework; (c) such a grading system allows teachers to adjust their instruction based upon what standards are being met and what ones are not; and (d) students better understand how to gauge quality (pp. 70-74).

In my classroom, I use SBG with differentiated reassessment, which means the feedback students receive following their initial assessment is tied directly to the state standards. A student's reassessment can come in the form of explaining the key points of the essay in a short-answer response, completing a project, discussing the topic with me in a one-on-one conference, or by way of any number of approved methods. When students demonstrate that they have mastered the state standard – even at a later date than their peers – their score is changed to reflect their new mastery. In preparing for their next round of assessment, students revisit their previous tests and identify problematic questions. Time is provided for the class to discuss and share studying strategies in the hope that this sort of reflection becomes second nature for the students as they move forward. Helping them embark on this journey of self-reflection is a crucial component of the classroom that employs differentiated reassessment. From my own experience in using a standards-based curriculum and differentiated reassessment, the two biggest outcomes have been metacognitive growth and improved motivation to continue strategic reflection after assessments.

Metacognition

Mastery Learning and Mastery Teaching, coupled with differentiation and SBG, help create an educational environment that is student-centered. However, does such a curriculum and instructional approach impact students' metacognitive ability to self-reflect on their own learning? Metacognition, the ability to properly evaluate one's own learning and thought process,

is usually not a strength for most high school students, especially when it comes to evaluating how well they learned, or what they mastered, beyond the grade on their test paper (Weimer, 2013). Metacognition is two-fold and includes mindfulness of one's thinking and learning as well as a critical awareness of oneself as a thinker and learner (Chick, Karris, & Kernahan, 2009; Hatano & Inagaki, 1986). Metacognitive practices help students identify and become cognizant of their strengths and weaknesses in academic settings. Students that know their strengths and weaknesses as writers, readers, test-takers and overall learners are more likely to "actively monitor their learning strategies and resources and assess their readiness for particular tasks and performances" (Bransford, Brown, & Cocking, 2000, p. 67). Theorists hope that as students learn about effective problem-solving strategies and the cognitive and motivational characteristics of thinking, accountability for monitoring learning shifts from the teachers to the students (Paris & Winograd, 1990).

In promoting the "metacognitive learner," teachers should note the difference between "learning" and "performance," especially since performance during training (or when students are first introduced to new material) is not an effective measure for post-training performance (Bjork, 1994). During any given new unit, the speed or accuracy in recalling the knowledge of the unit is "performance." What cannot be observed during this time, and what is typically not seen until the end of the unit assessment, are the changes in understanding, comprehension, and competence that support long-term retention – or "learning." Since learning can occur even if there appears to be no change in performance, and because changes in performance do not necessarily translate to actual learning, understanding how students learn, and how they reflect on their perceived learning, is critical to developing metacognition (Bjork, 1994; Dewey, 1933; Tanner, 2012).

Pintrich (2002) and Tanner (2012) found that in order for students to develop their skills in metacognition, they need to be taught the concept – but not in a reading or lecture-styled activity. Students learn "how to learn" by being able to identify, evaluate, and link new skills with old ones (Gall, Gall, Jacobsen, & Bullock, 1990; Zohar & David, 2009). The idea of the "testing effect," discussed at length by Roediger and Karpicke (2006), showed that when students are repeatedly assessed, their long-term retention of the material improves due to the act of retrieving information from memory during a testing situation. However, because students lack metacognitive attentiveness to the "mnemonic" benefits of testing, they experience the "illusions of competence" while studying, and these illusions directly impact which strategies students perceive as effective when they monitor their own learning (Bjork, 1994; Karpicke, Butler, & Roediger, 2009). Pintrich (2002) found that giving students opportunities after assessments to discuss what worked for them concerning test preparation, allowing them time to compare strategies, and providing additional opportunities to demonstrate their understanding of the content material all help lift the veil to individual students as to why they sometimes "get it" (and learn) while at other times they struggle (and do not learn).

Tanner (2012) discussed four popular strategies for student self-reflection, which included the use of pre-assessments, identifying confusions, retrospective post-assessments, and reflective journals. Understanding what their students already know about a topic before starting a unit promotes metacognition among students. Asking, "What do I already know about this topic that could guide my learning?" is a simple self-question that helps them begin planning how they could approach learning a new idea (Coutinho, 2007; Ertmer, 1996; Schraw, 1998). Angelo and Cross (1993) provide an example of helping students identify their confusions with the "Muddiest Point," a simple activity that takes only a few minutes at the end of class. Here,

students answer the self-question, "What was most confusing to me about the material being explored in class today?" The use of such reflection indicates to students that confusion is part of the learning process, and expressing this helps not only the teacher, but also the student. Similar to Bjork's findings about "learning" and "performance," Posner, Strike, Hewson, and Gertzog (1982) found that learning is a student-centered activity that sees them (ideally) change their ideas about a concept, topic, or general question. This means learning cannot occur if students fail to undergo a metacognitive "realization" about how they thought about the concept both before and after learning took place (Tanner, 2012). This can come in the form of retrospective post-assessments, which fosters students into experiencing an "Ah-ha!" moment.

Similar to pre-assessments and identifying confusions, post-assessments can be quick conversations or writings that could include completing the phrase: "Before this course, I thought evolution was… Now I think evolution is…" (Tanner, 2012). Lastly, reflective journals allow students the opportunity to openly admit, confess, or address perceived shortcomings (or successes) in the wake of a particular assignment or assessment. Teachers can extend this activity by having students reread their own journal entries before the next assessment as a way to either avoid making the same mistakes or to continue to employ a successful strategy that had worked the last time. Having students share these entries with other students as a way to create a community approach to learning also boosts metacognition by seeing that every student is a "learner-in-training" (Tanner, 2012).

There is clear evidence of a positive impact of metacognition on learning. Tomlinson and McTighe (2006) assert that the most successful students are metacognitive. This means they realize how they learn, are able to set learning goals, self-assess their own abilities and where they are at in a unit, and use creative strategies to better their understanding. A two-year

longitudinal study on metacognition by Van der Stel and Veenman (2010) had students complete

text-studying tasks in history and problem-solving questions in math. The study discovered

improvement in the metacognition of those that participated and demonstrated that such

metacognitive skills can aid student learning performance regardless of their academic ability.

Motivation

Bandura (1986), who developed the Social Cognitive Theory, defines motivation as "an

internal state that arouses, directs, and sustains goal-oriented behavior" (Glynn, Brickman,

Armstrong, Taasoobshirazi, 2011, p. 1160). As students transition from elementary school to

middle school and again from middle school to high school, they often suffer decreases in self-

esteem and intrinsic interest in academics (Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee,

1989; Eccles, Simpkins, S, & Davis-Kean, P., 2006). Bandura (1997) and Pajares (1996) found

that this can lead to poor self-efficacy, meaning students no longer believe they can learn about a

specific topic, learn in a certain class, or learn altogether. This obviously damages motivation

and can result in them not paying attention in class, not preparing for tests, or not going to school

(Cleary & Zimmerman, 2004).

The structure of school may foster motivational decline. Eccles et al. (1989) reasoned that

motivational declines resulted from a "poor fit" between the students' psychological needs and

their school environment. Pintrich and Schunk (2002) and Feldlaufer, Midgley, and Eccles

(1988) found that despite the fact that adolescents are more than capable of functioning

independently, they are often denied such autonomy in school. Ironically, they are expected by

their teachers to exhibit such characteristics outside the classroom, which proves to be very

difficult since they lack the practice or in-school opportunities to gain the metacognitive

strategies necessary to be successful (Zimmerman, 2002). Students that are unable to make proper and correct decisions concerning their study, decision, and regulatory strategies are often the ones that end up struggling in school (Dembo & Eaton, 2000; Weinstein, Husman, & Dierking, 2000; Zimmerman, 2002).

Conversely, students trained in metacognitive reflection display high levels of motivation and achievement (Schunk, 1996; Wood, Bandura, & Bailey, 1990). Clifford (1986) and Zimmerman (2002) found that metacognitively-motivated students are able to evaluate their performance on an assessment as it pertains to self-standards (e.g., past test scores), associate poor scores with faulty strategies (e.g., their strategic plan), and will make the obligatory adjustments before the next test (e.g., study over the course of a week rather than the night before a test). Being metacognitively aware of a course of action such as this is important because it allows students to maintain their motivation despite academic setbacks and during times of frustration (Clifford, 1986).

Letting educators use their personal strengths and interests to tailor their classrooms and approach to teaching helps makes the material more meaningful to students (Rabb, 2007). This, in turn, generates more motivation for students to learn, which leads to students taking more ownership of their education. Jarvela, Volet, and Jarvenoja (2010) and Vansteenkiste, Sierens, Soenens, Luyckx, and Lens (2009) noted a unidirectional correlation between motivation and social behavior. Students who are clustered according to the results of a "person-centered" approach for identifying motivational profiles had higher scores than those in more generic groups (Vansteenkiste, et al., 2009). Not surprisingly, Osterman (2000) found that teachers who establish supportive and welcoming atmospheres in their classrooms are able to nurture a sense of belonging, which increases student motivation and academic achievement. Walker and Greene

(2009) corroborated Osterman's (2000) findings in their study that used 249 high school students to examine perceptions of classroom achievement goals, self-efficacy, and a sense of belonging. They found that when students feel they are an important and noteworthy member of the "classroom community," they are more likely to develop personal achievements goals (as they pertain to mastery).

Conclusion

Helping students reflect on their learning is the foundation of self-efficacy and metacognition. Mastery Learning and Mastery Teaching, when used with differentiation and SBG, can create a student-centered environment capable of supporting metacognitive growth and sustained motivation. This being said, I conducted a reassessment study through Walden University in 2010 that compared the results on the American Government Start of Course Assessment (SOCA) and End of Course Assessment (EOCA) of two American Government classes. As the theoretical framework of the pilot study, differentiation (and its mode of implementation: the standards-based classroom) failed to produce student scores on the American Government EOCA that were significantly different from EOCA scores of similar students taught in a traditional classroom environment (Hartnell, 2011). The results of my study supported those of Slavin and Karweit (1984), who conducted a year-long study of the Mastery Learning program in Philadelphia. The two found no differences between Mastery Learning and a control group in mathematics. Rosales (2013) also compared SOCA and EOCA results for two sets of Algebra 2 classes where the participating teachers used SBG for one class and traditional grading practices for the other. In that study, no significant differences were found between the SBG and non-SBG students on the EOCA. Still, both the 2013 Rosales study and my 2011 Walden study concluded that the real benefit of a SBG classroom might be the ability to develop

a better system of communication between the school and the classroom as well as positively impact student accountability and their acuities of learning. Slavin (1989), however, collected other studies on Mastery Learning, eventually declaring, "The uncontested finding that yearlong studies show no greater effects for Mastery Learning than traditional methods on standardized measures should be the end of the story" (p. 78).

In 2012, I completed a follow-up study to my original Walden research at Otterbein University. Examining population subgroups and reassessment, I found that reassessment – while effective in raising semester grades of both ELL and non-ELL students – did not improve scores on the EOCA any more than they had in 2009 and did not impact the ELL subgroup any more than it did the mainstream students. As such, as part of my Capstone Project at Otterbein, I hoped to determine whether the use of differentiated reassessment had a metacognitive and motivational effect on how students perceive their learning when compared to the metacognition produced by more traditional classrooms.