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CONTENT COMPLEXITY IN HIGH SCHOOL ENGLISH: AN ANALYSIS OF COMMON
CORE STATE STANDARDS AND PAST MASSACHUSETTS CURRICULUM

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requirements for the degree of
Doctor of Education

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APPROVAL FOR SUCCESSFUL DEFENSE

Mark E. Jarmon, has successfully defended and made the required modifications to the

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submit a copy with your final dissertation to be bound as page number two.

ABSTRACT

There has been much debate about having standardized curricula content standards for all. Some have criticized state curriculum content standards for varying in quality by state. The purpose of this study was to compare content complexity as it appears within the high school English Language Arts Common Core State Standards (CCSS) and the former state standards of Massachusetts, the Massachusetts English Language Arts Curriculum Framework (2001), in Grades 9–12. Webb's Depth of Knowledge (DOK) was the framework through which the analysis for this study was conducted. Webb described four levels of DOK as they apply to English language arts specific to reading and writing. DOK levels increase in cognitive complexity as tasks that students are required to complete move from Level 1 to 4.

The level of cognition, according to the research within this study, required to reach higher order levels of thinking are DOK Levels 3 and 4. This includes, but is not limited to, exhibiting deep knowledge of subject matter, providing support for student thinking, writing with purpose for an intended audience, and performing complex analyses in reading or writing. State standards that do not exhibit a high level of content complexity may contribute to the stifling of high-order thinking, which is why it is essential to ensure that state standards promote critical thinking.

This study was a qualitative content analysis which utilized Mayring's step model to develop a procedure for reviewing the two sets of state standards. Additionally, the coding team utilized an independent method of coding standards (i.e. double-rater read-behind) to ensure greater internal reliability. Such a procedure was utilized in similar studies.

The major findings identified when the Common Core State Standards for English Language Arts, Grades 9–12 and the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12 were compared using the DOK framework were:

1. The Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12 contained a higher combined percentage of DOK Levels 3 and 4 than the Common Core State Standards for English Language Arts, Grades 9–12.

2. The Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12 contained a lower combined percentage of DOK Levels 1 and 2 than the Common Core State Standards for English Language Arts, Grades 9–12.

The results of the study show that the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12 standards provide a greater opportunity for higher order thinking activities than do the Common Core State Standards. This claim is based on the results of the coding team who found that there was a greater percentage of standards for Level 3 and 4 combined in the former Massachusetts standards than were found in the Common Core State Standards. A greater percentage of standards in Levels 3 and 4 means a greater opportunity for students to engage in higher level thinking.

Keywords: Common Core State Standards, Massachusetts English Language Arts Curriculum Framework, content complexity, cognitive complexity, Webb's depth of knowledge

DEDICATION

To all the inspirational teachers who helped to kindle the flame, but especially to these ones: Mrs. Erickson (kindergarten), Mrs. Clark (Grade 7), Brother Michael Dwyer, FSC (Grade 9 history), Mr. Joseph Fili (Grade 12 English), Rev. Albert Reddy, SJ (Fairfield University), and Dr. Ona Russell (UC San Diego).

To my first and greatest teachers, my parents, for their endless faith in me, generosity, and love.

To my wife Cathy and my children, for their encouragement, patience, and love throughout this academic journey.

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CHAPTER I

INTRODUCTION

In one of John Dewey's (1910/2005) seminal texts, *How We Think*, he explained:

While it is not the business of education to prove every statement made, any more than

to teach every possible item of information, it is its business to cultivate deep-seated and

effective habits of discriminating tested beliefs from mere assertions, guesses, and

opinions. (p. 23)

Dewey went on to explain that "a disciplined mind," one that is marked by independence and

effectiveness, is the ultimate goal of education (p. 49). In order cultivate the disciplined mind,

the teacher must establish the right conditions of "mind training," and it is the complexity of the

problem that will determine "the quality of thinking that follows" (p. 31). But training the mind

to think in complex ways is not an easy task and has been one subject of education reform for

decades.

In the 1980s, several organizations including the College Board, the National Education

Association, and the American Federation of Teachers, and the George H.W. Bush presidential

administration, called for "enhanced thinking and reasoning within U.S. education" (Marzano,

1998, p. 268). Though few would dispute the idea that thinking and reasoning are important

concepts to foster in education, there is dispute in terms of whether these elements are specific to

curriculum content. Researchers such as Robert Marzano (1998) maintain that thinking and

reasoning are universal; however, Marzano explains that some psychologists, most notably

Robert Glaser, disagree favoring "that there are no such constructs as general thinking and

reasoning skills that cut across subject matter boundaries" (p. 268). Furthermore, "equally

compelling theory and opinion" (p. 268) reside on both sides of this debate. Regardless of the

debate as to whether thinking and reasoning skills are universal, the current and most dominant

standards-based curriculum, the Common Core State Standards (CCSS) from the National

Governors Association Center for Best Practices & Council of Chief State Schools Officers

(NGA & CCSSO), addresses these skills specific to content and maintains that "across the

English language arts and mathematics standards, skills critical to each content area are

emphasized" (NGA & CCSSO, n.d, "Do the Common Core", para. 4). In a system of standards-

based curriculum, where English language arts (ELA) continues to be one of the two major

tested areas, identifying cognitive complexity in ELA and providing students with the

opportunity to train their minds to think in complex ways is important. Furthermore, the

accompanying curriculum content standards must support the "disciplined mind," exhibiting

content complexity.

There has been much debate about having standardized curricula content standards for

all. Some have criticized state curriculum content standards for varying in quality by state and

for also being "either hopelessly vague or encyclopedic" (McNeill, 2009, p. 65). Valencia and

Wixson (2001) noted that a "rush for quick fixes" (p. 202) has been the bane of the standards-

based movement and has led to the development of a number of groups who utilized their own

criteria to evaluate curriculum standards. With various evaluative criteria come "inconsistencies

across reports" that are "confusing and frustrating to states and teachers, not to mention policy

makers and public-education watchers" (Valencia & Wixson, 2001, p. 203). An example of such

confusion occurred during the 1997 gubernatorial race in New Jersey when Senator McGreevy

and Governor Whitman cited conflicting reports over New Jersey's education standards.

McGreevy's reports claimed the state's standards were the "worst in the nation," while

Whitman's claimed they were amongst the best in the country (Olson, 1998 as cited in Valencia

& Wixson, 2001, p. 203). With such conflicting accusations and analyses, it is important to look at the empirical evidence.

Purpose of the Study

The purpose of this study was to compare content complexity as it appears within the high school English Language Arts Common Core State Standards (CCSS) and the former state standards of Massachusetts, the Massachusetts English Language Arts Curriculum Framework (2001), in Grades 9–12. A supplement was added to the Massachusetts framework in 2004; however, it only affects Grades 3, 5, and 7 ("Supplement to the Massachusetts ELA", 2004). Massachusetts is one of 45 states who implemented the CCSS after 2010, although Common Core validation member and former Massachusetts curriculum content writer, Sandra Stotsky, refuted the implementation, fearing the CCSS were inferior to Massachusetts's 2001 ELA standards when considering the cognitive tasks required of students and the content covered (Burke, 2012, p. 4). If the CCSS contain less cognitive complexity than the former Massachusetts standards, then the effectiveness of the CCSS in promoting complex thinking among students must be questioned.

Research Questions

1. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Common Core State Standards for English Language Arts, Grades 9–12?

2. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12?

3. What differences and similarities exist in content complexity between the Common Core State Standards and the Massachusetts English Language Arts Curriculum Framework, Grades 9–12?

Conceptual Framework

Webb's Depth of Knowledge (2005) was the framework through which the analysis for this study was conducted. In the Web Alignment Tool (WAT), Webb describes four levels of DOK as they apply to English language arts specific to reading and writing; DOK levels increase in cognitive complexity as tasks, which students are required to complete, move from Level 1 to 4.

In Reading Level 1, there is no analysis of text, rather a "shallow understanding of the text" marked by simplicity and basic facts. In Reading Level 2, students are required to go "beyond recalling or reproducing a response" as identification of major plot elements and utilizing contexts clues becomes a focus. In Reading Level 3, "deep knowledge" is critical as students begin to move "beyond the text" while still exhibiting an understanding of the text. Furthermore, Level 3 requires students to "support their thinking." Finally, in Reading Level 4, "higher-order thinking," includes the analysis and synthesis of multiple sources and may include an extended activity. (Webb, 2005, pp. 70–71).

In Writing Level 1, "simple facts" and "basic ideas" are the written requirements, along with the application of grammatical concepts. In Writing Level 2, organization of ideas becomes important as "some mental processing" is required, and while writing may only include one paragraph, "note-taking, outlining, or simple summaries" are some suggested tasks. As in Reading, Level 3 is where the deeper cognition begins to take place requiring "some higher-level mental processing," as students construct larger papers in which audience and purpose becomes apparent as well as support for ideas. Lastly, in Writing Level 4, synthesis and analysis are critical as well as "a deep awareness of purpose and audience" (Webb, 2005, pp. 71–72).

Although Webb's DOK does not account for the complexity of texts, it certainly accounts for tasks, which might be argued can only truly be achieved through the reading of complex texts. Since both CCSS and the former Massachusetts state standards both account for text complexity and since Webb's DOK does not, text complexity is not addressed in this study. However, it is not due to lack importance but the limitation of the instrument, which focuses on tasks not content.

In *How We Think*, Dewey (1910/2005) made the following claim relating to his theory of mind training:

> The depth to which a sense of the problem, of the difficulty, sinks, determines the quality of thinking that follows; and any habit of teaching which encourages the pupil for the sake of a successful recitation or of a display of memorized information to glide over the thin ice of genuine problems reverses the true method of mind training. (p. 31)

Jensen (2008) made a distinction between human beings' natural instinct to survive and the ability to think critically, or as he calls it "a survival imperative in the twenty-first century" (p. 143). According to Jensen, critical thinking must be developed for it does not occur naturally, and teachers can utilize the survival instinct to help develop good problem-solvers (p. 143). While a focus on critical thinking may not necessarily be a new approach, it has gained new momentum in the 21st century. National organizations, such as the Partnership for 21st Century Skills, have dedicated their platform to promoting critical thinking, among other essential skills in schools, claiming that "within the context of key knowledge instruction, students must also learn the essential skills for success in today's world, such as critical thinking, problem solving, communication and collaboration" ("Framework for 21st Century Learning", 2015, p. 1). Furthermore, studies have shown that the benefits of developing critical thinking

skills in the classroom are multifaceted and lead to increased student achievement and motivation (Brookhart, 2010).

For Piaget, developmental stages, beginning in childhood, address the "manipulation of symbols" and are foundational skills for "problem solving, self-reflection, and critical reasoning" (as cited in King, Goodson, & Rohani, n.d., p. 19). For Bloom, "higher order skills include analysis, synthesis, and evaluation and require mastery of previous levels" (as cited in King, Goodson, & Rohani, n.d., p. 20). For Gagne, there exists a hierarchy in terms of skill complexity from simple to complex (as cited in King, Goodson, & Rohani, n.d., p. 21). Collectively, all of these theorists advance and confirm the notion that critical thinking and higher order thinking skills should be fostered in education settings. The main conduit for fostering higher order thinking skills is through the curriculum.

Significance of Study

From Dewey to Marzano, scholars suggest that cognitive complexity is essential to education. Developing intelligent, self-sufficient individuals has been a primary aim of education throughout human history; however, a perfect model has eluded us for just as long. Different groups have evaluated standards based upon their own criteria, which as we see above in the case of New Jersey, providing conflicting viewpoints on the same standards. Webb's DOK (2005), which focuses on cognitive complexity, has the potential to provide a more objective lens through which to view various standards in an attempt to support or refute standards and, in turn, move towards a greater educational system. My study expands upon recent studies that utilized Webb's Depth of Knowledge to assess Common Core State Standards. It extends the work of Sforza, Tienken, and Kim (2016) by focusing on another state's standards

while including an additional rater. Furthermore, my study goes beyond Niebling (2012) and Sato, Lagunoff, and Worth (2011) by looking at sub-standards specific to ELA, not only macro-standards. Additionally, my study goes beyond Porter, McMaken, Hwang, and Yang (2011) by providing more clarity regarding the cognitive complexity of each standard compared to the SEC model. Massachusetts state standards have traditionally been held in high regard, yet even the Bay State voted to adopt the Common Core State Standards in 2010. Massachusetts has garnered praise on a national scale for their efforts and success in standards-based education (Achieve), while consistently performing at or near the top of the country on (National Assessment of Educational Progress) assessments. Results of NAEP assessments may be located via the website www. nationsreportcard.gov. The purpose of this study was to compare content complexity within the ELA standards of the CCSS and the former standards of Massachusetts, and in doing so, to extend the body of research on evaluating content complexity.

Limitations

Although this study extends the work of others in terms of utilizing Webb's DOK (2005) to assess and compare educational standards (i.e., Niebling, 2012; Sforza et al., 2016), there is a degree of subjectivity that comes with such a qualitative analysis based on the coders themselves. This human variable is unavoidable when using an instrument such as Webb's DOK framework as each coder brings his or her own expertise and interpretation to the discussion. According to Webb (2007) "an element of subjectivity" exists in alignment studies (p. 7). As such, judgments "cannot be based solely on a clear set of objective rules" and the process "depends heavily on content experts" to make decisions (p. 24). However, the WAT provides a protocol to increase reliability and decrease human bias. Furthermore, results of the study are limited to one instrument (i.e., Webb's DOK) which was the one selected for the study due to its

focus on cognitive complexity. Ultimately, a major limitation is how the standards appear in the classroom. Regardless of which standards are preferable, unless teachers are provided with the professional development and wherewithal to properly implement the standards, then students will not benefit from their intended purpose. Therefore, the fidelity of implementation of Webb's DOK framework is a limitation. Furthermore, as content complexity was the focus of this study, it did not seek to evaluate the quality of the content standards or the philosophical approaches taken by each set of standards.

Delimitations

This study was limited to the Common Core State Standards and the Massachusetts English Language Arts Curriculum Framework (2001) for Grades 9–12, with an emphasis on content complexity. The results cannot be used to make claims about other state standards, other grade levels, or other major tested areas (i.e., math). The grade level and content area were chosen largely due to my area of expertise and due to the fact that Massachusetts standards have traditionally been held in high regard amongst standards across the country.

Definition of Terms

Close reading:

> Close, analytic reading stresses engaging with a text of sufficient complexity directly and examining meaning thoroughly and methodically, encouraging students to read and reread deliberately. Directing student attention on the text itself empowers students to understand the central ideas and key supporting details. It also enables students to reflect on the meanings of individual words and sentences; the order in which sentences unfold; and the development of ideas over the course of the text, which ultimately leads students

to arrive at an understanding of the text as a whole. (Partnership for Assessment of Readiness for College and Careers, 2011, p. 7)

Cognitive complexity refers to the level of thinking required for a given task, ranging from simple to higher level thinking.

Cognitively demanding writing tasks are defined as "tasks which require students to evaluate, synthesize, analyze, or otherwise construct knowledge" and are also "the most important kinds of tasks in a secondary writing classroom" (Benko, 2016, p. 201).

Common Core State Standards Initiative (CCSS):

> The Common Core is informed by the highest, most effective standards from states across the United States and countries around the world. The standards define the knowledge and skills students should gain throughout their K-12 education in order to graduate high school prepared to succeed in entry-level careers, introductory academic college course, and workforce training programs. (NGA & CCSSO, n.d., "About the Standards", para. 5)

Content complexity:

> Content complexity relates to the cognitive demands inferred from the language of a content standard. In essence, content complexity considers factors such as prior knowledge, processing of concepts and skills, sophistication, number of parts, and application of content structure required to meet an expectation or to attain an outcome. Because of its reliance on prior knowledge, content complexity does bear some relation to grade level. (CPALMS, n.d., para. 3)

Text complexity is defined as "a measure of the difficulty a text poses for a reader" (Newkirk, 2016, p. 308). According to CCSS, it contains three criteria: qualitative, quantitative, and reader and task (NGA & CCSSO, 2010).

Webb's Depth of Knowledge (DOK) was developed by Norman L. Webb and is composed of four levels, which describe cognitive tasks for students. Level 1 is Recall, Level 2 is Skills and Concepts, Level 3 is Strategic Thinking, and Level 4 is Extended Thinking. More detailed explanations are presented at the content levels: math, science, and reading/language arts.

21st century skills are an updated set of skills, which proponents believe are essential to the success of today's students. These essential skills, necessary for life beyond school, include "critical thinking, problem solving, communication and collaboration" ("Framework for 21st Century Learning", 2015, p. 1).

Chapter Summary

Standardization in our public schools, with its accompanied assessments, has recently gained increased attention in this country. Stakeholders are skeptical of this "one size fits all" approach to education, which is a byproduct of a standards-based curriculum. If critical thinking and problem solving skills are truly valued, advocating for the best possible standards is critical to the success of our schools. Chapter II includes a brief history of some of the major theorists who have addressed critical thinking in the classroom. It also includes research specific to reading and writing including studies, which have attempted to define best teaching practices to support student learning. A review of several groups who have evaluated standards will also be included. The chapter will conclude with a description of Webb's DOK. Chapter III will include details of the research methodology as well as essential elements of the study including a review

of the coding and analysis of each set of standards. Chapter IV provides answers to the three

research questions and pertinent findings of the study. Chapter V concludes the research with a

summary and recommendations for future study.

CHAPTER II

REVIEW OF THE LITERAURE

Introduction

This chapter provides an overview of the history of critical thinking in education by which to contextualize the discussion of content complexity embedded in education standards. As my study focused on Grades 9–12 English language arts, cognitive complexity specific to ELA and grade levels is reviewed by leading scholars in the field (e.g., Marzano, Langer, Stotsky). As noted in Chapter 1, although different groups evaluated standards to match their own criteria, this study was limited to high-profile national organizations, assessments, and surveys traditionally associated with college preparation and assessment and thus a natural area to focus my study (e.g., College Board, National Assessment of Educational Progress, ACT). Furthermore, discussed in this chapter are specific studies that have likewise sought to measure content complexity through various cognitive frameworks. This chapter concludes by addressing a number of methods for measuring cognitive complexity such as Bloom's Revised Taxonomy, Hess' Cognitive Rigor Matrix, and the Surveys of Enacted Curriculum. Ultimately Webb's Depth of Knowledge was selected as the primary means for this study as it is a tool that has been used in similar studies.

Review Methods

Peer-reviewed educational journals along with web-based articles and sources with a focus on cognitive complexity are some of the sources used in this study. As research dealing with cognitive complexity was rather extensive, I limited my search to national organizations and extracted pertinent information from their websites. As my study is an extension of previous works on the topic, I utilized the recent work of Sforza et al. (2016) as a starting point and

reviewed similar studies (e.g., Porter, Niebling, Sato) but differentiated with a specific focus on high school ELA curriculum standards. Also, a number of seminal works by leading thinkers in the field of education were reviewed to construct a brief history of critical thinking in education (e.g. Dewey, Bloom, Bruner).

Criteria for Inclusion and Exclusion of Literature

Early research for this study included reports from conservative-leaning think-tank groups that have policy positions on the topic of CCSS such as the Heritage Foundation, the Thomas Fordham Institute, and the RAND Corporation. However to limit the focus, a review of a number of high-profile organizations, assessments, and surveys that address English language arts was conducted (i.e. College Board, ACT, NAEP, National Survey of Student Engagement, and National Collegiate Athletic Association). As the study focused on Grades 9–12 ELA and as these groups are closely associated with college and career readiness, they seemed a natural focus for the study. Furthermore, each of these organizations supports their claims through research, whether they are by those considered experts in the field or their own longitudinal data. Apart from the historical background on critical thinking, which in the case of Dewey goes back 100 years, the literature reviewed is limited mostly to the past two decades. However, the work of Langer and Applebee is from the early 1990s. As this study and their work is specific to ELA, it was important to include their writing as they were two of the primary researchers involved with the Center on English Learning & Achievement (CELA), an organization dedicated to researching instruction of English language arts through the State University of New York at Albany. Published books, peer-reviewed journals, and the aforementioned non-profit organizations (e.g., College Board, ACT) were included in the research as well.

Theories of Thinking in Education

John Dewey

The year 2016 marked the 100th anniversary of John Dewey's comprehensive philosophical text entitled *Democracy and Education*. In this work Dewey discussed the roles of knowledge and thinking in classroom instruction. According to Dewey (1916/2012):

> A large part of the art of instruction lies in making the difficulty of new problems large enough to challenge thought, and small enough so that, in addition to the confusion naturally attending the novel elements, there shall be luminous familiar spots from which helpful suggestions may spring. (p. 169)

Additionally, Dewey made a distinction between "static, cold-storage" knowledge, which is stored up and never put to use, and the ability to transfer knowledge to new experiences. The latter is described as "plasticity" and is marked by a student's ability "to retain and carry over from prior experience factors which modify subsequent activities" (pp. 52, 170). The ability to transfer is preferable to when knowledge, as Dewey claimed is often the case, "is treated as an end itself." Such knowledge is "inimical to educative development," since stored knowledge will provide little help for students when they are presented with real problems to solve (p. 170).

Dewey identified three types of instruction. The worst type is isolated from the whole, and does not allow for the student to see connections with other lessons within the content or outside of it. The second type of instruction builds upon prior lessons while shedding light on what is already known. Finally, the third and best type adds an interconnectedness, which fosters "the habitual attitude of finding points of contact and mutual bearings" (Dewey, 1916/2012, p. 175). Ultimately, instruction should involve a process in which a "genuine situation" presents

itself with a "genuine problem" where the student is equipped with both the information and ability to think it through and thus put his thinking to the test (pp. 175–176). Two decades later in a slimmer volume entitled *Experience & Education*, Dewey (1938/1997) again addressed what was perceived as a problem in education, specifically, the ability to develop young thinkers. With the focus on critical thinking in today's education system, Dewey's words are as true today as they were in 1938:

> We are told that our schools, old and new, are failing in the main task. They do not
> develop, it is said, the capacity to reason for critical discrimination and the ability to
> reason. The ability to think is smothered, we are told, by accumulation of miscellaneous
> ill-digested information, and by the attempt to acquire forms of skill which will be
> immediately useful in the business and commercial world. (Dewey, 1938/1997, p. 85)

E.L. Thorndike

E.L. Thorndike (1924) conducted an experiment, which attempted to assess gains in "general intelligence" on two exams conducted in May of 1922 and May of 1923. Students were categorized based upon the types of classes they were enrolled in, as the study sought to compare results in an effort to see which grouping of courses resulted in the greatest gains in terms of intellectual improvement. Courses in this study included traditional academic courses such as French, chemistry, and geometry, as well as what today would be considered more vocational subjects such as shop, cooking, and sewing. Of the more than 8500 students who participated in this study, Thorndike (1924) concluded that his findings "are in pronounced opposition to the traditional view that certain subjects produce much more general improvement in ability to think than others" (p. 94). Thorndike asked his readers to imagine if a psychologist from Mars, knowing nothing of mental discipline, came to seek out the influence of sex, race, and

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coursework on the ability to increase intelligence over the course of a year; he might conclude: "The differences are so small and the unreliabilities are relatively so large that this factor seems unimportant" (p. 95). This finding contradicts traditional theory that subject matter, particularly the study of languages and mathematics, plays a vital role in the improvement of the ability to think (p. 96). According to Thorndike:

> When the good thinkers studied Greek and Latin, these studies seemed to make good thinking. Now that the good thinkers study Physics and Trigonometry, these seem to make good thinkers. If the abler pupils should all study Physical Education and Dramatic Art, these subjects would seem to make good thinkers. (p. 98)

Thorndike's findings indicate that good thinking is the determining factor when increases are made in intellectual improvement. Furthermore, such improvement does not necessarily correlate with courses that are traditionally perceived as more academic.

Jean Piaget

Tanner (2016) addressed the similarity of ideas expressed by Dewey regarding cognitive development and Swiss psychologist Jean Piaget by asserting that Piaget owed a credit to Dewey whose theories preceded Piaget by half a century. Tanner presented a comparison of Dewey and Piaget's theories on the stages of cognitive development in children. For the purpose of this study, Stage IV (formal operations) comparisons, which cover "late childhood through adolescence" (p. 15) will be the only stage reviewed. Tanner (2016) noted that for Dewey, the adolescent has the ability to address a given problem through creating a hypothesis and utilizing evidence and additional materials through which to solve it. Whereas for Piaget, the adolescent has the power to deduce, infer, and formulate theories (p. 15). In his 1947 work, *The Psychology*

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of Intelligence, Piaget (1947/2001) explained that the adolescent "thinks beyond the present and forms theories about everything, delighting especially in considerations of that which is not" (p. 163). Tanner synthesized the work of Dewey and Piaget stating that in this final stage, "the power of reflective thought becomes manifested. Through hypothetical thinking, problems are tested for validity, reliability and possibilities for solution and application by devising appropriate means and material resources" (Tanner, 2016, p. 16).

According to Ginsburg and Opper (1988), Piaget believed that "possibility dominates reality" (p. 201) for the young thinker. When a scientific problem presents itself, the adolescent thinker has the ability to imagine results and consider a range of possibilities and interpretations. Furthermore, cognitive abilities in the adolescent have progressed "to the point where they can effectively adapt to a great variety of problems" and so by the end of this developmental stage "cognitive structures, are almost fully formed" (pp. 201–202). Equilibrium, in terms of thinking, "implies an active balance or harmony" between the child and the surrounding. It is a "system" which "is never at rest" as it "continually interacts with the environment" and fluctuates as knowledge changes and develops (p. 222).

Piaget's model of cognitive thinking, that presents a model of equilibrium, is the "spiral of knowing." The model is marked by reflection and constant "successive projections and reorganizations" (Ginsburg & Opper, 1988, p. 232) with the subject's environment. The spiral is "ever-widening" with the inner portion of the spiral representing the equilibrium that contains three major characteristics: *power*, *stability*, and *openness*. *Pow*er refers to how many actions can be performed, *stability* refers to the aptitude by which the structure is retained given environmental changes, and *openness* refers to the ability to take on new ideas and problems. Of the three characteristics, *openness* "ensures that cognition is continually developing."

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Furthermore, it is the combination of the three that "ensure that the equilibration process continually conserves past understanding and constructs new knowledge" (pp. 232–233).

Finally, according to Piaget there are two types of learning: narrow and broad. Narrow learning "involves the acquisition of new information or new responses restricted to a specific situation" (Ginsburg & Opper, 1988, p. 208). Conversely, learning which is broad includes "the acquisition of general knowledge through structures which apply to many situations," thus being transferrable (p. 209). The broad, transferable type of learning is preferable but is also the type that has eluded us according to theorists such as Bloom (Bloom et al., 1956), Bruner (1977), and Gagne (as cited in Fields, 1996).

Benjamin Bloom

Bloom, Engelhart, Furst, Hill, and Krathwohl (1956) and a group of college examiners began discussing the idea for a taxonomy, which would act as a theoretical framework through which to discuss ideas regarding testing. One of the main questions of interest, at what would become an annual meeting, involved the viability of classifying educational objectives (pp. 4–5). Bloom explained the use of a taxonomy in other sciences, specifically, biology "as a means of insuring accuracy of communication" and "as a means of understanding the organization and interrelation of the various parts" (Bloom et al., 1956, p. 1) of living organisms. Bloom believed a taxonomy could be valuable to teachers who deal with "nebulous terms" associated with knowledge (e.g., understand, knowledge, essence). Furthermore the taxonomy served to "provide for classification of the goals of our educational system" (p. 1).

Bloom described the cognitive domain, which is the basis for his taxonomy, as that which contains "the recall or recognition of knowledge and the development of intellectual abilities and

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skills." It is also is most pertinent to curriculum work (Bloom et al., 1956, p. 7). Bloom

maintained that only one type of classification should suffice across subject matters in terms of

student behavior. Though he did express that "instructional methods" are not determined within

the taxonomy, he explained that they hoped to classify "the intended behavior of students–the

ways in which individuals are to act, think, or feel as the result of participating in some unit of

instruction" (p. 12).

As a tool for teachers developing curriculum, the taxonomy can help set instructional

outcomes specific to cognition (e.g., problem solving, creating) while specifying tasks and

outcomes (Bloom et al., 1956, pp. 1–2). Bloom suggested that teaching knowledge is essential,

and students must be able to utilize their knowledge:

> What is needed is some evidence that the students can do something with their
>
> knowledge, that is, that they can apply the information to new situations and problems. It
>
> is also expected that students will acquire generalized techniques for dealing with new
>
> problems and new materials. Thus, it is expected that when the student encounters a new
>
> problem or situation, he will select an appropriate technique for attacking it and will
>
> bring to bear the necessary information, both facts and principles. This has been labeled
>
> "critical thinking" by some, "reflective thinking" by Dewey and others, and "problem
>
> solving" by still others. (Bloom et al., 1956, p. 38)

Bloom stated the need of developing good thinkers when he wrote, "Yet, we need more than ever

to help students develop problem-solving methods which will yield more complete and adequate

solutions in a wide range of problem situations" (Bloom et al., 1956, p. 43).

Below is the taxonomy with a brief explanation from Bloom (Bloom et al., 1956) at each level:

Knowledge "includes those behaviors and test situations which emphasize the remembering, either by recognition or recall, of ideas, material, or phenomena" (p. 62).

Comprehension: "Probably the largest general class of intellectual abilities and skills emphasized in schools and college"...."when students are confronted with a communication, they are expected to know what is being communicated and to be able to make some use of the material or ideas contained in it" (p. 89).

Application: "Given a problem new to the student, he will apply the appropriate abstraction without having to be prompted as to which abstraction is correct or without having to be shown how to use it in that situation" (p. 120).

Analysis "emphasizes the breakdown of the material into its constituent parts and detection of the relationships of the parts and of the way they are organized" (p. 144).

Synthesis: "This is a process of working with elements, parts, etc., and combining them in such a way as to constitute a pattern or structure not clearly there before" (p. 162).

Evaluation "is defined as the making of judgments about the value, for some purpose, of ideas, works, solutions, methods, materials, etc. It involves the use of criteria as well as standards for appraising the extent to which particulars are accurate, effective, economical, or satisfying" (p. 185).

From Knowledge through Evaluation there is a gradual increase of what students should be able to do in terms of cognition. It is interesting to note that Bloom believed Comprehension was the most prevalent of his six levels in American schools and colleges, yet in terms of critical

thinking, Comprehension is only the second level in the taxonomy. Dewey (1916/2012) also understood this conundrum when he stated, "The very word pupil has almost come to mean one who is engaged not in having fruitful experiences but in absorbing knowledge directly" (p. 151). When considering Bloom's (Bloom et al., 1956) assertion that we need evidence to show that "students can do something with their knowledge," (p. 38) recognizing and recall (i.e., Knowledge) and making "some use of the material" (i.e., Comprehension) (p. 89), hardly accounts for doing anything with knowledge. It is when students apply new knowledge (i.e., Application), take apart and examine relationships (i.e., Analysis), combine elements to reveal new patterns (i.e., Synthesis), and make informed judgments (i.e., Evaluation) that they are really doing something. As it was in 1956, so is it critical today that students are able to utilize their knowledge and content complexity of standards can help assist teachers ensure that students are in fact "do[ing] something with their knowledge" (Bloom et al., 1956, p. 38).

Jerome Bruner & Robert Gagne

In his 1960 landmark text, *The Process of Education*, American psychologist Jerome Bruner (1977) stated, "The teaching and learning of structure, rather than simply the mastery of facts and techniques, is at the center of the classic problem of transfer" (p. 12). For Bruner, an understanding of basic concepts at a young age, no matter how difficult the subject is perceived to be, is essential in cognitive development (pp. 12–13). It is the "continual deepening of one's understanding" of the basic concepts that results from "learning to use them in progressively more complex forms" (p.13). Bruner put this concept more succinctly when he stated, "What is most important for teaching basic concepts is that the child be helped to pass progressively from concrete thinking to the utilization of more conceptually adequate modes of thought" (p. 38). As with Piaget, Bruner likewise spoke of two types of learning. The first type involves "specific

applicability" to similar tasks and is described as "transfer of training;" however, the second type involves "the transfer of principals and attitudes." It is this second type of transfer, which according to Bruner, is "the heart of the educational process" as it provides the learner the ability to recognize future problems that will allow for a "continual broadening and deepening of knowledge" (p. 17). Bruner placed the notion of transfer within the context of learning, as two of the three "almost simultaneous processes" (p. 48): acquisition, transformation, and evaluation. According to Bruner, transformation is:

> the process of manipulating knowledge to make it fit new tasks. We learn to "unmask" or analyze information, to order it in a way that permits extrapolation or interpolation or conversion into another form. Transformation comprises the ways we deal with information in order to go beyond it. (Bruner, 1977, p. 48)

Robert Gagne, similar to Bruner, also spoke of two types of transfer, but Gagne defined them as lateral and vertical transfer. For Gagne, learning that is applicable to practical or occupational problems is called lateral transfer, while learning that enables students to grapple with more complex problems is called vertical transfer (as cited in Fields, 1996, p. 225). Fields noted that "it is evident that Gagne accepts the proposition that intellectual skills and higher order capabilities may be learned for a specific intent or object" (p. 226).

Robert Marzano

One popular teacher evaluation model used in our public schools today is the Marzano Teacher Evaluation Model that is supported by Robert Marzano's book *The Art and Science of Teaching* (2007). In his book, Marzano (2007) addresses 10 instructional design questions

aimed at "effective instruction". Questions 2–4 deal specifically with the interaction with new knowledge at various cognitive levels:

2. What will I do to help students effectively interact with new knowledge? (p. 29)

3. What will I do to help students practice and deepen their understanding of new knowledge? (p. 58)

4. What will I do to help students generate and test hypotheses about new knowledge? (p. 86)

As Marzano explained, "The basic generalization has been that learners must be actively engaged in the processing of information and that the teaching and learning process involves an interaction among the teacher, the students, and the content" (Marzano, 2007, p. 31). Furthermore, practicing with new information is essential for deepening knowledge, otherwise students run the risk of losing that information when the opportunity for "extended processing" is not provided (p. 58). Marzano addressed deepening knowledge in his third instructional design question that asks: "What will I do to help students practice and deepen their understanding of new knowledge?" (p. 58). To this question, Marzano (2007) offered four approaches: schema development, development of procedural knowledge, development of declarative knowledge, and homework.

Marzano related *schema* to Piaget's work on knowledge development, specifically, assimilation and accommodation. As Marzano explained, Piaget "describes the process of assimilation as that of gradually integrating new knowledge into a learner's existing knowledge base." Whereas accommodation "involves changing existing knowledge structures as opposed to simply adding information to them" (Marzano, 2007, p. 59). Dewey (1916/2012) discussed the

phenomena through the term "plasticity," which accounts for the way children use past experiences to "modify subsequent activities" (p. 52). Procedural knowledge involves "skills, strategies, or processes" such as the editing of an essay for logic or mechanics, while declarative knowledge is "informational in nature" such as identifying various literary elements specific to genre (Marzano, 2007, p. 60).

According to Marzano (2007), his first three questions take students to where "they have a good understanding of new information (declarative knowledge) and can perform new skills, strategies, and processes (procedural knowledge) with some fluency" (p. 86). However,

> If the teacher wishes to move students beyond these levels of knowing, then students should be engaged in tasks that require them to experiment with the new knowledge. In the vernacular of this design question, students must generate and test hypotheses about the new knowledge. (Marzano, 2007, p. 86)

This relates back to Piaget's notion of accommodation or restructuring in which knowledge is reorganized and questioned by the student, which is essential to problem-based learning (Marzano, 2007, p. 87).

Cognitive Complexity in Secondary English

Difficulty vs. Complexity

According to Sousa (2006), while complexity and difficulty are often, and mistakenly, used interchangeably they actually have different meanings. "*Complexity* describes the *thought process* that the brain uses to deal with information." "*Difficulty*, on the other hand, refers to the *amount of effort* that the learner must expend *within* a level of complexity to accomplish a

learning objective" (p. 256). Furthermore, a task may become more difficult though the complexity can stay the same. Sousa believed that teachers oftentimes increase the difficulty of an assignment when attempting to increase its complexity. He attributed this to the fact that teachers may not understand the terms, or they associate difficulty with higher order thinking. Furthermore, some teachers believe only high-achieving students can engage in complex tasks, but again, this is where difficulty is confused with complexity (p. 256). Learners who might have less prior experience with specific content or ideas need time to process and sort ideas in order to complete complex tasks, but this does not deter nor prohibit them from completing such tasks. As an example, Sousa cited a study by Bloom in which less ready students were provided the sorting and a clearer focus on critical aspects; the end result was that some of these students performed better than their peers (pp. 257-258).

Sousa (2006) further illustrated the difference between difficulty and complexity through the idea of a horizontal and vertical movement. He asked us to imagine a horizontal line going across a level of Bloom's revised taxonomy to represent increased difficulty in a task without an increase in thinking process on the part of the student. Conversely, an increase in complexity moves up to a higher level in the taxonomy, which can be achieved through a number of teaching strategies (p. 268).
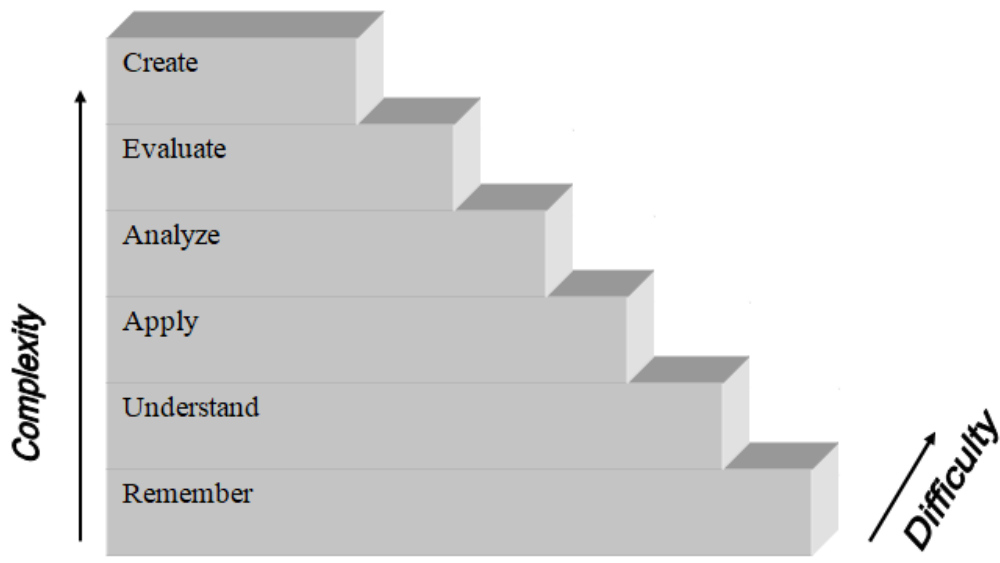
Figure 1. Levels of Bloom's Revised Taxonomy: Difficulty and Complexity. Republished with permission of Corwin Press, from *How the Brain Learns*, by David A. Sousa, third edition, p. 257, 2006; permission conveyed through Copyright Clearance Center, Inc.

Brookhart (2010) made distinctions between difficulty and complexity and noted that when we know the differences we can "use higher-order thinking questions and tasks with all learners" (p. 29). She warned about the "misconception," which is a belief "that recall is 'easy' and higher-order thinking is hard" (p. 29). Furthermore such a thought process leads to "shortchanging young students and shortchanging low achievers of any age" because along with it comes the assumption that students "are not 'ready' to do higher-order thinking" (p. 29). The takeaway for these students when instruction focuses on recall rather than higher order thinking will be "that school is boring" (p. 29). Though not specific to difficulty and complexity, Dewey (1910/2005) warned about underestimating those students teachers may feel are not up to task when he stated that a "pupil labeled hopeless may react in quick and lively fashion when the thing-in-hand seems to him worth while" and that he may find interest if the subject "were it set in a different context and treated by a different method" (p. 29).

The Cognitive Rigor Question (CRQ) Framework (Francis, 2016), which incorporates Hess' Cognitive Rigor Matrix, a superimposement of Bloom's Revised Taxonomy and Webb's Depth of Knowledge, is one such strategy that is intended to help deepen student thinking. The CRQ Framework addresses eight types of questions from factual and analytical to affective and personal in an effort to promote cognitive rigor. According to Francis, "Cognitive rigor prompts and encourages students to think deeply and to express and share the depth of their learning by addressing and responding to good questions" (pp. 18–19). The CRQ Framework both "guides students to pursue deeper knowledge and respond insightfully," but it also allows for students to do so "in their own unique way" (p. 19).

Francis (2016) provided examples from various academic disciplines that reflect the various levels of Webb's DOK. Below are two English language arts examples of what he calls "good" questions:

Hypothetical: "What could be done to prevent the future from becoming like the one depicted in *Fahrenheit 451*?" (p. 97)

According to Francis, "Good hypothetical questions incite both critical and creative thinking in literature, art, and music" (p. 96). Such thinking allows students to consider "broader ideas" while helping students "engage in the cognitive process of examining and expressing ideas critically and creatively" (pp. 96–97).

Affective: "What are *your* thoughts about *The Adventures of Huckleberry Finn* by Mark Twain as a social commentary on antebellum America and the principles and virtues of civilized society?" (p. 132)

According to Francis, "Affective questions turn students into critics or reviewers, judging a text or work based upon its merit, quality, and value" (p. 131). Good affective questions "prompt students to express their own ideas and perspectives about the novel," as well as provide interpretations of text (p. 133).

Although the questions above may require a significant amount of effort on the part of the student, in actuality they are more complex than difficult. This is because the questions require students to do something with their knowledge beyond recalling information about the books. Students are tasked with completing a process, as opposed to providing information. These two questions are higher on Webb's DOK. Although Francis (2016) claimed that higher is not "'better' or even more desirable than other levels," the higher levels "provide a deeper context for the transfer and use of student learning" (p. 15).

Cognitively Complex Tasks

According to Senn, Marzano, Moore, and Sell (2015), higher level thinking skills needed for cognitively complex tasks are "skills that ultimately lead to the generation and testing of hypotheses about knowledge [students] have acquired in [the] classroom" (p. 5). A requirement for students to engage in these tasks is "the ability to produce and support claims," and it is critical that students "learn, practice, and deepen their understanding of content" (pp. 5–6) in order to best utilize their knowledge at a high cognitive level. In preparing students for cognitive tasks, teachers must be patient and allow for students to "ponder, debate, and even struggle a bit" (p. 9) while ensuring that students are the ones doing the thinking. No matter the duration of the assignment, short or long-term, "students need time to reach their own conclusions and support them with evidence" (p. 9). To facilitate the cognitively complex tasks, Senn et al. presented a

nonexhaustive list of teacher behaviors, which include actions such as the following: modeling and identifying essential steps for creating and testing a hypothesis; teaching and requiring the use of evidence; and encouraging students to examine, analyze, and think for themselves (p. 11).

Senn et al. (2015) described and identified six instructional techniques providing examples at the elementary and secondary level, while also identifying "common mistakes" as well as suggestions for scaffolding and extending. Below is the list of each technique described:

Investigating: "students generate and test a hypothesis by investigating what others have said or written about a specific idea, event, or concept" (p. 17).

Problem Solving: "students generate possible solutions to overcome an obstacle or constraint, and then test and defend their possible solutions. Conclusions are based on evidence that students document when they test their potential solutions using established criteria" (p. 33).

Decision Making: "require students to predict the best alternative and then analyze their thinking to judge that alternative based on preestablished criteria to confirm or disconfirm their original hypothesis of which alternative would meet the criteria" (p. 47).

Experimental Inquiry: "differs from the investigating technique in that students design the procedure they will use for collecting evidence" (p. 63).

Inventing: "is similar to problem solving, but has the express purpose of creating and testing a prototype (trial product) to meet criteria" (p. 81).

Student-Designed Tasks: "students design their own tasks. They decide what their focus will be and have freedom to pursue specialized interests" (p. 97).

Much of Senn et al.'s (2015) work is relevant to a booklet entitled *Guidelines for Teaching Middle and High School Students to Read and Write Well: Six Features of Effective Instruction* (2000). Based on a 5-year study beginning with 44 ELA programs that was narrowed down to four exemplars, Langer, Close, Angelis, and Preller (2000) identified six features of effective ELA instruction. In this study by the National Research Center on English Learning & Achievement (CELA), the authors noted that the six features, listed below, were not only found in higher performing schools but were also those schools that contained all characteristics (p. 3).

1. "Students learn skills and knowledge in multiple lesson types."
2. "Teachers integrate test preparation into instruction."
3. "Teachers make connections across instruction, curriculum, and life."
4. "Students learn strategies for doing the work."
5. "Students are expected to be generative thinkers."
6. "Classrooms foster cognitive collaboration."

A variety of instructional approaches are favored, along with incorporating activities which, "ask students to apply concepts and rules" thus linking "skills and knowledge within the context of a purposeful activity" (Langer et al., 2000, p. 4). When teachers make connections, they provide a usefulness to the skills and knowledge students acquire, showing how they are applicable to other instances (p. 8). When challenging tasks are presented, teachers in higher performing schools provide support and break down the tasks into manageable parts. Such instruction on the part of the teacher is "not merely procedural" (p. 10) but rather an intentional way to get students to think about the process. As such, "students learn and internalize ways to work through a task, and to understand and meet its demands" (p. 10). Furthermore, "Teachers

scaffold students' thinking by developing complex activities and by asking questions that make

the students look more deeply and more critically at the content of lessons" (p. 10). Langer et al.

described a "generative approach" (p. 12) common to higher performing schools. As the term

suggests, students generate ideas based upon the skills they acquire. This allows students to go

beyond the surface level of ideas as teachers provide means for students to "generate deeper

understandings" (p. 12). Numerous examples of classroom activities are provided in their report,

though a common theme is considering multiple points of view and extending thought beyond

the initial reading or lesson (p. 12). Finally, "cognitive collaboration" is a common trait, which

fosters "thoughtful dialogue" in the classroom. Students become "both problem-generators and

problem-solvers" as the expectation in this group work is "to sharpen their understandings with,

against, and from one another" (p. 14).

A recent study conducted by Susanna L. Benko (2016) focused on preservice teachers

and cognitively demanding writing tasks. As Benko stated, "Though a great deal is known about

high-quality writing instruction, less is known about how teachers, through their instruction,

support students to complete tasks at a high level" (p. 201). What was found in her results is that

while intentions and plans for instruction are good, preservice teachers fall short in supporting

"the complexity of the tasks" (p. 201). Benko also noted beyond good instruction, opportunities

for student learning are found in the types of assignments. She recognized past research, which

claimed that "cognitively demanding writing tasks—tasks which require students to evaluate,

synthesize, analyze, or otherwise construct knowledge—are the most important kinds of tasks in

a secondary writing classroom" (p. 201). She generalized cognitively demanding writing tasks

into two kinds: one asks students to "construct knowledge rather than restate or summarize;" the

other asks students to "elaborate on their thinking by making claims and using evidence or

reasoning" (p. 201). It should be noted, however, that such tasks "are the exception rather than the norm in an ELA classroom" (p. 202). While such tasks may not be so prevalent in ELA classrooms, the benefits in terms of a cognitive process is that such tasks "require students to wrestle with ideas and make meaning from texts in ways that less-challenging tasks do not" (p. 203).

For her study, Benko (2016) took a sample of 26 students in a secondary English education program. The preservice teachers (PSTs) were assessed on their understanding of cognitively demanding writing tasks, and three who exhibited the strongest skills were chosen for the study (p. 208). As she explained:

Although cognitive demand was not a focal point of the course, PSTs had several opportunities to learn about cognitive demand and task design...In the course, PSTs learned that cognitively demanding writing tasks typically require (a) writing that moves beyond summary and/or retelling and that asks students to construct knowledge and (b) use of evidence from a text (when in response to literature). (p. 209)

In her study, tasks that she identified as "cognitively demanding" were those that asked students to interpret a work of literature using textual evidence to support their interpretations (p. 215). One PST provided specific strategies by asking students "to focus on a few words within the quote that advance the purpose for using the quote and explain why those words are important" (p. 223). Another PST extended the strategy by asking students to pinpoint a "particular purpose" of a quote as it relates to the conceivability of the characters (p. 224). In her discussion of the study, Benko made a few observations about the writing process in terms of instruction. She expressed surprise in that the PSTs "seemed to have a rather underdeveloped

understanding of important concepts such as a process-based approach to writing instruction" (p. 229). She did not observe "the critical recursiveness of the writing process" and only "limited opportunities" for "idea-generation and development" in the initial stages of the writing process. Furthermore, "PSTs relied on declarative knowledge" (p. 229) and at times seemed to be confused in terms of what they were explaining and how students should proceed.

Complexity of the Literature Curriculum

Stotsky (2012) provided a history of the secondary English curriculum in the United States, with an emphasis on the general decline of cognitive complexity in high school English classroom following the Second World War. Stotsky maintained that approaches to teaching literature have emphasized the nonanalytical while assigned books have become less challenging, resulting in a general incoherency of curriculum. These are a number of factors accounting for, as the title of her book proclaims, the "death" of the literature curriculum.

Stotsky (2012) provided a brief history of the various approaches to the study of literature in American secondary schools while citing a 2010 report from The Association of Literary Scholars, Critics, and Writers, which surveyed over 400 teachers, Grades 9–11, to find out which works are assigned in the classroom and which approaches to literary study are utilized (p. 15). A brief history of approaches to literature is provided below as a point of reference, and it should be noted that, according to the findings, each approach accounted for nearly 20% or higher when imaginative literature or nonfiction was being taught.

- 1880–1940s - Literature is placed in a biographical and historical context, "with its meaning matter of personal impression."

- New Criticism - This approach began in the 1930s, while carrying momentum into the 1970s "stressed the analysis of the relationship between a work's form and meaning." In this manner New Criticism was "objective," giving the work itself priority over biography or history.

- Reader response - This approach of the 1960s–1970s asked students to interpret a work based on "their personal experiences or idiosyncratic responses to it."

- Last third of 20th century - In this period historical and cultural context became the focus. In this multicultural approach, came a "common thread" which held that "the meaning of a literary work is undecidable" leading to different interpretations. (Stotsky, 2012, pp. 30–31)

According to the survey, although all of the above approaches were accounted for, close reading (i.e., New Criticism) was selected less frequently than reader response, which according to Stotsky, confirmed "the dominance of nonanalytical approaches in the study of literary texts" (p. 31). The ramifications of a nonanalytical approach to literature is that if students are not taught to read "between the lines," their critical reading and thinking skills will never develop (p. 35).

Aside from approaches to literature, Stotsky (2012) also commented on the literature that is selected for instruction as a source of the problem. As one example, she cited the influence of multicultural literature in the classroom beginning in the 1970s:

A seemingly benign movement dedicated to the inclusion of quality literature by authors or about groups almost invisible in the traditional curriculum had invisibly morphed into a movement leading to the selection of texts that had little literary quality or were not literary in nature at all. (pp. 57–58)

The inclusion of new, multicultural texts meant the removal of other more traditional texts, and it seemed that "choice tended to reflect little attention to the text's level of reading difficulty" (p. 60). Consequently, a significant problem with such a practice is that the works being replaced "were typically more difficult works to read than their replacements" (p. 65). Stotsky maintained that we can document this decrease in rigor by simply looking at the reading levels of books currently taught versus the ones which have been replaced. She also noted that this is evidence to "a deceleration of [students'] intellectual growth" (p. 94).

However, studies conducted by the National Center on Literature Teaching and Learning contradict the findings of Stotsky in terms of the teaching of traditional works of literature. According to Applebee (1992), studies conducted that focused on the teaching of literature in American high schools show that "rather than the watering down of the curriculum," (p. 28) their findings show strong consistency in the works taught. Furthermore, efforts to expand the canon of literature have resulted in "marginal increases" in texts by women and non-American or European cultures as "few book-length works from alternative traditions seem to have entered the canon of required texts" (p. 28). Admittedly, the teaching of literature "is a somewhat ambiguous concept;" however, the "study of individual major works emerged as the most frequently cited approach to structuring the curriculum" (p. 29). Applebee claimed that English curriculum continues to be "relatively traditional" with teachers citing "literary merit," "personal familiarity," and "likely appeal to students" as the most important factors when selecting texts for study (pp. 30–31). Furthermore while "there remains a great deal of variety, there is more consensus about particular texts, and especially about particular authors" (p. 31). Applebee concluded by stating that "the most striking feature" is "how narrow much of the curriculum remains" (p. 32). He pointed to the canon as that which continues to marginalize the works of

women and minorities and suggested that teachers must "insure that programs are culturally relevant as well as culturally fair" (p. 32).

Critical Thinking in ELA

Judith A. Langer (1992) in her report entitled, *Critical Thinking and English Language Arts Instruction*, claimed that the "current national focus on critical thinking is unnecessarily narrow in its scope" (p.1). In focusing on "broad reasoning behaviors" rather than those specific to content areas, the former of which she believes to be the traditional "one dimensional view of critical thought," education dismisses other important areas of cognitive thinking (p. 1). Langer believes that a lack of "literary thinking" in the classroom has in many cases led to the teaching of literature in a "non-literary manner" throughout the United States (p. 2). The art of storytelling and the thinking involved, which is central to studying literature is "never taught, rarely noticed, and sometimes suppressed" (p. 2). As Langer noted, "there has been relatively little research into the cognitive and communicative processes involved in either the learning or teaching of literature" (p. 2). Conversely, when one considers literature instruction, it is the content that comes to mind rather than the development of a literary mind. Langer, therefore, favored a reader response approach rather than the New Critical approach (p. 2). Langer condemned the New Critical theory approach, marked by the close reading of texts, in which the greater cognitive processing occurs "only <u>after</u> students know the facts" (p. 2). Furthermore the identification of "common images, evocations, and responses" creates more "consensus" in English instruction (p. 3).

According to Langer (1992), reader-response theories have the following in common: "All regard readers as active meaning makers with personal knowledge, beliefs and experiences

that affect responses and interpretations — thus creating the potential for more than one 'correct' interpretation" (p. 3). Moreover, since multiple perspectives are considered and presented, the study of literature is enhanced through such various interpretations offering an additional layer of complexity (p. 3). Langer discussed reader-response through what she calls the "horizon of possibilities" (p. 4). Such a process of making sense of a literary work involves "what it is to be human" (p. 4), that is, considering any number of human experiences. Additionally, our interpretation of the text is in constant flux as "possibilities arise and multiple interpretations come to mind, expanding the complexity of our understandings" (p. 4). This type of critical thinking is very different from that of other disciplines since the end goal is not the attainment of specific information (p. 4). Langer's efforts have involved finding ways to help students "arrive at their own responses, explore possibilities, and move beyond initial understanding toward more thoughtful interpretations" (p.7). To that end, her team has identified a number of characteristics to help develop such thoughtful responses to literature. Having students take ownership of the discussion is paramount as they work through the text, and class time is dedicated to deepening understanding through reconsidering interpretations as opposed to teachers checking for understanding through traditional methods (pp. 7–9). As Langer noted:

> Literary understanding will need to be granted its place next to informative understanding as a necessary component of critical thought and intelligent literate behavior— an essential goal of schooling. What counts as knowing and reasoning will therefore need to change, to focus on students' growing abilities to engage in the act of literary understanding as well as their knowledge of the content. (Langer, 1992, p. 10)

For Applebee (1994) "the encouragement of thoughtfulness" had emerged as "a platitude in the current wave of educational reform" (p. 45). As such, it is important to "teach students to arrive at new understandings, to think for themselves, to become independent knowers and doers" (p. 45). However, Applebee recognized this conundrum when he wrote, "As a profession we have boxed ourselves into this kind of teaching—where we want students to think for themselves *and* to get the right answer—in part by how we think about curriculum" (p. 45). With a literary canon that is primarily "white, male, and Eurocentric," the expectations are "right answers" as opposed to "thoughtful interpretations" (p. 45).

Applebee (1994) believed that effective teachers establish coherence in their classrooms keeping curriculum "alive and well" (p. 46). These exceptional teachers "have a sense of what they are doing and why, and they create within their classrooms a sense of coherence and direction that students recognize" (p. 46). Applebee distinguished between teaching "that construes knowledge as fixed and transmittable," as in the case of studying "Great Books," grammar, and phonics, as opposed to a style "that views learning as *constructed* by the learner rather than inherited intact, or that emphasizes thoughtfulness and reflection" (p. 46). Applebee believed that the time has come to move towards a constructivist view of English curriculum and away from one "that inadvertently reinforce an emphasis on content knowledge" as opposed to "ways of knowing and doing" (p. 51).

Arguments will continue to be made from both sides in terms of approaches to teaching the English curriculum. However, standardization favors the New Critical approach, which is heavily focused on textual support, as opposed to the reader response that is more focused on the experience and interpretation of the reader. This is not to say that textual support is not accounted for in the reader response approach, because it would be impossible to explore

possibilities without it. Both sides present valid arguments, and perhaps the answer lies in the middle: a balance of both ideologies.

National Reports, Studies, and Surveys

This portion of the chapter will review recent reports, studies, and surveys formulated by national organizations, which have expressed concerns and interests in student performance, the quality of reading and writing instruction, and the significance of such skills in terms of benefitting students in years to come. For the purpose of this study, these documents were examined to uncover how cognitive complexity plays a role in Grades 9–12 English language arts.

College Board – Founded in 1900, the College Board "is dedicated to promoting excellence and equity in education" (College Board). In 2002, motivated by "the growing concern within the education, business, and policy making communities," the College Board established the National Commission on Writing which explained that "writing today is not a frill for the few, but an essential skill for the many" (Magrath, 2003, pp. 7,11). Extending the work of the National Commission on Writing, the College Board has also produced an extensive document grounded in research from the last 50 years, which "attempt[s] to define the English language arts and to describe the consensus within the profession of English educators;" (Brinkley, n.d., p. 4) this document is The College Board ELA Framework.

ACT – Founded in 1959 and noted for its popular college-entrance assessment, "ACT is an independent, nonprofit organization that provides assessment, research, information, and program management services in the broad areas of education and workforce development" (ACT, 2016). The ACT regularly conducts national surveys to assess what is being taught in the

classroom (e.g., ACT National Curriculum Survey 2012: English Language Arts), and most recently one, which included members of the workforce to assess which skills and knowledge are essential beyond K–12 (i.e., ACT National Curriculum Survey).

NAEP – Founded in 1969, the "congressionally authorized" National Association of Educational Process (i.e., The Nation's Report Card) "collects and reports information on student performance at the national and state levels" (U.S. Department of Education, 2012, September). In their 2011 report on writing, the NAEP describes writing as a "complex, multifaceted, and purposeful act of communication" (U.S. Department of Education, 2012, September, p. 4). Likewise, NAEP speaks to the complexity of reading in their 2013 framework claiming, "The ability to read critically and analytically is crucial for effective participation in America's democratic society" (U.S. Department of Education, 2012, October, p. vii).

NSSE – Piloted in 1999 and administered by Indiana University Center for Postsecondary Research, The National Survey of Student Engagement serves to "Provide data to colleges and universities to assess and improve undergraduate education" ("A Fresh Look," 2013, p. 6).

NCAA HSRC – The NCAA High School Review Committee, which consists of nine members from Division I and II schools as well as secondary school communities, serves to review high school courses "to determine the validity" (NCAA, n.d., p.5) in terms of ensuring courses are in alignment with their requirements for athletic eligibility. The most recent document for purposes of this study is the *NCAA High School Review Committee: Policies and Procedures 2016-17* (NCAA, n.d.).

Cognitive Demand in National Reports, Studies, & Surveys

College Board

The National Commission on Writing, established by College Board in 2002, calls for a "writing revolution" and maintained that "of the three 'Rs,' writing is clearly the most neglected" (Magrath, 2003, p. 3). Although the Commission recognizes that it can only recommend change, its suggestions for change are supported by NAEP findings and call for greater rigor, support, and a common vision (e.g., work time dedicated to writing in classrooms, greater focus on instruction in college, financial support, writing across curriculum). In terms of cognition, The Commission explained that writing "is best understood as a complex intellectual activity that requires students to stretch their minds, sharpen their analytical capabilities, and make valid and accurate distinctions" (p. 13). Also, it is through writing that students have "the pleasure of exercising their minds in ways that drilling on facts, details, and information never will" (p. 14). As such, "writing is an act of discovery" and the means by which "students connect the dots in their knowledge" (p. 14).

The College Board ELA Framework values NAEP data since "few other sources of national data exist for English language arts" (Brinkley, n.d., p. 7). The Framework identified several initiatives geared towards defining ELA and establishing rigor (e.g., NCTE standards, ADP), while citing numerous studies in this extensive document, which serves to articulate "the factors central to the development and maintenance of high-quality programs in middle school and high school English language arts" (p. 8). Specific to reading, the College Board recognizes the following skills students need for "college success": "construct a coherent understanding," "make connections" and "analyze how authors use language" (p. 21). In terms of writing, the

College Board highlights several writing elements including, reflection, revision, organization, evaluating, employing proper usage, and conducting research (p. 27). In terms of reading, The Board identified several defining characteristics of proficient readers, which include but are not limited to the following: "use existing knowledge to make sense of new information," "draw inferences," "synthesize info to create new thinking" (p. 17).

ACT

The ACT's National Curriculum Survey (2013) seeks to find out from educators "what they teach (or don't teach) in their courses and how important they feel about various topics" (p. 1) so that students may succeed; it also serves as a source that influences the updating of their assessments. Their 2012 English language arts survey included K–12 ELA participants as well as college instructors for a total 9,937 participants. The survey produced five findings recorded below in the areas of reading and writing:

- "Finding 1: Teachers of high school literature and reading courses tend to place more importance on literary content knowledge than do instructors of typical credit-bearing first-year literature courses in college." (ACT, 2013, p. 5)

- "Finding 2: Across subject areas, the amount of assigned reading tends both to increase and to become more demanding from high school to college—but perhaps not as much as is generally assumed." (ACT, 2013, p. 6)

- "Finding 3: Teachers of high school English/language arts, writing/composition, and literature courses rate the importance of particular modes of writing similarly to instructors of credit-bearing first-year college composition, composition/rhetoric, and English courses." (ACT, 2013, p. 7)

- "Finding 4: Across subject areas, writing assignments longer than five pages are generally given more frequently by college instructors than by high school teachers." (ACT, 2013, p. 8)

- "Finding 5: Across subject areas, high school teachers almost always reported assigning more research papers than did college instructors." (ACT, 2013, p. 9)

In terms of cognitive demand, findings here stand to reason (i.e., demands associated with reading increase in college as do the length of written assignments). It is interesting to note that high school teachers are more concerned with literary content knowledge, which involves lower cognitive demand. However, it could also be that high school teachers are more concerned with establishing literary foundations, which may be expected to have been formulated by the time students reach college.

In 2016, The ACT National Curriculum Survey added an additional component incorporating "a national cross-section of workforce supervisors and employees" to determine "which skills and knowledge in these subjects are currently being taught at each grade level and which skills and knowledge are currently considered essential for college and career readiness" (ACT, 2016, p. 1). Participants in this survey numbered 9,266 (high school 2,717; college 2,252; supervisors 371; employees 297). Results indicated "a general agreement that students and employees should be able to write for a variety of purposes, audiences, and contexts" (p. 7). Furthermore, "middle school and high school teachers appear to value a greater diversity of approaches to writing than do college instructors" (p. 7). Forty-seven percent of college instructors say students should be good at "generating sounds ideas for writing" while 43% of high school teachers say the ability to "critically analyze sources" is paramount (p. 8). In both cases each type of writing is at a high cognitive level and certainly at a higher level than the two

other options from the survey (i.e., "use language conventions proficiently," "clearly summarize other authors' ideas in writing") (p. 8).

The National Association of Educational Progress (NAEP)

The 2011 report on the assessment of writing by The National Association of Educational Progress (2012, September) for Grade 12 drew from 28,100 participants from 1,220 schools. Based on the NAEP's definition of "Proficient," "Basic," and "Advanced" students performing at these levels were 24%, 52%, and 3% respectively (U.S. Department of Education, p.1). The "Basic" level is marked by coherency and structure in response to a task, while providing "relevant details and examples" in order to "support and extend main ideas" (U.S. Department of Education, 2012, September, p. 39). At the "Proficient" level student writing contains "well-crafted and effective connections and transitions" with ideas "developed in a logical, clear, and effective manner" (p. 39). Choice of words and phrases at the proficient level is both purposeful and skillful (p. 39). The 3% of the population from the 2011 assessment "strategically" handle the task while conducting "a skillful and creative approach." Such writing is "rhetorically powerful," "sophisticated," creates "a distinct voice," while exhibiting "a highly developed knowledge of spelling, grammar, usage (etc.)" (p. 40).

According to the NAEP's definition of reading, as defined in the Reading Framework for the 2013 National Assessment of Education Progress (2012, October), "Reading is an active and complex process that involves: Understanding written text. Developing and interpreting meaning. Using meaning as appropriate to type of text, purpose, and situation" (U. S. Department of Education, p. iv). The governing board of the NAEP believes "the framework will provide a rich and accurate measure of the reading comprehension and analytical skills that students need for their schooling and for their lives" (U.S. Department of Education, 2012,

October, p. viii); furthermore, the intention of the framework is to "serve not only as a significant national measure of how well students read, but also as a catalyst to improve reading achievement" (p. viii). The framework identified three cognitive targets, which are applicable to literary and informational texts. The framework is explained in the figure below.

Exhibit 8. Cognitive targets

	Locate/Recall	**Integrate/Interpret**	**Critique/Evaluate**
Both Literary and Informational Text	Identify textually explicit information and make simple inferences within and across texts, such as: • Definitions • Facts • Supporting details	Make complex inferences within and across texts to: • Describe problem and solution or cause and effect. • Compare or connect ideas, problems, or situations. • Determine unstated assumptions in an argument. • Describe how an author uses literary devices and text features.	Consider text(s) critically to: • Judge author's craft and technique. • Evaluate the author's perspective or point of view within or across texts. • Take different perspectives in relation to a text.
Specific to Literary Text	Identify textually explicit information within and across texts, such as: • Character traits. • Sequence of events or actions • Setting • Identify figurative language	Make complex inferences within and across texts to: • Infer mood or tone. • Integrate ideas to determine theme. • Identify or interpret a character's motivations and decisions. • Examine relations between theme and setting or characters. • Explain how rhythm, rhyme, or form in poetry contribute to meaning.	Consider text(s) critically to: • Evaluate the role of literary devices in conveying meaning. • Determine the degree to which literary devices enhance a literary work. • Evaluate a character's motivations and decisions. • Analyze the point of view used by the author.

	Locate/Recall	Integrate/Interpret	Critique/Evaluate
Specific to Informational Text	Identify textually explicit information within and across texts, such as: • Topic sentence or main idea • Author's purpose • Causal relations • Locate specific information in text or graphics	Make complex inferences within and across texts to: • Summarize major ideas. • Draw conclusions and provide supporting information. • Find evidence in support of an argument. • Distinguish facts from opinions. • Determine the importance of information within and across texts.	Consider text(s) critically to: • Analyze the presentation of information. • Evaluate the way the author selects language to influence readers. • Evaluate the strength and quality of evidence used by the author to support his or her position. • Determine the quality of counterarguments within and across texts. • Judge the coherence, logic, or credibility of an argument.

Figure 2. NAEP Cognitive Targets. Adapted from U.S. Department of Education, 2012, October, p. 41.

According to NAEP, "The term *cognitive targets* refers to the mental processes or kinds of thinking that underlie reading comprehension" ("Reading Framework," 2012, p. 37). These targets are associated with the various items on the NAEP assessment and are described in detail here:

- Locate and Recall: At this level test items assess "the most basic comprehension skills" which serve a "foundation for a more elaborate understanding of what is read" (p. 38).

- Integrate and Interpret: At this level students can be expected to "make comparison and contrasts", "examine relations" or "consider alternatives" in the text. Students may be

required to "think across large portions of text", "across multiple texts", or offer

interpretations (pp. 38–39).

- Critique and Evaluate: At this level students must "view the text objectively" and in

  doing so "evaluate the quality of the text as a whole, to determine what is most

  significant in a passage, or to judge the effectiveness of specific textual feature" (p. 39).

Figure 3 is a distribution chart, which reveals a greater emphasis overall on Integrate/Interpret

with an increase in Critique/Evaluate from Grades 4–12.

Exhibit 9. Percentage distribution of cognitive targets by grade

Grade	Locate/Recall	Integrate/Interpret	Critique/Evaluate
4	30	50	20
8	20	50	30
12	20	45	35

Figure 3. NAEP Percentage Distribution of Cognitive Targets by Grade. Adapted from U.S.

Department of Education, 2012, October, p. 42.

National Survey of Student Engagement (NSSE)

According to the National Survey of Student Engagement ("A Fresh Look", 2013),

"Challenging intellectual and creative work is central to student learning and collegiate quality.

Colleges and universities promote high levels of student achievement by calling on students to

engage in complex cognitive tasks requiring more than mere memorization of facts" (p. 36).

Results from their 2013 report identified higher order learning with specific academic challenges

and behaviors. Results indicate the following: "Generally, students who participate in courses

that emphasize higher-order learning are more likely to apply what they learned to practical

problems, analyze ideas and experiences, evaluate information from other sources, and form new

ideas from various pieces of information" (p. 10). Furthermore, in terms of instructional practices, students noted that when reading and writing assignments "challenge students to approach course material in deeper ways" (p. 10) and when written assignments were frequent, there was also a high association with higher level learning.

NCAA HSRC

The NCAA High School Review Committee has established three methods by which a school's curriculum may come under review:

1. high schools seeking to have their courses used in the initial-eligibility certification process for the first time;

2. randomized review of any high school in the Eligibility Center database;

3. information indicating there may be issues related to the validity of a high school (e.g., curriculum, instruction, assessment, quality control, etc.) (NCAA, n.d., p. 10)

Furthermore, to meet the established criteria, any course in question must be "a recognized academic course and qualify for high school graduation", "be considered college preparatory by the high school", and "be taught at or above the high school's regular academic level" (NCAA, n.d., p. 15).

In the Policies and Procedures document for 2016-17, the NCAA HSRC (NCAA) defined the "Rigor of Performance Tasks and Assessments" as containing three variables, which are essential to acceptable courses: "application of skills and concepts", "strategic thinking", and "extended thinking" (p. 35). The NCAA HSRC provides several examples for each of the three areas as they apply to English (e.g., categorize, distinguish, revise, analyze), noting that their list in not an exhaustive one. The source from which they derived their standards for rigor is Webb's

DOK. According to NCAA, The NCAA HSRC also drew from the Common Core State Standards to help determine the elements necessary for the approval of an English course as it pertains to "Course Contents", although it is not the only source (i.e., NCTE).

Focus of Current Review

Considering the various theories on complex thinking that have been reviewed for this study, there are a number of common threads extending back to the works of John Dewey up through the works of Robert Marzano. Perhaps the most universal of aims is the need to develop good thinkers. Educators need to help students become thinkers who can transform knowledge rather than simply receive and recite. This leads to the next commonality in terms of knowledge in the classroom: transferability. There is a common theme among researchers within this study with regard to the necessity of students dealing with new tasks, new experiences, and new situations as opportunities to extend and transform their understandings (Bloom et al., 1956; Bruner, 1977; Dewey, 1916/2012; Fields, 1996; Piaget, 1947/2001; Marzano, 2007). Lastly, as noted through the work of Dewey (1916/2012) and then Piaget (1947/2001), students at this age have the propensity for formulating theories and hypotheses and such thinking should be encouraged through active engagement with knowledge.

Although the above constitutes learning in general, my review of a number of leading researchers in ELA sought to answer the question: What constitutes cognitive complexity in ELA? The work of Langer et al. (2000), Senn et al. (2015), and Benko (2016) suggests that tasks, which support higher level thinking are preferable to summary and recall assignments, and with the help of teachers, students should be encouraged to engage in activities that require investigation, experimentation, elaboration, and generating new ideas. Stotsky (2012), Langer

(1992), and Applebee (1992) wrote specifically about the literature curriculum, and while such a discussion goes beyond the scope of this study, it should be noted that the New Criticism approach favored by Stotsky and the Reader Response approach favored by Langer and Applebee both support higher level thinking skills.

Finally, each national organization included in this review has expressed an overall concern for the development and promotion of good teaching habits to support American society. They recognize reading and writing as complex activities (i.e., College Board, NAEP), stress the importance of various types of writing (i.e., ACT, NCAA), and report that students favorably identify challenging courses as those that promote higher level thinking (i.e., NSSE). In summary, it is important that students in high school are given the opportunity to engage in higher level activities, which will help foster their ability to think through new challenges that will be presented to them in college and beyond. In our standards-based system of education, it is therefore critical that our standards help support this work. As the Common Core State Standards are the most recent attempt at standardization in our country, a number of studies have been conducted to assess whether or not these standards truly promote college and career readiness.

Review of Recent Studies of Complexity in State Standards

Porter, McMaken, Hwang, and Yang's *The New U.S. Intended Curriculum*

As the release of the Common Core in 2010 marked "an unprecedented shift away from disparate content guidelines across individual states," Porter, McMaken, Hwang, and Yang (2011, p.103) were among the first to conduct an analysis seeking to understand "just how much change the Common Core standards represent in comparison with current practice among U.S.

states" (Porter et al., 2011, p.104). As such, this study looked to not only compare standards but to also seek comparisons in regards to state assessments, NAEP results, foreign countries, and enacted curriculum. Alignment was measured through the Surveys of Enacted Curriculum (SEC) and coding of standards was completed by three to five specialists (Porter et al., 2011, p. 104).

In terms of cognitive demand, results from Porter et al.'s (2011) study indicate that the Common Core included more opportunities to "analyze" than the sample of previous state standards. The authors defined analyze as the ability to categorize, distinguish, compare and contrast, identify point of view, make inferences and predictions, and draw conclusions. However, when superimposed over Webb's DOK or Hess' Cognitive Rigor Matrix, it becomes apparent that tasks such as identifying point of view, comparing and contrasting, making inferences and predictions can be lower level tasks or require complex thinking, depending on how the task is organized. In this way, the SEC suffers some of the potential weaknesses that Bloom's Taxonomy does in that the verb used to describe the task, such as analyze, does not provide a clear indication of the actual type of thinking required by the task. Porter et al.'s (2011) results indicate that the Common Core's focus on analyze is slightly more than 33%, whereas the aggregate state emphasis from the sample of standards is slightly more than 16% (p. 107). However, it is difficult to know whether the analyses identified by the SEC indicate higher level thinking. Conversely, based on this study, "performance procedures" and "generate" (Porter et al., 2011, p. 107) are greater at state levels. Therefore, in terms of cognitive demand for English language arts, the Common Core presents a stronger emphasis towards higher cognition (Porter et al., 2011, pp. 106–107, 109).

When considering how the Common Core compares with high performing states, which

have been successful on NAEP assessments, Porter et al. turned to Massachusetts, which is a

historically high performer on NAEP assessments. Due to availability of their data, the study

focused specifically on Grade 7 math and English language arts. In ELA the Common Core

places less emphasis on "memorize" and "performance procedures" and greater emphasis on

"generate" than Massachusetts standards (Porter et al., 2011, p. 111).

In terms of the major components associated with ELA, the Common Core's emphasis in

areas of writing and speaking exceed those of seventh grade ELA; however, emphasis on reading

and language is more prominent in the Massachusetts standards. This study admits that it is

difficult to ascertain which sets of standards are superior, but it claimed that "there is a shift in

the Common Core standards toward greater emphasis on higher cognitive demand" (Porter et al.,

2011, p. 111).

Although results of this study suggest that the Common Core offers a greater emphasis on

higher level thinking, it does not suggest that high standards lead to high achievement. However,

benchmarking the standards against high-achieving states (e.g., Massachusetts) and other

countries is valuable as it adds "yet another lens for viewing the content messages represented in

the Common Core standards" (Porter et al., 2011, p. 115). Furthermore, their definitions of

cognitive demand need to be considered to support their assertion. As noted above, they claim

that the Common Core is superior in terms of providing students with more opportunity to

"analyze", yet several of the examples they provide (e.g., categorize, distinguish, predict, infer)

fall under a lower cognitive level in one reputable measurement of cognition (i.e., DOK – Level

2). This also does not take into account the differences between complexity and difficulty.

While "analyze" may be considered complex in terms of cognition, it can be low level depending on the required task. Therefore, their analysis of ELA standards (i.e., 33.35% of "Analyze" in Common Core Standards compared to the 16.47% in state standards) could be misleading. For instance, Hess' Cognitive Rigor Matrix is one instrument that educators can use to show the relationship between difficulty and complexity on a given task. Her matrix clearly suggests that "analyze" can be at a low, recall level (i.e., DOK – Level 1).

Sato, Lagunoff, and Worth's *SMARTER Balanced Assessment Consortium*

Sato, Langunoff, and Worth (2011) conducted a study of CCSS "to determine which content is eligible for the Consortium's end-of-year summative assessment for English language arts (ELA) and mathematics in Grades 3–8 and high school" (p. i). For this study, only the anchor standards were coded, although sub-standards were considered to gain a clearer understanding of the anchor standards (Sato et al., 2011, p. 20). According to Sato et al., four factors were identified to determine "eligibility of content" (p. i) and standards were coded as such:

1. Learnable within the school year

2. Expected content for all students at the grade level/span

3. Measurable via on-demand tasks in an end-of-year summative assessment

4. Depth of knowledge (DOK) (Sato et al., 2011, p. i)

Although the purpose of the study was to assess eligibility of standards for testing, "It was *not* an analysis of the quality of the standards, an unpacking of the standards, or an alignment study" (Sato et al., 2011, p. 2). In this study the majority of standards were coded to DOK Levels 2 and 3, with a decrease in DOK Level 2 and an increase in DOK 3 from elementary to secondary, an

increase in DOK Level 4 in Grades 3–6, while becoming "constant" in Grades 7, 9–10 and "slightly rising" in 11–12 (Sato et al., 2011, pp. 18–19). Moreover, in Appendix A of the final report, Sato et al. recognized the sub-standards while "overly detailed for determining eligibility for summative assessment", "could be useful to consider in writing item specifications" (p. A-2).

According to Sato et al.'s distribution of DOK levels, there is preference for Levels 2–4 of Webb's DOK. As Level 1 (Recall) does not require as much cognitive demand and as students learn to be more proficient in terms of dealing with concepts, it would seem appropriate that the number of Level 1 questions will decrease as students moved through grade levels. Also as Level 4 questions typically require extensive planning, it makes sense that Levels 2 and 3 questions are preferred at each level.

Niebling's *Determining the Cognitive Complexity of the Iowa Core*

States such as Iowa and Florida have conducted studies to identify cognitive complexity in their standards for alignment purposes. One such report supported by the Iowa Department of Education used Webb's Depth of Knowledge "to obtain cognitive complexity/demand codes for the Iowa Core standards in Literacy and Mathematics that could be imported into the Iowa Curriculum Alignment Toolkit (I-CAT)" (Niebling, 2012, p. 5). Niebling spoke to the importance of identifying the cognitive complexity/demand of the standards and maintained that such coding "provides a foundation upon which to build the important work of teachers, their students, and those that support them" (p. 8).

In terms of complexity, Niebling (2012) cited Porter and his team and while the Common Core offers "an overall slight increase in higher order thinking", it still "falls in the middle of the

pack in terms of complexity" (p. 13). Their study, which included 24 states for ELA analysis,

questioned the reform of standards towards more rigor when Common Core standards on paper

appear superior to countries (e.g., Finland, Japan, Singapore) which outperform our students (p.

13). According to Niebling, numerous factors contributed to the selection of Webb's DOK

framework for the Iowa study, which beyond "the widespread application and quality of Webb's

DOK framework," also include "Iowa's desire to pursue high learning expectations for all

students" (p. 19). Furthermore, the benefits of DOK in I-CAT "opens up the possibility to

expand its functionality even more, to include examinations of things like textbooks and related

materials, online courses, and other instructional and assessment resources" (p. 40).

Niebling (2012) noted that although comparisons in terms of rigor cannot be made

between the Iowa Core standards and other states, as Webb's DOK has been used by several

other states in the last few decades, such comparisons could conceivably be made. Furthermore,

what cannot be determined at this time is whether having more higher cognitively demanding

standards is more beneficial than having fewer (p. 41).

Sforza, Tienken, and Kim's *A Comparison of Higher-Order Thinking Between State*
Standards

According to Sforza et al. (2016), "No qualitative analytical research has been done to

test the assumption that the CCSS are superior to previous state standards in the development of

higher-order thinking and creativity at the high school level" (p. 7). This study builds upon

previous work with DOK and CCSS while seeking "greater precisions" (p.8) by rating the

anchor and sub-standards. Webb's DOK was the instrument used "to deconstruct and describe

the cognitive complexity of the CCSS and former 2009 NJCCCS in grades 9-12 for ELA and M"

(p. 9). According to this study, CCSS "contained fewer standards rated at DOK Levels 3 and 4 than the 2009 New Jersey high school standards" (p. 17) leading Sforza and his team to conclude that the 2009 New Jersey high school standards were in fact superior in terms of containing the "necessary capabilities for competing in a global economy" (p. 17).

With more standards containing higher order thinking comes "more opportunities to practice the types of thinking valued in the mainstream education reform literature as necessary to compete in the global economy" (Sforza et al., 2016, p. 25). Furthermore, findings from this study suggest the CCSS contain more "procedural and declarative knowledge as opposed to necessary strategic and creative thinking" (p. 25). Sforza et al. recommended that school leaders in New Jersey and other states, which have adopted the CCSS should look "to include opportunities for creative and strategic thinking beyond those required by the CCSS" (p. 25). Also, states beyond New Jersey should seek to engage in a similar study to assess their past state-intended curriculum and compare the level of cognitive complexity and higher order thinking skills within their standards (p. 26).

Methods for Measuring Cognitive Complexity

Bloom's Revised Taxonomy

When discoveries in cognitive neuroscience led to new ways of how we understand learning, several educators in the mid-1990s sought to revise Bloom's original taxonomy. Three categories were renamed, two were interchanged, and all were given a verb form to describe "the way they are used" (i.e., remember, understand, apply, analyze, evaluate, create). Furthermore,

studies suggested that "producing an original product demands more complex thinking than making judgments based on accepted criteria" (Sousa, 2006, pp. 249–250).

Also, in Bloom's original taxonomy, levels were thought to be cumulative; this means that in order to proceed to the next level a student must first possess the skills required in each preceding level. However, in the revised taxonomy "the strict hierarchy has been loosened to allow levels to overlap one another" (Sousa, 2006, p. 253). As an example, a lower level (e.g., understand) could in fact be more complex than a higher one (e.g., apply) based upon the complexity of required task (p. 253). The "loosening" of the taxonomy correlates with scientific findings in terms of how we problem-solve and as such "tends to weaken Bloom's basic notion that one type of thinking is dependent on the prior activation of lower level thinking" (p. 253). In fact, cognitive psychologists for years have maintained that "skills at the upper levels were a lot more fluid than Bloom's rigid hierarchy suggested" (p. 253).

According to David R. Krathwohl (2002), one the contributors to both the original and revised taxonomies, a popular use for Bloom's original taxonomy was "to classify curricular objectives and test items in order to show the breadth, or lack of breadth, of the objectives and items" (p. 213). However, in most cases the results indicate a "heavy emphasis" on recognition and recall when we know the higher levels "are usually considered the most important goals of education" (p. 213). As such, conscious efforts have been made for including more complex levels in curricula and testing (p. 213).

As the revised Taxonomy was presented as two dimensional, a taxonomy table was created that can help educators when developing objectives to track various levels contained within the Taxonomy. According to Krathwohl (2002), in utilizing the table, "one can quickly

visually determine the extent to which the more complex categories are represented" while encouraging possibilities for instructional activities and determining student level of proficiency of the objectives (pp. 215–217). A sample table is presented below.

Two-Dimensional Cross-Classification of Types of Knowledge
by Cognitive Processing Skill

The Knowledge Dimension	Cognitive Processes Dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
A. Factual						
B. Conceptual						
C. Procedural						
D. Meta-cognitive						

Figure 4. Krathwohl Two-Dimensional Cross-Classification. Adapted from Krathwohl, 2002.

Hess' Cognitive Rigor Matrix

In 2005, Karin Hess (2014) sought for a new interpretation of cognitive rigor, which was in fact an amalgamation of two popular models: Bloom's Taxonomy and Webb's DOK. The superimposing of the two models into one resulted in Hess' Cognitive Rigor Matrix (CRM), which sought to provide teachers and test-makers with assistance in instruction and design (para. 4). Hess attempted to explain the differences between Webb and Bloom by stressing that while Bloom's model was a taxonomy "classify[ing] intellectual behaviors important in learning and assessment" (para. 6) Webb's is "nominative" in that the levels "name four different ways students interact with content" (para. 7).

Although both models are "related through their natural ties to the complexity of thought," Bloom's "categorizes the cognitive skills required of the brain to perform a task," and Webb "relates more closely to the depth of content understanding and scope of a learning activity" (Hess, Carlock, Jones, & Walkup, 2009, p. 3). As a practical instrument combining the two models, educators using the CR matrix can both "examine the depth of understanding required for different tasks that might seem at first glance to be at comparable levels of complexity," and "uniquely categorize and examine selected assignments/learning activities" (Hess et al., 2009, pp. 3–4). Additionally, the CR matrix "produces a means of analyzing the emphasis placed on each intersection of the matrix in terms of curricular materials, instructional focus, and classroom assessment" (Hess et al., 2009, p. 7). Hess maintained that as educators become more skillful at the various components of the CR matrix, learning opportunities will expand for all students, regardless of subject and grade levels. Furthermore the CR matrix will serve to remind educators "that students need exposure to novel and complex activities every day" (Hess et al., 2009, p. 8). The Hess CR matrices for ELA may be located via the website www.karin-hess.com/free-resources.

Surveys of Enacted Curriculum

The Surveys of Enacted Curriculum (SEC) are a "set of data collection tools" serving teachers in K–12 math, science, and ELA which aim "to collect and report consistent data on current instructional practices and content being taught in classrooms" (Blank, 2005, p. 2). Online surveys are the method for collecting data that are then reported back via charts and graphs while serving as a tool to measure alignment of curriculum and assessments with standards (p. 2).

The Surveys of Enacted Curriculum (SEC) examine information dealing with a range of topics including cognitive demand, state standards, and teaching strategies for the purpose of collecting data and reporting back to various district, local, or regional levels. The information reported serves to "meet the program purpose of each project" one of which is the alignment of instruction, standards, and assessments (Blank, 2005, p. 3). In terms of this particular reporting, the SEC seeks to answer the following questions:

> To what degree are the content topics and expectations on the state standards being taught in the classroom? Is the content being taught with sufficient rigor or depth? Are the expectations for students, as reported by their teachers, consistent with the defined expectations on the state assessment? To what degree might the misalignment of instruction be related to lower student achievement? (Blank, 2005, p. 3)

The SEC's coding procedures for English content analysis involve "two intersecting dimensions" by which each item of the assessment is measured: "subject topic" and "student performance (cognitive demand)" ("Coding Procedures for Curriculum Analysis," 2014, para. 3-4). SEC has identified 18 content areas in ELAR (e.g., Phonics, Fluency, Critical Reasoning, Writing Applications). Student performance, which constitutes "the types of cognitive demand associated with a given category of student expectation" ("Coding Procedures for Curriculum Analysis," 2014, para. 4), is identified by five levels (ranging from B–F): Memorize/Recall, Perform Procedures, Generate/Create, Analyze/Investigate, Evaluate/Integrate. However, there is a sixth component if "an item or standard cannot be associated with a specific category of cognitive demand" ("Coding Procedures for Curriculum Analysis," 2014, "Coding Conventions"), which is represented by "Z" on the coded sheet.

Achieve.org

Achieve was created in 1996 as a nonprofit business lobbying organization to offer "solutions for education leaders from across and within states as they tackle common challenges" ("About Achieve," n.d., para. 2). Achieve identifies a number of "college-and career-ready" challenges as they propose solutions and offer resources in terms of implementation of standards supported by their own research ("About Achieve," n.d.). They conducted a study comparing the CCSS with the standards of California and Massachusetts, as the two states are noted for being "leaders in standards-based ELA education" ("Comparing the CCSS", 2010, p. 1). Massachusetts specifically "has attracted national attention for its education reforms" (p. 1) and its gains in terms raising achievement levels of its students. Achieve used three factors (i.e., rigor, coherence, and focus) to analyze and compare the CCSS to those of California and Massachusetts (p. 2).

Rigor constitutes "the degree that sets of standards address key content", *Coherence* suggests "whether the standards reflect a meaningful structure, revealing significant relationships among topics, and suggest a logical progression of content and skills", and *Focus* includes "an appropriate balance in the concepts and skills" ("Comparing the CCSS", 2010, p. 2). Achieve's findings in this study show that all three sets of standards are similar in terms of both "bodies of knowledge" and rigor; however, Achieve claims that "the CCSS are more focused and coherent than the states" offering assurance to policymakers that adopting CCSS will "improve upon those currently set by California and Massachusetts" (p. 6).

In a 2001 report to the state of Massachusetts, Achieve described its "assessment-to-standards alignment analysis" ("Measuring Up", 2001, p. 14) and maintains that it seeks to address the following three areas: fairness, balance, and rigor.

- "Fairness. Does each assessment only measure content and skills reflected in the standards?"

- "Balance. Does each assessment measure the breadth and depth of content and skills in the standards?"

- "Rigor. Overall, is each assessment sufficiently challenging for students?" ("Measuring Up", 2001, p. 14)

Furthermore, Achieve identified five areas that are "the fundamental criteria" in their process of aligning assessments to standards. The fourth criteria (i.e., Challenge) is specific to cognitive demand. The Challenge criteria seeks to identify whether test items are "fair" in terms of difficulty and the level of thinking required for a test item. The "Level of cognitive demand" utilized by Achieve is Webb's DOK ("Measuring Up", 2001, p. 15).

Theoretical Framework

Wyse and Viger (2011) noted that there are a number of methods (e.g., Webb, SEC, Achieve), which states may utilize in an attempt to measure alignment between state standards and the required standard assessment. An alignment study is critical in the approval process of the assessment since without federal support, "a state is not in compliance with the requirements of the Elementary and Secondary Education Act". Also, it is "common practice" that when new standards are introduced, an alignment study is conducted (pp. 185–186). As Webb's DOK has been effectively utilized in similar previous studies (e.g., Neibling, Sforza), has been supported

by various cognitive complexity measurement tools (e.g., Hess' CR Matrix, Achieve.org), and

NCAA (i.e., NCAA HSRC), I used it for my study. Furthermore, Webb's DOK is one of two

such instruments most often used for testing and research purposes (Wyse & Viger, 2011, p.

186).

Webb (2005) identified five criteria in measuring for alignment: Categorical Congruence

(i.e., consistency of categories), Depth of Knowledge Consistency, Range of Knowledge

Correspondence (i.e., similar span of knowledge), Balance of Representation (i.e., similar

distribution of standards), and Source of Challenge (i.e., relation of difficulty to student

knowledge). This study focused exclusively on Depth of Knowledge (DOK). In terms of using

DOK for alignment purposes, Webb provided the following description: "Depth-of-knowledge

consistency between standards and assessment indicates alignment if what is elicited from

students on the assessment is as demanding cognitively as what students are expected to know

and do as stated in the standards" (p. 111).

The four levels of Depth of Knowledge with brief descriptions are as follows:

Level 1 (recall) – "includes recalling information such as a fact, definition, term, or a

simple procedure..."

Level 2 (skill/concept) –"includes the engagement of some mental processing beyond a

habitual response. A Level 2 assessment item requires students to make some decisions

as to how to approach the problem or activity..."

Level 3 (strategic thinking) – "requires reasoning, planning, using evidence, and a higher

level of thinking than the two previous levels. In most instances, requiring students to

explain their thinking is at Level 3."

Level 4 (extended thinking) – "requires complex reasoning, planning, developing, and thinking most likely over an extended period of time." (Webb, 2007, pp. 11–12)

As noted by Sousa (2006), complexity deals with "thought process" as opposed to difficulty, which deals with "the amount of effort" (p. 256). Of the four levels in DOK, while such cognitive process may begin in Level 2, it is fully formulated in Levels 3 and 4 requiring such tasks as reasoning, planning, and developing. Moreover, the thinking required in Levels 3 and 4 is in alignment with the Stage IV processes, discussed by Dewey and Piaget, requiring adolescent students to hypothesize, utilize evidence, deduce, infer, and formulate (Tanner, 2016, p. 15). The strategic and extended thinking of Levels 3 and 4 supports the notion that students must utilize and apply knowledge through different techniques (Bloom et al., 1956), deepen their knowledge through complex means (Bruner, 1977), and develop procedural knowledge while developing hypotheses and experimenting with knowledge (Marzano, 2007).

Limitations and Methodological Issues

As noted, similar studies have been conducted with an aim of assessing state standards. According to Merriam (1998), the "case study has proven particularly useful for studying educational innovations, for evaluating programs, and for informing policy" (p. 41). Moreover, "unlike experimental, survey, or historical research, case study does not claim any particular methods for data collection or data analysis" (p. 28). As such, similar studies to this one offer some limitations, which my study attempted to remedy when applicable. According to Porter et al. (2011), their study was limited by the fact that only half of the states were accounted for; therefore, some which were not included could be closer aligned to the Common Core. The same holds true for countries represented in their study. Furthermore, they cannot claim that

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high achievement equates with high standards (p. 115). Sato et al. (2011) noted that in ELA, "The DOK ranges for the same anchor standard may vary across grade levels" requiring "special consideration" when ascertaining the "progression of skills across grade levels" (p. 41). Niebling (2012) noted that while Webb's DOK framework has been utilized in similar studies, there is a difficulty in comparing his results with other state standards or with the former Iowa standards, which utilized a different measurement tool (p. 41).

My study, in several ways, adds to and extends these previous studies. I used three coders, as did Niebling (2012), which extended the number used by Sato et al. (2011) and Sforza et al. (2016) by one. I coded the sub-standards, as did Sforza et al. (2016), which likewise extended the number of standards used by Sato et al. (2011). I extended the work of Niebling (2012) and Sforza et al. (2016) by focusing on an additional state, and I chose Massachusetts for its consistency in ranking first in the nation in terms of the NAEP scores.

Conclusion

In the current standards-based system of education, content complexity is a critical feature in state standards to help ensure that students are utilizing their knowledge. All of the theorists, practitioners, organizations, and studies in this chapter have addressed the importance of engaging students with knowledge or transferring knowledge to new experiences. In another seminal text by John Dewey (1900/1990), when discussing the benefits of various inventions as related to the industrial revolution and early 20th century America, he maintained "Knowledge is no longer an immobile solid; it has been liquefied. It is actively moving in all the currents of society itself" (p. 25).

In our standards-based system of education, it is vital that we provide our students with the best opportunity for utilizing their knowledge. Therefore, an analysis of state standards through a nationally recognized research tool for measuring complexity is necessary. Without rigorous standards, which correlate with time-honored understandings of cognitive complexity, we run the risk of perpetuating the practice where difficulty overshadows complexity in the classroom. This can run the risk of stifling the ability of students to truly grow as critical thinkers.

Chapter III will serve to provide a more insightful look into Webb's DOK as the instrument used for this study. I will begin with a review of the study and the three research questions, while addressing the documents utilized in the study (i.e., CCSS and Massachusetts state standards). As with previous studies utilizing Webb's DOK, I will describe the research design, coding scheme, and the background and qualifications of the two additional coders. Additionally, issues related to reliability, data collection, and analysis will also be addressed.

CHAPTER III

METHODOLOGY

Introduction

This chapter describes the methodology through which the study was conducted. The purpose of this study was to compare content complexity as it appears within the high school English Language Arts Common Core State Standards (CCSS) and the former state standards of Massachusetts, the Massachusetts English Language Arts Curriculum Framework (2001), in Grades 9–12. The instrument used for measuring the two sets of standards was Webb's DOK (2005). Mayring's step model (2000) was utilized to determine a coding procedure, and the Web Alignment Tool (WAT) provided the protocol through which to measure the coding process. The WAT also provided information, which was instrumental in terms of not only measuring the standards but also providing additional protocol for the research process (e.g., training, role of reviewer, role of group leader). As this study is an extension of similar studies, which measured the quality of state standards, careful attention to reliability and validity was paramount. Therefore, in order for this study to add to the existing body of research on state standards, this chapter also includes those steps utilized to ensure fidelity.

Research Questions

1. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Common Core State Standards for English Language Arts, Grades 9–12?

2. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12?

3. What differences and similarities exist in content complexity between the Common Core State Standards and the Massachusetts English Language Arts Curriculum

Framework, Grades 9–12?

Research Design

The research design selected for this study was a case study with qualitative and quantitative methods. According to Bogdan and Biklen (2007), a case study may focus on a particular setting, subject, group of documents, or event (p. 59). The approach to a case study has been described as a "funnel" by which researchers "cast a wide net" in their search for data before narrowing in on a particular focus for their study, which may include specific topics, subjects, or materials (p. 59). When determining a focus for a case study, it is sometimes necessary to narrow the focus so that it is manageable enough to conduct research as the researcher attempts to account for its relation to the larger subject (pp. 60–61). Merriam (1998) has described the case as "a thing, a single entity, a unit around which there are boundaries" (p. 27). In essence, it could be a person, program, or policy, which the researcher may "fence in" and study (p. 27). Document analysis and descriptive statistics were used to analyze and describe the type of thinking required by each set of standards.

Bogdan and Biklen (2007) described documents as an array of materials (e.g., photographs, letters, clinical case records) as "supplemental information" utilized in the case study process, noting that qualitative researchers use documents as their main sources of data. Three broad categories are identified, which include the following: personal documents, official documents, and popular culture documents (p. 64). One area under the umbrella of official documents is external communication. This particular type of official documentation is meant for "public consumption" and serves to dispense information about the organization. In a school setting such information may include newsletters, advertisements, and philosophy statements.

This information may express the values of the organization, and such information is typically easy to obtain (p. 137).

Methods

The research utilized content analysis methods to categorize the type of thinking required by each standard. Mayring (2000) defined content analysis as "an approach of empirical, methodological controlled analysis of texts within their content of communication, following content analytical rules and step by step models, without rash quantification" (para. 5). Within this approach are four main items, which aim to "preserve the advantages of quantitative content analysis" (Mayring, 2000, para. 7). These items are briefly described below:

- "Fitting the material into a model of communication" – Relates to when inferences should be made during the process.
- "Rules of analysis" – Suggests that defined procedures must be in place for reviewing material and should be separated into "content analytical units".
- "Categories in the center of analysis" – Includes "aspects of text interpretation," which are situated into categories and are analyzed via "feedback loops".
- "Criteria of reliability and validity" – Accounts for various ways for upholding the reliability and validity, such as: comparing results with other studies, utilizing "inter-coder reliability", and training team members. (Mayring, 2000, para. 7)

The step model used for this study was adapted from Mayring's and is located in Appendix B. Beginning with the three research questions, the step model contains a number of categories in the feedback loop, which return to each subsequent research question following the coding of each set of standards. Brief descriptions of the major categories are as follows: theoretical

framework, developing coding agenda, coding committee training, quantitative content analysis, final coding and consensus, and data analysis. Triangulation and the "read behind method" are also included to ensure reliability and validity. Descriptive statistics were used to calculate the number and percentage of standards associated with each level of Webb's DOK framework. The findings from Research Questions 1 and 2 are presented in pie charts, while Research Question 3 is presented in a bar graph to show the comparison of the two coded sets of standards.

Description of the Documents

The official documents that served the main source of this case study were the Massachusetts English Language Arts Curriculum Framework from 2011 and the Common Core State Standards for English Language Arts, Grades 9–12. The Massachusetts document was retrieved from the state's website from the Curriculum Framework Archive and was accessed on September 21, 2017. The Massachusetts framework is a 126-page document. In November 2000, this framework was approved by the Massachusetts Board of Education, and according to Commissioner David P. Driscoll, the document "provides more guidance on the standards for each grade span" with a greater emphasis on reading and writing than the previous 1997 framework ("Massachusetts English Language Arts," 2001, p. i). The state has identified 10 "Guiding Principles" and is organized into four strands (i.e. Language, Reading and Literature, Composition, and Media), with 27 general standards containing various learning standards unique to grade-level bands (e.g., 3–4, 9–10).

Below are the Guiding Principles that "are philosophical statements that underlie every strand and standard" ("Massachusetts English Language Arts," 2001, p. 2) of the Massachusetts curriculum framework:

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Guiding Principle 1

An effective English language arts curriculum develops thinking and language together through interactive learning.

Guiding Principle 2

An effective English language arts curriculum develops students' oral language and literacy through appropriately challenging learning.

Guiding Principle 3

An effective English language arts curriculum draws on literature from many genres, time periods, and cultures, featuring works that reflect our common literary heritage.

Guiding Principle 4

An effective English language arts curriculum emphasizes writing as an essential way to develop, clarify, and communicate ideas in persuasive, expository, narrative, and expressive discourse.

Guiding Principle 5

An effective English language arts curriculum provides for literacy in all forms of media.

Guiding Principle 6

An effective English language arts curriculum provides explicit skill instruction in reading and writing.

Guiding Principle 7

An effective English language arts curriculum teaches the strategies necessary for acquiring academic knowledge, achieving common academic standards, and attaining independence in learning.

Guiding Principle 8

An effective English language arts curriculum builds on the language, experiences, and interests that students bring to school.

Guiding Principle 9

An effective English language arts curriculum develops each student's distinctive writing or speaking voice.

Guiding Principle 10

While encouraging respect for differences in home backgrounds, an effective English language arts curriculum nurtures students' sense of their common ground as present or future American citizens in order to prepare them for responsible participation in our schools and in civic life. ("Massachusetts English Language Arts," 2001, pp. 2–4)

The Massachusetts framework also includes rationale, examples, and learning scenarios to

accompany general and learning standards. Lastly, Appendices A and B suggest authors and

works for study in the classroom, and Appendices C–G provide additional pertinent information for educators (e.g., websites, professional journals, glossary of terms, research).

The National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) developed the Common Core State Standards (2010). The English Language Arts Standards of the Common Core State Standards Initiative are located on its website, www.corestandards.org. The website contains information pertaining to the standards, which include areas such as Development Process, Frequently Asked Questions, What Parents Should Know, and Key Shifts. English Language Standards from K–12 include the following items: Anchor Standards; Reading, Literature; Reading, Informational Texts; Reading, Foundational Skills (K–5 only); Writing; Speaking & Listening; Language; and Standard 10: Range, Quality, and Complexity. Additionally, the CCSS presents ELA appendices dealing with supporting research on text complexity (Appendix A), exemplars and performance tasks (Appendix B), and samples of student writing (Appendix C).

Each of the major strands (i.e. Reading, Writing, Speaking & Listening, and Language) in Grades K–5 and 6–12 ELA contain anchor standards that are accompanied by grade-specific standards. As such, the anchor and grade-specific standards "work in tandem", "the former providing broad standards, the latter providing additional specificity" (NGA & CCSSO, 2010, p. 4).

Below are examples of an anchor standard and two grade-specific standards:

CCSS.ELA-Literacy.CCRA.R.1
Read closely to determine what the text says explicitly and to make logical inferences from it;

cite specific textual evidence when writing or speaking to support conclusions drawn from the text (NGA & CCSSO, 2010, p. 35).

CCSS.ELA-Literacy.RL.6.1

Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text (NGA & CCSSO, 2010, p. 6).

CCSS.ELA-Literacy.RL.9-10.1

Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text (NGA & CCSSO, 2010, p. 38).

Coders

The coding team consisted of three coders, including the researcher. The additional two coders were chosen because of their years of service and expertise in K–12 education. One coder holds a doctorate in Education Leadership, Management, and Policy with 15 years of classroom and administrative experience at the K–8 level. This coder participated in and conducted similar studies utilizing Norman Webb's Web Alignment Tool (WAT) in comparative analyses of state standards including the NJCCCS and NJSLS at the middle school level and the CCSS and California Learning Standards at the high school level. The second coder is the supervisor of English and assistant principal in a high school with 11 years of classroom and administrative experience. Webb (2005) recommended five coders who are "administrators, teachers, and content experts familiar with the general content and expectations for the grades that the group will be reviewing" (p. 4); however, similar studies have been conducted with as few as two reviewers (Sato et al., 2011; Sforza et al., 2016).

Data Collection Methods

The instrument used to guide the coding in this study was the Web Alignment Tool (WAT) designed by Norman Webb's research team at the Wisconsin Center for Education Research. The WAT Training Manual (2005) provides detailed instructions for the alignment process, which includes the role of group leader and reviewers, preparations for conducting a study, and reading and writing reports at the conclusion of the study. The WAT was instrumental in the success of my study, and all coders completed the training process.

Although the WAT Training Manual's intended purpose is to help facilitate alignment studies, which by definition measure "the degree to which expectations and assessments are in agreement" (Webb, 2005, p. 2), Webb noted that WAT is not only used for alignment studies (p. 4). As noted in Chapter II, several studies have been conducted comparing state standards without regard to assessments. Webb identified five categories for an alignment study; however, four of the five (i.e., categorical concurrence, range-of-knowledge correspondence, balance of representation, source of challenge) are specific to assessments, whereas this study focused exclusively on Depth of Knowledge (pp. 3-4).

Webb described the procedures by which to assign DOK levels to each item and they are described in full below. A modification of this procedure was used in my study to focus on the standards to be reviewed.

- The DOK level of an objective should be the level of work students are most commonly required to perform at that grade level to successfully demonstrate their attainment of the objective.

- The DOK level of an objective should reflect the *complexity* of the objective, rather than its *difficulty*. The DOK level describes the kind of thinking involved in a task, not the likelihood that the task will be completed correctly.

- In assigning a DOK level to an objective, think about the complete domain of items that would be appropriate for measuring the objective. Identify the depth-of-knowledge level of the most common of these items.

- If there is a question regarding which of two levels an objective addresses, such as Level 1 or Level 2, or Level 2 or Level 3, it is usually appropriate to select the higher of the two levels.

- The team of reviewers should reach consensus on the DOK level for each objective before coding any items for that grade level. (Webb, 2005, p. 38)

Part IV of the WAT Training Manual (Webb, 2005) provides suggested organizational strategies for conducting studies using the tool, which include estimated time frames (e.g., 3 hours per grade level subject area). These time frames include "coding of standards/objectives, the consensus process, coding the assessment, and debriefing. In addition, the alignment overview and reviewer training process takes another two to three hours" (p. 86). "Tips for Facilitating the Consensus Process" from the WAT Training Manual appear in Appendix C.

Figure 5 is adapted from WAT training manual detailing the role of each reviewer.

What a <u>Reviewer</u> Must Do in the Coding Process
1. Participate in training by your Group Leader on depth-of-knowledge levels and how to enter in Excel
2. For each grade band (i.e., 9–10, 11–12), assign depth-of-knowledge (DOK) values to each objective in the state standard
3. With the facilitation of the Group Leader, discuss with the other reviewers how you coded the objectives in order to read a consensus on the DOK levels of the objectives.
4. Code the standards for each grade band.
5. Debrief with your Group Leader for each grade band

Figure 5. Coding Process - Reviewer. Adapted from Webb, 2005, p. 36.

Reliability and Validity

"All research is concerned with producing valid and reliable knowledge in an ethical manner" (Merriam, 1998, p. 198). It is imperative in education, where studies may impact theory and practice, for case studies to be assessed for reliability and validity through "examining its component parts" (p. 199). According to Merriam, "validity and reliability are concerns that can be approached through careful attention to a study's conceptualization and the way in which the data were collected, analyzed, and interpreted, and the way in which the findings are presented" (pp. 199–200).

In research, the term *reliability* is associated with replication and the notion that with multiple studies there is a "single reality" that "repeatedly will yield the same results" (Merriam,

1998, p. 205). This is not true in qualitative research where the focus is "to describe and explain the world as those in the world experience it" (p. 205). Validity is not determined if observations and replications produce similar results (p. 205). According to Merriam, "The question then is not whether findings will be found again but *whether the results are consistent with the data collected*" (p. 206). Bogdan and Biklen (2007) similarly described reliability in qualitative research "as a fit between what [researchers] record as data and what actually occurs in the setting under study, rather than the literally consistency across different observations" (p. 40). However, reliability would come under scrutiny if the studies "yielded contradictory or incompatible results" (p. 40).

Reliability refers to "the extent to which there is consistency in the findings" and can be achieved through the triangulation of data and an "audit trail" describing all procedures of the research and conclusions reached from the data (Merriam, 1998, p. 218). External validity is "the extent to which the findings of a qualitative study can be generalized to other situations," whereas internal validity is "the extent to which research findings are congruent with reality" (p. 218).

Merriam (1998) described "six basic strategies to enhance internal validity" (p. 204). I list four of the six below, as these were the ones most pertinent in my study:

- *Triangulation* – "using multiple investigators, multiple sources of data, or multiple methods to confirm the emerging findings."
- *Member checks* – "taking data and tentative interpretations back to the people from whom they were derived and asking them if the results are plausible."
- *Peer examination* – "asking colleagues to comment on the findings as they emerge."

- *Researcher's biases* – "clarifying the researcher's assumption, worldview, and theoretical orientation at the outset of the study." (pp. 204–205)

One specific method utilized in this study to insure internal reliability was a double-rater "read-behind" consensus model. This procedure was successfully utilized in similar studies (Niebling, 2012; Sato et al., 2011; Sforza et al., 2016). The double-rater read-behind calls for individual researchers to independently code the standards. Following this initial step, the analysts come together to discuss findings and note any agreement or disagreement in how they rated the standards. Discrepancies are discussed until consensus is reached (Sato et al., 2011, p. 11).

Training and Calibration

According to Merriam (1998), validity and reliability are managed "through careful attention to a study's conceptualization and the way in which that data were collected, analyzed, and interpreted, and the way in which the findings are presented" (pp. 199–200). All coders were trained to use Webb's (2005) DOK protocol through the WAT Training Manual. Meetings were held to discuss the study and practice coding prior to the start. At this time, the coders were given all accompanying materials, which included both sets of standards uploaded in Google Sheets for collecting DOK information relating to each standard. Similar to the Niebling (2012) and Sato et al. (2011) studies, our team completed a calibration process in an effort to gain greater consistency and understanding as a research team. This involved practice coding with five example standards and talking through discrepancies as they arose. Next, the research team compared our coded responses to those of the CPALMS study for the Common Core standards. As with the Iowa Core (Niebling, 2012) and WestEd (Sato et al., 2011) studies we set to agree at least 75% of the time before fully engaging in the coding process. Additionally, we coded the

first 10 standards then checked using the double-rater read-behind method, then moved on to the next 20 standards with the same goal of 75%. We then moved on to the next set of standards. When disagreements arose during the debriefing process, the coding team followed the read-behind consensus method. The coding team referred back to the WAT and exemplars found therein to calibrate their categorizations to the categorizations found in the WAT. The coding team discussed the specific characteristics of each disagreement, and the two content specialists on the team spoke to applicability in the classroom and were able to draw upon a range of experiences to assist in the process of clarifying what each standard required of students. Ultimately the team was able to achieve 100% consensus and felt adequately prepared to begin the coding process.

Data Analysis Procedures

After Common Core State Standards and Massachusetts English Language Arts Curriculum Framework standards for ELA Grades 9–12 were coded, results were tabulated through a formula utilized in similar studies (Niebling, 2012; Sato et al., 2011; Sforza et al., 2016):

# of Standards Coded at the DOK Level

% of Standards = --

Total # of Possible Standards

Niebling (2012) provided an example in his study using English/Language Arts standards in first grade. Of the 44 total standards, 23 are coded at DOK level 1. The applied formula produces these results:

23/44 = 52% at DOK Level 1

The results are reported in Chapter IV and assist in answering the research questions addressed during the outset of this study. It should be noted that unlike previous studies (Niebling, 2012; Sato et al., 2011), this study codes and reports on all anchor and sub-standards in an effort to provide another layer of clarity, improving upon similar studies.

Role of the Researcher

At the time of this study my role as an educator in the state of New Jersey is the supervisor of English in a large suburban high school. My 14 years of experience in education have included Grades 9–12 ELA, making the choice of study significant to me. While my teaching career is limited to private schools, which did not adhere to public standardization, my career as an administrator began as the Partnership for Assessment of Readiness for College and Careers (PARCC) assessment in New Jersey was about to be introduced. This forced my colleagues and I to take a critical approach to the relatively newly adopted CCSS.

From reading other studies and listening to the fears and criticisms that teachers and parents have expressed towards the CCSS, I would be remiss to say I did not have any preconceived notions about what the results of my study would reveal. However, I made a conscious effort to put my biases aside in an attempt to conduct an objective study marked by discovery rather than proving convictions.

My role in the study was that of group leader. The WAT training manual (Webb, 2005) provides a table illustrating the group leader's role in the alignment process. Since this study was not an alignment study and did not utilize the online tool, below is an adaptation used for my study:

What a __Group Leader__ Must do in the Coding Process
1. Enter each set of state standards (i.e. CCSS, MA) into an Excel sheet.
2. Train your reviewers on ELA's Depth of Knowledge (DOK) levels and on how to enter them in Excel.
3. Facilitate the consensus process for each set of standards. This is when reviewers come to agreement on the DOK level of each objective.
4. Enter the consensus DOK values for each objective in the curriculum standards utilizing Excel.

Figure 6. Coding Process - Group Leader. Adapted from Webb, 2005, p. 9.

CHAPTER IV

RESULTS

Introduction

As noted in Chapter I, providing students with learning opportunities that promote complex thinking is important to their cognitive development. The written curriculum is the main vehicle to provide structure for teachers to provide those types of opportunities. In over 40 states, Common Core has been the main influencer on what is included in a school's curriculum. This study focused on the type of thinking promoted by the Grades 9–12 Common Core in English Language Arts and Massachusetts's prior set of English language arts curriculum content standards. This chapter is organized by the three research questions that were posed in Chapter I. Each research question is followed by a chart that reports the percentage of standards coded at each level as determined by the research team. This is followed by a sample of coded standards for CCSS and Massachusetts, again, as determined by the research team.

Research Question #1

1. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Common Core State Standards for English Language Arts, Grades 9–12?

The Common Core State Standards for English Language Arts, Grades 9–12 contain 149 standards. This includes both anchor standards and sub-standards. The percentage of standards coded at each level are as follows: DOK Level 1 (27.5%), DOK Level 2 (27.5%), DOK Level 3 (42%), and DOK Level 4 (3%). Figure 7 shows the distribution of these standards as coded by the research team.
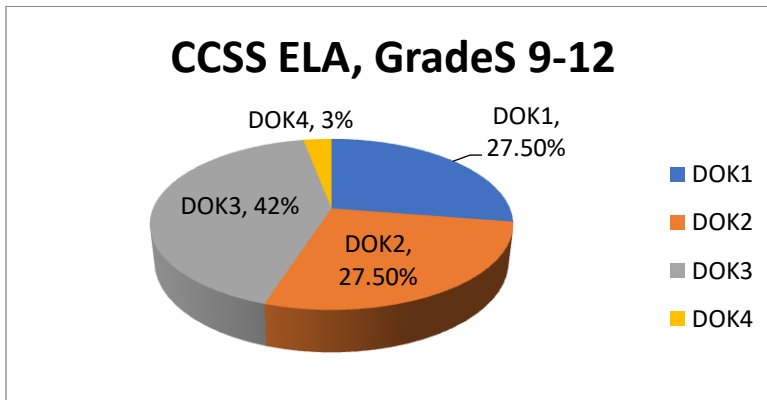
Figure 7. CCSS ELA, Grades 9–12.

Research Question #2

2. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12?

The Massachusetts English Language Arts Curriculum Framework (2001), Grades 9–12 contains 87 standards. The percentage of standards coded at each level are as follows: DOK Level 1 (17%), DOK Level 2 (21%), DOK Level 3 (49%), and DOK Level 4 (13%). Figure 8 shows the distribution of these standards as coded by the research team.
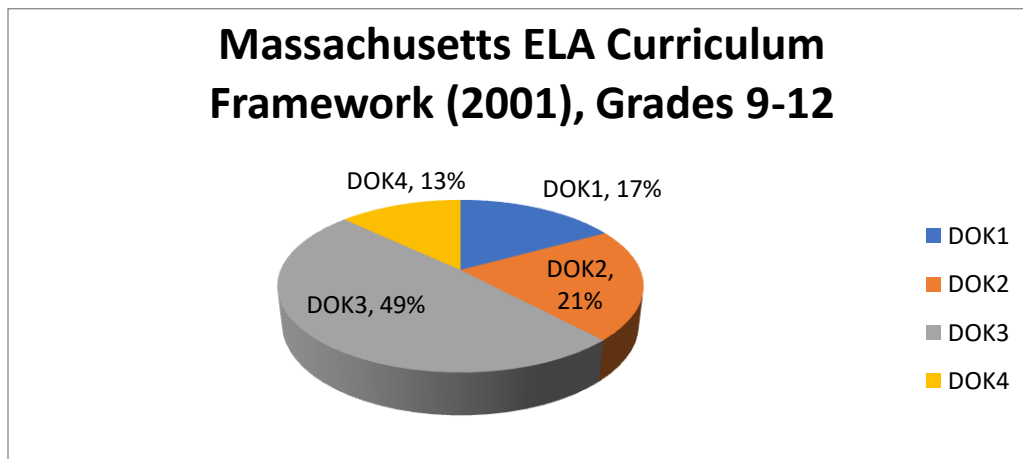
Figure 8. Massachusetts ELA, Grades 9–12.

3. What differences and similarities exist in content complexity between the Common

Core State Standards and the Massachusetts English Language Arts Curriculum

Framework, Grades 9–12?

The percentage of standards coded at DOK Levels 1 and 2 are greater for the Common Core

State Standards (i.e., DOK 1 = 27.5%, DOK 2 = 27.5%) than they are for the Massachusetts

English Language Arts Curriculum Framework, Grades 9–12 (i.e., DOK 1 = 17%, DOK 2 =

21%). Conversely, the percentage of standards coded at DOK Levels 3 and 4 are greater for the

Massachusetts English Language Arts Curriculum Framework, Grades 9–12 (i.e., DOK 3 = 49%,

DOK 4 = 13%) than they are for the Common Core State Standards (i.e., DOK 3 = 42%, DOK 4

= 3%).

Figure 9 shows the distribution of these standards as coded by the research team.

	DOK 1	DOK 2	DOK 3	DOK 4
CCSS	27.5%	27.5%	42%	3%
MASS	17%	21%	49%	13%
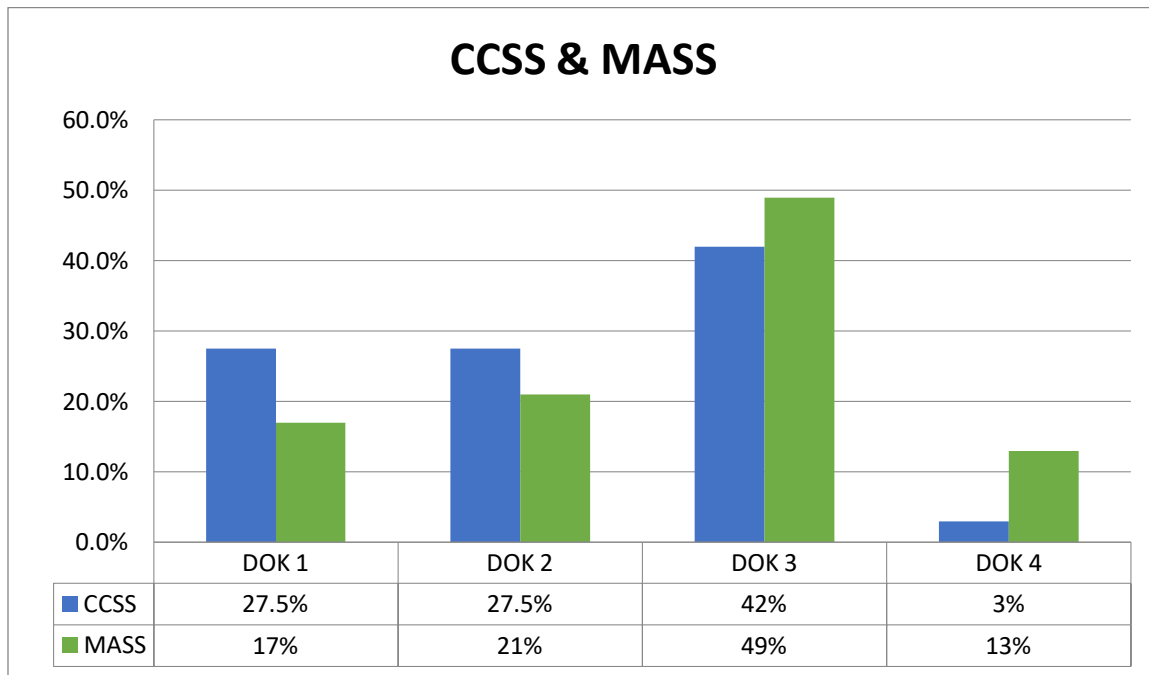
Figure 9. CCSS & MASS.

The results suggest that the Common Core State Standards contain a greater percentage of standards at DOK Levels 1 and 2, whereas the Massachusetts English Language Arts Curriculum Framework contains a greater percentage of standards at DOK Levels 3 and 4. Levels 1 and 2, which are limited to simple facts and shallow mental processing, have a greater combined percentage (55%) for CCSS than do Levels 1 and 2 for the Massachusetts standards (38%). Levels 3 and 4, which contains deeper knowledge and higher level thinking, have a greater combined percentage (62%) for the Massachusetts standards than do Levels 3 and 4 for the CCSS (45%).

The results from the coding of the CCSS in this study are similar to the findings of Sforza et al. (2016). While results are not exact, they are similar in terms of the differences between higher and lower level standards. Results from both studies indicate that the CCSS contain the greatest percentage of standards in the combined lower levels and the fewest percentage of standards in the combined higher levels. Sforza et al. found the combined percentage of Levels 1 and 2 to be 72%, whereas the findings of this study found them to be 55%. Furthermore, Sforza et al. found the combined percentage of Levels 3 and 4 to be 28%, whereas the findings of this study found them to be 45%. The specific percentages are found in Table 1.

Table 1

Comparison of Sforza et al. and Current Study DOK

DOK level	Sforza et al.	Current study
DOK 1	37%	27.5%
DOK 2	35%	27.5%
DOK 3	26%	42%
DOK 4	2%	3%

While the coding from the CPALMS was reviewed by the coding team, it did not provide the specificity of Sforza et al. since CPALMS did not consider the sub-standards.

CCSS Coded Standards - Examples

This section provides examples of coded standards by the research team. Additionally, the language from Webb (2005) is revisited so that the reader may be reminded of some of the distinguishing features that helped determine the coding of each standard throughout the coding process for the Common Core State Standards. While Webb provided definitions and examples specific to reading and writing DOK Levels, the coding team applied these definitions to all ELA standards. For CCSS the standards include Speaking & Listening and Language. In the Speaking & Listening standard below, which was coded at a Level 3, the research team determined that this particular standard required a deep knowledge as students are required to connect the discussion to broader ideas while supporting their thoughts.

- CCSS.9-10.SL.1.c Comprehension and Collaboration: Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions (NGA & CCSSO, 2010, p. 50).

In the Language standard below, which was coded at a Level 1, students are required to utilize a convention of standard English, which correlates with Webb's Writing Level 1.

- CCSS.9-10.L.2.b Conventions of Standard English: Use a colon to introduce a list or quotation (NGA & CCSSO, 2010, p. 54).

CCSS - DOK Level 1

According to Webb (2005), in Reading Level 1, students may only "receive or recite facts" and exhibit a mere "shallow understanding of the text presented" (p. 70). Such tasks may include using a dictionary to locate meanings and the ability to "recognize figurative language" (p. 70) when tasked with reading an assigned passage. In Writing Level 1, students are required "to write or recite simple facts" (p. 71). Furthermore it is expected that such tasks adhere to "the conventions of Standard English" (p.71). Level 1 also includes a general understanding of the features of reference materials (e.g., dictionary, thesaurus, websites) (p. 71). Of the 149 standards, 41 (27.5%) were coded at Level 1. Two examples for standards rated at DOK Level 1 for ELA, Grades 9–12 are as follows:

- CCSS.9-10.L.1 Conventions of Standard English: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking (NGA & CCSSO, 2010, p. 54).

- CCSS.9-10.L.4.c Vocabulary Acquisition and Use: Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology (NGA & CCSSO, 2010, p. 55).

CCSS - DOK Level 2

In Reading Level 2, students engage in "some mental processing beyond recalling or reproducing a response" (Webb, 2005, p. 70). Students may be asked to "summarize, interpret, infer, classify, organize, collect, display, compare, and determine whether fact or opinion", with a focus on "literal main ideas" (p. 70). Examples may include using context clues, predicting

outcomes, and summarizing events. In Writing Level 2, "some mental processing" likewise is required via "note-taking, outlining, or simple summaries" (p. 71).   Connecting ideas and applying "simple organizational structure(s)" (p. 71) are also hallmarks of Level 2. Of the 149 standards, 41 (27.5%) were coded at Level 2. Two examples for standards rated at DOK Level 2 for ELA, Grades 9–12 are as follows:

- CCSS.9-10.R.I.1 Key Ideas and Details: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text (NGA & CCSSO, 2010, p. 40).

- CCSS.9-10.W.3.e Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative (NGA & CCSSO, 2010, p. 46).

CCSS - DOK Level 3

In Reading Level 3, "deep knowledge" becomes the area of focus as students may "go beyond the text" while staying connected to the text and demonstrating the ability "to support their thinking" (Webb, 2005, p. 70). Other elements of Level 3 include "abstract theme identification," the ability to "inference across an entire passage," as well as apply prior knowledge (p. 70). Examples include understanding author's purpose and summarizing information for different texts with similar topics. In Writing Level 3, students are "developing compositions" while exhibiting "awareness of their audience and purpose" (p. 72). At this level students are revising assignments while exhibiting "some synthesis and analysis" (p. 72). Of the 149 standards, 63 (42%) were coded at Level 3. Two examples for standards rated at DOK Level 3 for ELA, Grades 9–12 are as follows:

- CCSS.9-10.R.L.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text (NGA & CCSSO, 2010, p. 38).

- CCSS.9-10.W.2.b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic (NGA & CCSSO, 2010, p. 45).

CCSS - DOK Level 4

In Reading Level 4, higher order thinking and deep knowledge are essential elements, as the standard may include "an extended activity" (Webb, 2005, p. 71) requiring the application of new information to another task. As such, students may be required "to develop hypotheses and perform complex analyses of the connection among texts" (p. 71). Examples include examining and analyzing information from a variety of sources and perspectives (p. 71). In Writing Level 4, students are expected to write "multiple-paragraph composition(s) that demonstrate the ability to synthesize and analyze complex ideas or themes" (p. 72). Students at this level exhibit "deep awareness of purpose an audience", and are able to write in a "distinct voice" with the ability to "stimulate the reader or listener to consider new perspectives" (p. 72). Of the 149 standards, 4 (3%) were coded at Level 4. Two examples for standards rated at DOK Level 4 for ELA, Grades 9–12 are as follows:

- CCSS.11-12.R.L.7 Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each

version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist) (NGA & CCSSO, 2010, p. 38).

- CCSS.11-12.R.I.7 Integration of Knowledge and Ideas: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem (NGA & CCSSO, 2010, p. 40).

Massachusetts Coded Standards - Examples

This section provides examples of coded standards by the research team. Likewise, additional language from Webb (2005) is revisited so that the reader may be reminded of some of the distinguishing features, which helped determine the coding of each standard throughout the coding process for the Massachusetts standards. As the research team coded the Speaking & Listening and Language standards of CCSS, the committee included the Language and Media standards of Massachusetts, which are part of the ELA standards. In the Media standard below, which was coded at a Level 3, the research team determined that this particular standard required a deep knowledge as students are required go beyond identification to the explanation of the concept.

- Grade: 11-12, Media: Analysis of Media – 26.6 Identify the aesthetic effects of a media presentation and identify and evaluate the techniques used to create them ("Massachusetts English Language Arts," 2001, p. 72).

In the Language standard below, which was coded at a Level 2, students are asked to summarize information and ideas. This correlates with Reading Level 2 as summarizing, according to Webb's DOK, only requires limited mental processing but goes beyond the recitation of facts.

- Grade: 9-10, Language: Questioning, Listening, and Contributing – 2.5 Summarize in a coherent and organized way information and ideas learned from a focused discussion. ("Massachusetts English Language Arts," 2001, p 11).

Massachusetts - DOK Level 1

In Reading Level 1, no analysis of the text is involved, as understanding may be limited to "verbatim recall" or "slight paraphrasing" (Webb, 2005, p. 70). Understanding is noted by simplicity, which could be limited to "a single word or phrase" (p. 70). "Basic ideas" is what defines Writing at Level 1; this level refrains from "complex analysis or synthesis" (p. 71). Simplicity also defines this level, and it applies not only to writing but also to speaking (e.g., recitation). Most of the tasks described at this level suggest tasks suitable to pre-writing (e.g., listing ideas, brainstorming) (p. 71). Of the 87 standards, 15 (17%) were coded at Level 1.

Two examples for standards rated at DOK Level 1 for ELA, Grades 9–12 are as follows:

- Grade 9-10: Language: Vocabulary and Concept Development – 4.25 Use general dictionaries, specialized dictionaries, thesauruses, or related references as needed to increase learning ("Massachusetts English Language Arts," 2001, p. 15).
- Grade 11-12: Language: Structure and Origins of Modern English – 5.30 Identify, describe, and apply all conventions of standard English ("Massachusetts English Language Arts," 2001, p. 18).

Massachusetts - DOK Level 2

In Reading Level 2, comprehension and processing means a deeper understanding of the text than Level 1. Although some inference is expected as well as "some important concepts,"

these understandings are "not in a complex way" and may only be limited to "portions of text" (Webb, 2005, p. 70). In Writing Level 2 students "begin connecting ideas" (p. 71) paying attention to more various writing constructs such as complex and compound sentences, phrase and clauses. Of the 87 standards, 18 (21%) were coded at Level 2. Two examples for standards rated at DOK Level 2 for ELA, Grades 9–12 are as follows:

- Grade 9-10: Reading and Literature: Fiction – 12.5 Locate and analyze such elements in fiction as point of view, foreshadowing, and irony ("Massachusetts English Language Arts," 2001, p.36).

- Grade 9-10: Composition: Standard English Conventions – 22.9 Use knowledge of types of clauses (main and subordinate), verbals (gerunds, infinitives, participles), mechanics (semicolons, colons, hyphens), usage (tense consistency), sentence structure (parallel structure), and standard English spelling when writing and editing ("Massachusetts English Language Arts," 2001, p. 62).

Massachusetts - DOK Level 3

In Reading Level 3, students must still exhibit an understanding of the text, but they might be asked "to explain, generalize, or connect ideas" (Webb, 2005, p. 70). Furthermore, "superficial connections between texts" may be expected as well as "reasoning and planning" (p. 70). In Writing Level 3, students are expected to use "appropriate compositional elements" (p. 72) as they edit and revise drafts. Standards at this level take note of appropriate voice to various tasks and audiences as well as support for the ideas presented in the assignment (p. 72). Of the 87 standards, 43 (49%) were coded at Level 3. Two examples for standards rated at DOK Level 3 for ELA, Grades 9–12 are as follows:

- Grade 11-12: Reading and Literature: Theme – 11.6 Apply knowledge of the concept that a text can contain more than one theme ("Massachusetts English Language Arts," 2001, p. 34).

- Grade 9-10: Composition: Organizing Ideas in Writing – 23.12 Integrate all elements of fiction to emphasize the theme and tone of the story ("Massachusetts English Language Arts," 2001, p. 64).

Massachusetts - DOK Level 4

In Reading Level 4, the distinguishing features are making connections across texts spanning different cultures and how they are linked thematically to each other (Webb, 2005, p. 71). While in Writing Level 4, "higher-level thinking is central" as students may be asked to "write an analysis of two selections, identifying the common theme and generating a purpose that is appropriate for both" (p. 72). Of the 87 standards, 11 (13%) were coded at Level 4. Two examples for standards rated at DOK Level 4 for ELA, Grades 9–12 are as follows:

- Grade 11-12: Reading and Literature: Style and Language – 15.10 Analyze and compare style and language across significant cross-cultural literary works ("Massachusetts English Language Arts," 2001, p. 43).

- Grade 9-10: Composition: Research – 24.5 Formulate open-ended research questions and apply steps for obtaining and evaluating information from a variety of sources, organizing information, documenting sources in a consistent and standard format, and presenting research. ("Massachusetts English Language Arts," 2001, p. 67).

Conclusion

The overall results of this study suggest that the Massachusetts standards contain a greater percentage of standards at a higher complexity level, when Webb's Depth of Knowledge (2005) is used as the means for measuring and comparing content complexity within the Common Core State Standards and the Massachusetts English Language Arts Curriculum Framework, Grades 9–12. A greater percentage of standards in Levels 3 and 4 means a greater opportunity for students to engage in higher level thinking, which as Chapter II suggests, is preferable to the lower level thinking found in Levels 1 and 2. Chapter V contains an interpretation of the findings, recommendations for practice and policymakers, and suggestions for additional research.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The final chapter of this dissertation serves as a review of the research problem followed by a discussion of the results. Within this discussion shall be included my interpretation of the findings, recommendations for practice, recommendations for policy makers, and suggestions for additional research. As explained in Chapter I, there has been much debate about having standardized curricula for all. With conflicting accusations and analyses over state standards, studies such as this one seek to identify possible deficiencies in education standards. This study compared content complexity as it appears within the high school English Language Arts Common Core State Standards (CCSS) with the former state standards of Massachusetts, the Massachusetts English Language Arts Curriculum Framework (2001), in Grades 9–12. This study found that the content complexity imbedded in CCSS is inferior to that of the former Massachusetts standards when viewed through Webb's Depth of Knowledge (2005).

In the end, this study is guided by a simple overarching question: so what? For one, this new knowledge presents insights not only into the Common Core and the past standards of Massachusetts, but to the adoption of new standards in general. Massachusetts is consistently a top-performing state on the NAEP assessment, yet like many other states, they replaced their curriculum standards in ELA and math with the Common Core. Without carefully considering the benefits of implementing new standards, when past standards may have been sufficient, is reason enough for other states who rushed into the Common Core to reevaluate their decision. Secondly, based upon the results of this study, higher order thinking still is an area that needs to be leveraged in classrooms throughout Massachusetts. Results of this study show that

declarative knowledge, rather than procedural knowledge permeates the Common Core. While research shows and tells that higher order thinking is preferred to simple recitation and recall, the Common Core still falls short when getting students to do something with their knowledge. In a standards-based curriculum, unfortunately standards and testing go hand in hand. As a result, teachers continue to resort to a test-prep mentality, causing anguish for students in preparation for expensive assessments which do not effectively test for higher level thinking. What all of this new knowledge points to is, quite simply, the effectiveness and appropriateness of a national standards based curriculum.

Interpretation of Findings

The level of cognition, according to the research within this study, that is required to reach higher order levels of thinking are DOK Levels 3 and 4. This includes, but is not limited to, exhibiting deep knowledge of subject matter, providing support for student thinking, writing with purpose for an intended audience, and performing complex analyses in reading or writing. State standards, which do not exhibit content complexity, may contribute to the stifling of higher order thinking, which is why it is essential to ensure that state standards are rigorous and promote critical thinking. The results of the study show that the former Massachusetts standards provide a greater opportunity for higher order thinking activities than do the Common Core State Standards. This claim is based on the results of the coding team who found that there was a greater percentage of standards for Level 3 and 4 combined in the former Massachusetts standards than were found in the Common Core State Standards.

As noted earlier in Chapter 2, standardization favors the New Critical approach to studying literature, focusing on extracting evidence from the text as opposed to creating meaning as a reader. However, according to Applebee (1994), it is imperative that we teach English

language arts students to become independent thinkers who seek "thoughtful interpretations" as opposed to "right answers" (p. 45). Langer (1992) likewise favored this type of critical thinking approach to the study of literary works focusing on new possibilities and interpretations, as opposed to simply checking for understanding. What Applebee and Langer suggested aligns with the higher level thinking in DOK Levels 3 and 4. In terms of standardization, assessing correct answers is easier than assessing thoughtful interpretations, which plays into the "one-size fits all argument" for those who pan standardization. The reader response approach favored by Applebee and Langer frustrates the standardized approach to education in part due to standardized testing, which favors correct answers over meaningful interpretations.

Recommendations for Practice

1. Massachusetts school leaders need to be familiar with their state standards and be creative with the implementation of these standards.

While influencing change on a state or national level may be perceived as daunting task, school leaders have the ability to influence change at the local level while still adhering to state standards. For school leaders this means creating an environment that promotes teaching strategies that focus on the type of higher order thinking that can prevent functional fixedness. According to Tienken (2017), "A democratic spirit can be injected into school contexts" in spite of standardization "by finding opportunities to unstandardize the design, development, and implementation of prepackaged curricula" (p. 147). Dewey (1916/2012) described "method" in education as the way we treat the material in achievement of a goal (p. 178). For Dewey, method is not a fixed recipe to be followed by teachers; rather, it deals with "flexibility and initiative" (p. 183). Furthermore, "methods remain the personal concern, approach, and attack of an individual, and no catalogue can ever exhaust their diversity of form and tint" (p. 186).

School leaders need to be creative and allow their teachers to be so in the classroom. It is a balancing act of adhering to state standards while leveraging the opportunity for higher order thinking through various methods. This is where teaching truly becomes an art, as teachers create the method by which to deliver and enhance the required standards.

2. Massachusetts school leaders need to empower teachers to improve pedagogy with a focus on complex thinking tasks.

According to Marzano, Frontier, and Livingston (2011), "The purpose of supervision should be the enhancement of teachers' pedagogical skills, with the ultimate goal of enhancing student achievement" (p. 2). To begin, school leaders should re-engage teachers with the process of unpacking state standards with an emphasis on those that reflect a high level of complex thinking (i.e., DOK Levels 3 and 4). According to Tienken (2017), "Local curriculum should include purposeful activities and integrated problem-based units designed by educators and students" (p. 131). Researchers have noted that when students are challenged through higher order thinking and when local curriculum is focused on such thinking, students perform well on standardized tests (Brookhart, 2010; Tienken, 2017). As such, school leaders need to support teachers towards those ends. According to Brookhart (2010):

> Students who are regularly and routinely challenged to think, and whose teachers assess higher-order thinking in a manner that yields useful information for both students and teachers in their pursuit of improvements, will learn to think well. (p. 142)

The Hess Cognitive Rigor Matrix can serve as a valuable resource to help teachers create or redesign tasks to ensure a greater level of complexity as defined in Webb's DOK. According to Hess et al. (2009), there are a variety of benefits for educators when using the matrix. Beyond

presenting a visual aid for distinguishing between Bloom's Taxonomy and Webb's DOK, the matrix enables educators to "examine the depth of understanding required for different tasks that might seem at first glance to be at comparable levels of complexity," "categorize and examine selected assignments/learning activities", and "plot multiple assignments over time" in order to "display a unique view of instructional emphasis" (p. 4). School leaders need to both provide teachers with these tools and provide the opportunity for teachers to collaborate in order to construct meaningful activities and revise curriculum to plot a development in such cognitively complex activities.

3. Massachusetts school leaders need to support and coach teachers to be self-reflective about student-learning tasks.

Teachers need to plan and implement instruction that fosters higher order thinking but at the same time have the opportunity to reflect and engage in meaningful discussion with their colleagues. According to Marzano et al. (2011), school leaders cannot expect teachers to improve their pedagogy overnight; however, "It is reasonable to expect all teachers to increase their expertise from year to year" (p. 2). Furthermore, "The process of supervision can be instrumental in producing incremental gain in teacher expertise, which can produce incremental gains in student achievement" (p. 3). School leaders must trust teachers to experiment and take risks in terms of developing instruction with an aim towards higher order thinking. This experimentation and risk-taking, after all, is what is expected of students. We cannot deny teachers, who are closest to their students, the opportunity to formulate such teaching methods. In short, "methods" have to be "an expression of their own intelligent observations" (Dewey, 1916/2012, p. 181). Teachers need to see what works and what does not work for their students. As noted by Marzano et al. (2011), "True pedagogical development comes from teacher self-

reflection that results in clear goals for improvement" (p. 27). Furthermore, self-reflection can be fostered through formal and informal feedback throughout the year from school leaders, students, peers, and themselves.

Both Charlotte Danielson and Robert Marzano in their frameworks for teaching and instruction speak to the importance of reflection in terms of effective teaching practices. According to Danielson (2007), peer coaching is one viable method to help improve instruction. Such coaching begins with self-assessing followed by consultation with peers about plans and practice (p. 176). Furthermore, Reflection on Teaching is one of the components (4a) within Danielson's Domain 4: Professional Responsibilities. According to Danielson, teachers and researchers claim that reflection is "that mark of a true professional" and stems from the belief that teaching is complex and "can never be perfect" (p. 92). As with peer coaching, Danielson suggests that reflection occurs "through professional conversation with colleagues" (p. 93). Marzano et al. (2011) spoke to the isolation of the teaching profession and the importance of peer observations and discussion, maintaining that "teachers need input from sources other than themselves" (p. 69). Marzano listed and explained five strategies to help support the observation and discussion of effective teaching among teachers: instructional rounds, expert coaches, expert videos, teacher-led professional development, and virtual communities (p. 71). Such strategies are therefore important as they encourage teachers to revise, reflect upon, and grow their teaching practices. When considering Webb's DOK, teachers will engage in the same types of thinking essential for students in the classroom, which includes, but is not limited to, problem solving, testing hypotheses, and demonstrating awareness of audience and purpose.

4. Massachusetts ELA teachers need to go beyond close reading and incorporate reader response techniques to increase complexity.

By definition, close reading focuses on the text itself. The aim is to uncover main ideas and key details, while focusing on individual words and sentences in an effort to "arrive at an understanding of the text as a whole" (Partnership for Assessment of Readiness for College and Careers, 2011, p. 7). The CCSS supports this type of study of literature through various standards that require students to cite evidence directly from the text (e.g. RL.9-10.1), determine a theme or idea (e.g. RL. 9-10.2), or examine words and phrases (e.g. RL.9-10.4; NGA & CCSSO, 2010). However, such a study of English language arts is limiting as it fosters consensus and common responses while discouraging thoughtful interpretations and independence (Applebee, 1994; Langer, 1992). While close reading has benefits in terms of helping students to comprehend the texts they read, it is imperative that students move beyond simple comprehension, which is supported by close reading. English language arts teachers need to develop strategies to ensure that students are engaged in more reader response strategies and activities. To reiterate what was stated by Langer (1992), such activities will allow for students to deepen their understanding of texts by engaging in more thoughtful behaviors marked by multiple interpretations, exploration beyond the text, and new understandings (pp. 4, 7–9). Since higher order thinking is more concerned with exploring new possibilities and creating meaning as opposed to recalling information and arriving at correct answers, it is imperative for English language arts teachers to incorporate reader response methods to increase complexity in their classrooms.

Recommendations for Policymakers

1. Massachusetts policymakers should de-emphasize standardization by relinquishing additional control to local districts with an aim towards promoting higher order thinking skills.

"A standardized education program for improved academic achievement of all students is appealingly logical and it is straightforward to install" (Tienken, 2017, p. 3). However, many educators have seen a wolf in sheep's clothing. Standardized education has been deemed controlling due to its "prescribed" goals and standards (McNeil, 2009, p. 52), as well as authoritarian, often devoid of any field-testing prior to implementation (Tienken & Orlich, 2013, p. 44). Additionally, formal assessments provide an array of challenges. According to McNeil (2009), "The most challenging standards and objectives are the ones that are undersampled or omitted entirely" in standardized assessments (p. 53). While formal assessments in general do not account for a number of important "brain principles," which include but are not limited to the way we learn (i.e., through making mistakes), how we learn (e.g., spatial, procedural), or where we learn (Jenson, 2008, p. 226). In a standards-based curriculum, the one-size-fits-all mentality is failing our students. When considering the promotion of higher order thinking skills in the standardization of American schools, we have over 100 years of extensive research, which tells us why we are failing them.

The literature reviewed in Chapter 2 consistently sends the same message that Benjamin Bloom sent over half a century ago: We need evidence that students can do something with their knowledge. Such application of knowledge really begins at DOK Level 3. Theorists are in agreement of what constitutes higher order thinking and how important such thinking is in secondary education not only due to its implications for college and career readiness, but as Piaget explained, such thinking reflects where adolescents are developmentally. Standards should be revised to ensure such skills are prominent in state standards. Of the theorists and studies cited in Chapter 2 of this research, what unifies them all is the consistency by which they suggest that the type of cognitive behaviors that are most important in the classroom are those

which are reflected in Levels 3 and 4 of Webb's Depth of Knowledge. Policymakers should take note that while the list of theorists cited in this study is by no means an exhaustive list, it does span decades of research by some of the most respected minds in education and child development. Having this information as a basis can help inform policy. I will briefly review some of their thoughts here.

John Dewey (1910/2005) encouraged the type of teaching that asks students to think deeply about a problem as opposed to "recitation" or "a display of memorized information" (p. 31). Furthermore, the "method of thought," which is experienced by students requires several components that include a genuine experience, a problem to be developed, information to explore the problem, and the chance to test results (Dewey, 1916/2012, p. 176). As Piaget (1947/2001) expressed, the adolescent at this stage of his or development "thinks beyond the present and forms theories about everything" (p. 163), which is clearly reflected in DOK Levels 3 and 4. Therefore, policymakers should design standards with a greater emphasis on those that engage students with tasks of greater cognitive complexity to coincide with where their brains are developmentally.

Benjamin Bloom stated that what we need in education is "some evidence that the students can do something with their knowledge" (Bloom et al., 1956, p. 38). What Bloom was advocating for is the development of "problem-solving methods" (p. 43). Psychologist Jerome Bruner (1977) concurred, citing "the classic problem of transfer," which is associated with the application of knowledge to new situations. This process is hindered by "the mastery of facts and techniques" (p. 12), which Bruner may have equated with Levels 1 and 2 of Webb's DOK. The idea of problem-solving and transfer to new situation, once again, coincides with expectations reflected in DOK Levels 3 and 4.

Many school leaders today are quite familiar with Robert Marzano through his *Art and Science of Teaching*; the techniques which he supports aligns with his predecessors and builds upon their ideas by providing a number of resources with specific classroom strategies aimed towards higher level thinking. According to Senn et al. (2015), higher level thinking and cognitively complex tasks go hand in hand as "students need time to reach their own conclusions and support them with evidence" (p. 9). Senn et al.'s book, *Engaging in Cognitively Complex Tasks* (2015), identifies these six instructional techniques: investigating, problem solving, decision making, experimental inquiry, inventing, and student-designed tasks. All of these techniques align with DOK Levels 3 and 4.

Standardization with its associated assessments is wrong for education as it does not account for many of the thought processes, which are inherent in higher order thinking. When students are searching for the right answers on a 90-minute assessment, there is no time for authentic problem-solving, deep thinking, inventing, or reaching conclusions. There is little opportunity for revision, analysis, or any kind of extensive research. However, classroom teachers have the opportunity to provide authentic and individualized assessments, while focusing on the needs of their individual students rather than wasting valuable time preparing for high-stakes testing. Let a standards-based curriculum provide the framework but not dictate the instruction. Let the teachers provide the instruction.

2. When considering Grades 9–12, Massachusetts policymakers should focus on college and career readiness by utilizing the research and reports of organizations closely associated with post-secondary life.

Massachusetts policymakers should be aware that all the major organizations discussed in Chapter 2 support the type of thinking in Levels 3 and 4 as essential elements of reading and writing (i.e. College Board, ACT, NAEP, NSSE, NCAA). These activities include but are not limited to: complex thinking, analysis, interpretation, application of knowledge, and strategic thinking. Knowledge of their positions and findings can also direct policymakers towards greater alignment of curriculum standards to higher level thinking. I will briefly review some of their claims here.

In terms of reading, of the three cognitive targets defined in the NAEP Reading Framework, two of the targets (i.e., Integrate/Interpret, Critique/Evaluate) are associated with tasks related to DOK Level 3, while one of the targets (i.e., Locate/Recall) is related to DOK Levels 1 and 2. While the NAEP maintains that it is not their intention to "prescribe a particular curriculum approach," they do assert that their framework was designed through "scientifically based literacy research that conceptualizes reading as a dynamic cognitive process" (NAEP, p.iii). The College Board (Brinkley, n.d.) seeks to make an impact in terms of improved reading achievement, and their English Language Arts framework targets students in Grades 6–12. Within this document, "The College Board Standards for College Success" asks students to "construct," "make connections," "analyze," as well as "identify purposes and goals for reading" (Brinkley, n.d., p. 21). Such activities are associated with DOK Levels 3 and 4. The same holds true for writing when looking at student expectations as related to Webb's DOK. The National Commission on Writing promotes writing as an activity, which is complex, analytical, and forces students to "stretch their minds" (Magrath, 2003, p. 13). In terms of higher order thinking, two collegiate institutions, NCAA and NSSE, have noted its significance for post-secondary education. In the NCAA HSRC, the three variables for acceptable courses are: "application of

skills and concepts", "strategic thinking", and "extended thinking" (NCAA, n.d., p. 35). While according to NSSE (2013), "Challenging intellectual and creative work is central to student learning and collegiate quality" (p. 36). School leaders should know that classroom activities are preferable when they: ask students to show understanding rather than recite facts, ask students to support their thinking rather than summarize, and ask students to synthesize information from multiple sources rather than a shallow understanding of one. The preferable task in each of these scenarios is supported by all the above organizations and aligns directly with Webb's DOK Levels 3 and 4.

Recommendations for Future Research

While this research served to compare one set of curriculum standards to another, this study clearly cannot account for state standards beyond Massachusetts. However, it does add to the body of research in similar studies, which have attempted to measure the content complexity of state standards against those of the Common Core. In order to extend the body of literature, below are suggestions of future studies.

1. Recreate this study utilizing other state standards and compare findings.
2. Recreate this study in other grade levels and content areas and compare findings.
3. Conduct a quantitative study that compares student performance on standardized tests in states that have abandoned former standards and replaced with Common Core.
4. Conduct a case study that examines how schools successfully assess higher order thinking.
5. Conduct a case study that examines how schools implement Webb's Depth of Knowledge in their teaching practice.

6. Develop a study that examines the influence of state standards on teacher practice.

7. Develop a study that examines how a required state assessment correlates with a given state's standards in terms of Webb's Depth of Knowledge (e.g., PARCC and NJSLS).

Conclusion

According to the ancient philosopher Plutarch (trans. 1927), "the mind does not require filling like a bottle, but rather, like wood, it only requires kindling to create in it an impulse to think independently and an ardent desire for the truth" (para. 18). My study sought to gain clarity in terms of the level of content complexity embedded in two sets of academic standards. We know that standards that reflect higher level thinking give educators and students a better opportunity of kindling the flame to create life-long learners. The results of my study indicate that there needs to be a greater push towards standards which promote higher level thinking. Over 100 years of educational thought and research have told us that this type of thinking is preferable in the classroom. Until policymakers truly accept this view of education and hold students over content, we will continue to cram our students into a one-size-fits-all bottle.

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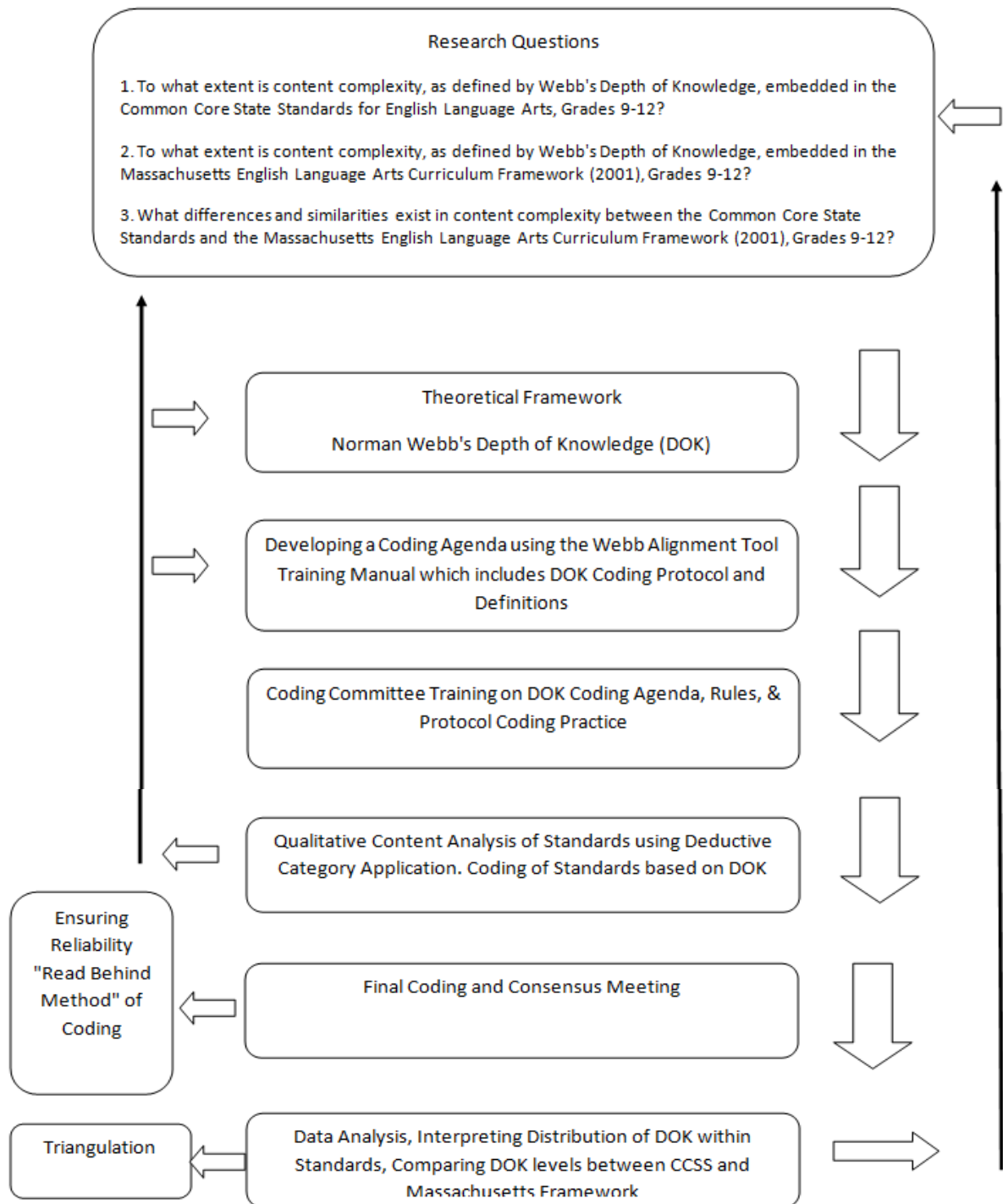
Appendix A

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Appendix B

Research Questions

1. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Common Core State Standards for English Language Arts, Grades 9-12?

2. To what extent is content complexity, as defined by Webb's Depth of Knowledge, embedded in the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9-12?

3. What differences and similarities exist in content complexity between the Common Core State Standards and the Massachusetts English Language Arts Curriculum Framework (2001), Grades 9-12?

Theoretical Framework

Norman Webb's Depth of Knowledge (DOK)

Developing a Coding Agenda using the Webb Alignment Tool Training Manual which includes DOK Coding Protocol and Definitions

Coding Committee Training on DOK Coding Agenda, Rules, & Protocol Coding Practice

Qualitative Content Analysis of Standards using Deductive Category Application. Coding of Standards based on DOK

Ensuring Reliability "Read Behind Method" of Coding

Final Coding and Consensus Meeting

Triangulation

Data Analysis, Interpreting Distribution of DOK within Standards, Comparing DOK levels between CCSS and Massachusetts Framework

Adapted from Mayring (2000)

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Appendix C

Tips for Facilitating the Consensus Process	
1.	Read each objective aloud before discussing it.
2.	As you go through the objectives, actively solicit comments from all reviewers. Pay special attention to making sure that the reviewers from within the state feel involved. (Not every reviewer needs to address every objective, but make sure that everyone is included in the process.)
3.	Use your print-out to call on people who coded DOK levels differently from the coding of other members of the group, and ask them to explain why they coded the objective to the particular DOK level. Be sure they use the DOK definitions to justify their answers.
4.	Once two reviewers have described how they have coded an objective differently, ask a third reviewer to highlight the differences between these two interpretations.
5.	Restate and summarize to reviewers your interpretation of what the reviewers have agreed on and what they have disagreed on.
6.	If there is a difference in interpretation of the objective's *terminology* or *expectations*, appeal to a reviewer with experience in teaching that grade level with these standards to discern how the state's teachers might be interpreting the objective.
7.	Ask if anyone, through other reviewers' explanations, now wants to change his or her mind about their original coding.
8.	If the viewpoints on the DOK level of an objective are divided, point to the most likely skills or content knowledge required in the objective, not the more extreme possibilities the objective might allow for.
9.	As the facilitator, try not to dominate the consensus process. Even if you have strong feelings about the DOK level of an objective, wait to see if other reviewers highlight your point.

(Webb, 2005, p. 33)