

EXAMINING SECONDARY WRITING: CURRICULUM-BASED MEASURES
AND SIX TRAITS

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DISSERTATION ABSTRACT

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Writing assessments have taken two primary forms in the past two decades: direct and indirect. Irrespective of type, either form needs to be anchored to making decisions in the classroom and predicting performance on high-stakes tests, particularly in a high-stakes environment with serious consequences. In this study, 11th-grade students were given a classroom assessment in which they had 1 minute to think and 3 minutes to write. Student work was scored for correct word sequence (CWS), total words written (TWW), and correct minus incorrect word sequence (CIWS). Students were also given a high-stakes state test to determine eligibility for graduation. This study focuses on the relation between performance on the classroom assessment and the state tests, with comparisons made between the performance of students receiving special education services (SPED) and students in general education. In an age of accountability, test validity has become an increasingly complicated topic. The social consequences of assessments impact students and their educational experience.

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CHAPTER I

INTRODUCTION

Various instruments are used to score secondary writing. Due to the complex nature of writing and the time required to score, teachers seek out sensitive resources to support instruction. Both curriculum-based measures (CBM) and the Oregon Assessment of Knowledge and Skills (OAKS) six traits scoring rubric may support such needs. The CBM is an efficient, cost-effective tool designed to measure student progress and make predictions on statewide assessments. However, CBM is often underused and not validated. In special education, the CBMs correct word sequence (CWS), correct minus incorrect word sequence (CIWS), and total words written (TWW) may be used to measure student progress towards the Individualized Education Plan (IEP) writing goal(s). In special and general education populations, the OAKS six traits scoring rubric can be used to measure a student's progress towards the state grade-level writing standards. Because both CBMs and six traits are valuable data tools, special education and inclusion teachers alike may develop fluency with their use to advance student writing.

Special educators implement (a) CBMs to measure student growth towards annual IEP writing goal(s) and (b) the OAKS six traits scoring rubric to measure individual students and their capacity to meet the Oregon State Writing Assessment. In educators' efforts to support current educational policy—e.g., Annual Yearly Progress (AYP), Response to Intervention (RTI) expectations—value of CBM as a predictor for individual student writing needs, as measured on the OAKS six traits scoring rubric may increase

the graduation rate for struggling students. Amid changes in the field of education, accountability for students and teachers may become progressively more dependent on graduation rates. For the purpose of this study, curriculum-based measures (CBM) in writing include correct word sequence (CWS), correct minus incorrect word sequence (CIWS) as well as the value of total words written (TWW). CBM is a data-driven instructional tool based on evaluating the effectiveness of the instruction provided to students. The value in learning if the CBMs—i.e., CWS, CIWS, and TWW—are a predictor of the OAKS six traits scoring rubric may, as I suggest, provide an efficient assessment tool for instructional guidance that can improve OAKS writing performance. While meeting policy expectations, such provisions may further support preparation of high school students for increasingly rigorous writing assessments.

Purpose of This Study

This study is designed to address the lack of research in secondary writing in two specific areas. First, Writing CBMs in high school grades have not been studied as thoroughly as in the elementary grades. Part of the analysis addresses how Writing CBMs administered to 11th-grade students in the fall and winter correlate to performance on the winter and spring statewide assessment. The second area addressed is the relation between the CBMs and the statewide assessment. This study establishes the predictive nature of the Writing CBMs and the statewide assessment.

CHAPTER II

LITERATURE REVIEW

In preparation for high-stakes writing assessments, sensitive, quick measures that may inform classroom instructional decisions are in demand. To do this efficiently, practitioners may implement Writing CBMs to assess and inform student learning.

Issues and Options: Approaches to Writing Assessment

To understand the construct of writing, educators must consider both direct and indirect approaches in the assessment of writing proficiency. The direct method, or constructed response, relies on student writing samples to judge writing proficiency. The indirect method, or selected response, relies on objective tests. In the assessment of writing proficiency, selecting direct or indirect scoring procedures is a function of purpose. Ultimately, scoring direct or indirect measures may guide student needs for the purpose of placement and instruction (Spandel & Stiggins, 1980). Because CBMs in writing are a direct assessment, derived from story starters, addressing the value of direct assessment in the writing construct may be beneficial.

Direct Assessment

This form of assessment consists of constructed-response items. According to the James Madison University Center for Assessment and Research Studies, constructed-response questions are open-ended, short-answer questions that measure application-level cognitive skills as well as content knowledge. They do not include opinion questions. The constructed response may use a range of primary and secondary stimuli and authentic examples, including time lines, maps, graphs, cartoons, charts, and short readings. Employing a scoring rubric, constructed responses are graded against specific criteria.

They may include a given stimulus or prompt to inspire thinking or utilizing higher level thinking skills (e.g., making comparisons, perceiving causes, effects, or changes, identifying conflicting points of view, categorizing or summarizing information, constructing graphs or charts from data, or stating a generalization, conclusion, explanation, or prediction). In scoring, each constructed-response question is scored according to a rubric (scoring guide) that gives varying degrees of credit for correct or partially correct answers. The rubric includes enough information or examples to allow different raters to arrive at the same score for a given student response. This literature review considers direct, constructed-response writing prompts and their association with the scoring rubric.

Quantitative Measures of Writing: Development of Curriculum-Based Measures

Curriculum-based measures of writing are probably the most common form of direct assessment in special education settings (Deno, 2003). It is important to understand CBMs and their growth into CWS, CIWS, and TWW in a larger context. For this reason, a descriptive summary of CBM is included to support CWS, CIWS, and TWW as valid, reliable assessment tools.

Curriculum-based measurement (CBM) is an approach for measuring the academic growth of individual students in basic skills that originated with special education. CBM may be used to gather student performance data to support a wide range of educational decisions. Those decisions include screening to identify student needs, evaluate prereferral interventions, determine eligibility for and placement in remedial and special education programs, evaluate instruction formatively, and evaluate reintegration and inclusion of students in mainstream programs (Deno, 1985). The essential purpose of

CBM is to support teachers in evaluating the effectiveness of the instruction they are providing to individual students. Early research focused on testing the functional use and effectiveness of CBM for increasing the achievement levels of students with learning disabilities (Deno, 1985). Currently, extensions of CBM research continue to address a wide range of educational concerns in both special and general education with different populations and in new curriculum domains.

CBMs provide teachers data-driven instructional decision-making tools that are based on evaluating the effectiveness of the instruction provided to individual students. Researchers explain that it is important to recognize that much research and development on CBM has extended from educational decisions well beyond those for which it was originally created. Initially, on an elementary school level, CBMs focused on improving the effectiveness of special education students with learning disabilities (Deno, 2003). Later, CBMs were expanded to screening and identification of students at risk of academic failure, developing school-wide accountability systems, addressing the problem of disproportionate representation, evaluating growth in early childhood, assessing attainments in content area learning, measuring literacy in deaf students, assessing students who are English language learners (ELLs), and predicting success on high-stakes assessments (Deno, 2003). What follows in this dissertation is a brief history of the development of CBMs and some reflections on current efforts to use CBMs to assess student writing.

Ideally, instruction can be improved through formative evaluation; the feedback provided to the learner and teacher alike may further support targeted instructional practices. Researchers stress the importance of this because students can only take

advantage of improved instructional techniques during instruction (Videen, Deno, & Marston, 1982). The general acceptance of CBM as a viable assessment tool may further support ways of documenting the progress of student writers. The formative evaluation can be used more comprehensively in a problem-solving model to make a variety of instructional decisions (Deno, 1985). The CBMs are sensitive to differences (a) among individuals (i.e., persons with skill should be discriminated from persons without skill), and (b) within persons over time (Shinn, 1989). The tools in formative evaluation must be sensitive to change. Sensitivity is dependent on the relation between the content of the test and what is taught (i.e., curriculum). Without sensitive measures, accurate decisions may not be made to support student instructional decisions.

To be effective in formative evaluation, the measures need to be precise, accurate and consistent (Thorndike, 2005). The reliability of CBM has always included interobserver agreement, test/retest and alternate form reliabilities as well (Deno, 2003). Reliability is particularly important because multiple forms are used in CBM (Deno, 2003). Most research on CBM written expression has reported reliability of static (one point in time) measures or stability across a wide time frame (e.g., fall to spring; McMaster & Espin, 2007).

How well a measure is able to assess what it claims to assess is essential to its validity (Thorndike, 2005). Writing is a complex process that poses a challenge for establishing validity. Writing tasks should (a) represent the nature of the writing process (content validity), (b) reflect the various cognitive processes that writing theorists have indicated are important (substantive validity), (c) be scored such that the information included is not too narrow or too broad (substantive validity), and (d) correlate well with

comprehensive writing measures that assess multiple writing domains and not correlate well with measures of constructs such as mathematical problem solving (external validity). Procedures developed have provided modest criterion validity coefficients. However, validity coefficients for CBMs in written expression are similar to or better than those seen for other commonly used measures of written expression (McMaster & Espin, 2007).

To be used effectively in practice, CBM administration needs to be both economical and efficient. Due to the requirement of frequent, repeated measures for growth and evaluation, the CBM task administered must be of short duration. CBMs should measure unfamiliar tasks so that any increase in performance represents growth in general proficiency rather than the effects of practice. Because many forms of CBMs need to be frequently available for administration, CBMs must not be expensive to administer or produce. They need to be easy for teachers and teacher assistants to administer. To do this effectively, educators can pursue increased professional development in the area of writing skill analysis, which may further support more effective instructional targets that meet high-stakes writing demands (Tindal, 2013).

In summary, CBM measures that address the performance issues of students include a set of specific measurement procedures that quantify student performance in written expression. These procedures are a product of a program that affirmed the data collected through applying the same procedures (Shinn, 1989). Time is a factor in the efficient use of CBMs. However, as Espin et al. (2008) explain, secondary students may require increased time to support reliability and validity.

Writing Assessments in Secondary Settings

Schools are held accountable for the results of the large-scale, statewide assessments. Utilizing the results from statewide measurements may inform diagnostic information about student progress toward content standards. Because CBMs are predictors of student's general writing performance, they may inform instructional targets for the high stakes OAKS writing assessment linked to high school graduation requirements.

Curriculum-Based Measures

In the area of writing, early CBM work supported the reliability and validity of a 3-minute writing sample produced in response to a story starter and scored for number of words written (WW), words written correctly (WWC), or correct word sequences (CWS) written (Deno, Marston, & Mirkin, 1982; Deno, Mirkin, & Marston, 1980; Marston, 1989; Marston, Lowry, Deno, & Mirkin, 1981; Tindal & Parker, 1991; Videen et al., 1982). However, since the inception of CBM, counting writing indices have been studied across grade levels to support the most effective tool for gaining a sense of a student's writing ability (Espin et al., 2000; Parker, Tindal, & Hasbrouck, 1991). Such research has indicated the indices used to measure one grade level may not be appropriate for another grade level (Parker et al., 1991; Weissburger & Espin, 2005).

In the 1990s, research on the development of writing measures was extended to the secondary level (Parker et al., 1991). Researchers suggest that CBMs need to change as students become older and more skilled (Espin, De La Paz, Scierka, & Roelofs, 2005). To support that claim, countable indices may include CWS, CIWS and TWW. To begin

with, Videen et al. (1982) define the construct of writing proficiency as correct word sequence. CWS is the number of immediately adjacent correctly spelled word pairs that make sense together, in the context of the sentence (Videen et al., 1982). In a correlational analysis, CWS revealed a fairly consistent and reliable pattern of relations with other measures of proficiency (Tindal, 2013). Scierka, Weissenburger, and Espin (2003) define Correct Minus Incorrect Word Sequences (CIWS) as the number of incorrect word sequences minus the number of correct word sequences in each portion of a writing sample. CIWS has traditionally been used as a curriculum-based measure of written grammar and mechanics (Espin et al., 2005). With moderate criterion validity ($r_s = .65-.70$), CIWS may be a promising countable index to measure secondary writing. Espin et al. (2000) as well as Espin et al. (2008) suggest that CIWS may detect growth in both narrative and expository writing samples (i.e., those with a time constraint of 7-10 minutes). Scierka et al. (2003) define Total Words Written (TWW) as the sum of words written in a specified amount of time. A word is defined as any numeral or letter sequence that is clearly separated from an adjacent numeral or sequence. TWW provides teachers with a simple, practical way to score writing samples. Fluent writers may take risks with larger vocabulary. TWW is a measure that does not penalize writers for incorrect spelling (Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002). A drawback, however, is that it yields only a rough estimate of writing fluency (that is, of how quickly the student can put words on paper) without examining the accuracy of spelling, punctuation, and other writing conventions. Research by Espin et al. (2005) suggests that a combination of measures may be better than any single measure for predicting student performance in written expression. These CBM tools—CWS, CIWS, and TWW—are

designed to predict performance on school-based indicators. However, the results of Espin et al. (2005), Espin, Scierka, Skare, and Halverson (1999), Espin et al. (2000), and Weissenburger and Espin (2005) show that a more complex indicator of writing proficiency was needed at the secondary level.

Parker et al. (1991) were the first to examine the validity and reliability of writing measures at the secondary level. In the study conducted by Parker et al. (1991), students wrote for 6-minutes in response to a narrative prompt, and samples were scored using CWS (as well as other written-expression CBMs). Criterion variables included teachers' holistic ratings of writing and the Test of Written Language (TOWL). Results across studies revealed that, compared to elementary school, somewhat better technical adequacy was found for CWS-scoring procedures in middle schools. Results further found that percentage measures were better predictors of the criterion variables than counting measures. Percentages of CWS emerged as reasonably good predictors of students' general writing performance (Tindal & Parker, 1991). However, percentage measures were seen to be problematic for progress monitoring because of a potential lack of sensitivity to change (Malecki & Jewell, 2003).

Parker et al. (1991) revealed in a study of 243 students in Grades 6, 8, and 11 that the percentage of correctly spelled words and the percentage of CWS were good predictors of writing proficiency. However, Parker et al. concluded that the number of CWS was a measure for differentiating students below the tenth percentile. In 2005, Weissenburger and Espin found that the technical adequacy of CWS, CIWS, and TWW was not supported for high school students.

Malecki and Jewell (2003) found that percentages of CWS did not differentiate elementary and middle school students and did not reflect fall-to-spring growth for these students. The amount of writing time allocated to students impacted reliability but not validity. Increased time to write was associated with increased alternate-form reliability, especially for older students. In a study conducted by Espin et al. (2000), alternate-form reliability for CWS ranged from .72 to .80, and slight increases were found from 3 to 5-minutes of writing. In Weissenburger and Espin's (2005) research, reliability coefficients for CWS ranged from .67 to .82 for eighth-grade students and from .59 to .80 for 10th-grade students. Increases in alternate-form reliabilities were found from 3 to 5 to 10-minutes of writing.

The one exception to this pattern is evident in the study conducted by Espin et al. (2005), in which students were given 35 minutes to write an expository essay. Results revealed that TWW correlated with the criterion variables at levels equal to or above CWS, with correlations ranging from .58 to .90 for TWW and from .66 to .83 for CWS. The authors inferred that the correlations for TWW might have been related to the length of time given to the students to write. With regard to genre, results generally have revealed no effects on the reliability or validity of CBM measures. Espin et al. (2000) compared narrative and expository writing samples and found similar levels of reliability and validity for the two types of writing. Espin et al. (2005) also examined reliability and validity for expository essays and found coefficients similar to those seen in other studies employing narrative writing. CWS shows promise for use in the screening and eligibility decisions made for struggling writers (Parker et al., 1991).

CBM research programs have provided a basis for developing standardized measurement procedures that can be used to formatively evaluate the effects of modifications in the instructional programs for individual students (Deno, 2003). Research conducted on the student achievement effects of special education teachers using these procedures suggests that instructional effectiveness can be improved through the use of CBM in formative evaluation. At the same time, the CBM procedures have been used to assess the full range of intervention decisions that are made for students who are academically *at risk*. CBMs may be used to assess attainments in content area learning (Espin & Foegen, 1996), and to predict success on high-stakes assessments (Good, Kame'enui, & Simmons, 2001).

There is great concern regarding the use of traditional tests for decision-making. According to Marston (1989), the technical adequacy (e.g., reliability, validity, norms) of traditional tests is problematic. Marston explains that there are two general reasons for this concern: (a) measurement and psychometrics; and (b) on a policy level, many of these tests have not proven to be useful in decision-making because of legal and practical issues. Beyond the fundamental uses of CBMs, relevant research has been conducted on using CBMs to predict scores in high-stakes assessment, to measure growth in content areas in secondary school programs, and to assess growth in early childhood programs (Deno, 2003). In an age of accountability, CBMs may be used as an indicator to improve educational decision-making for outcome-based accountability.

State Testing Program in Oregon (OAKS)

Oregon Assessment of Knowledge and Skills (OAKS) provides critical data for Oregon's accountability system, which meets the requirements of No Child Left Behind

(NCLB). The purposes of the Oregon Statewide Assessment Program are (a) to provide information regarding individual student achievement on performance standards set by the State Board of Education at grade and benchmark levels; (b) to provide information for federal AYP requirements and for policy decisions by the legislature, the governor, the State Board of Education, and local school districts; (c) to support instructional program improvement efforts; and (d) to inform the public about student achievement in Oregon schools. The Oregon Statewide Assessment is different from national, norm-referenced tests used in many districts and states. The Oregon Statewide Assessment is a criterion-referenced assessment based on the Oregon Content Standards. As a result, the types of scores produced from the Oregon Statewide Assessment are somewhat different from those produced by national, norm-referenced tests. Oregon educators contribute to the test development and alignment process by serving on advisory committees called Content and Assessment Panels. Stakeholders in these committee members are involved in each phase of the development of these specifications to ensure that they accurately and clearly describe the test's overall design and specific content to measure the knowledge and skills described in the content standards. For this reason, the OAKS are scored by the state. It is a required assessment that provides a base for the accountability system (Oregon Department of Education [ODE], 2012a).

The writing assessment is currently a performance assessment, but a multiple-choice section was field tested during the 2009-2010 school year. The purpose for this portion of the writing assessment was to further validate the scores given to student essays and to improve the overall reliability and validity of test results. Currently, there is no plan to implement the multiple-choice section as part of the operational writing

assessment. Rather, in Oregon's writing performance assessment, students are asked to generate a sample of authentic, sustained work. That sample is scored by trained raters using one of Oregon's official scoring guides, which include detailed descriptions on a 6-point scale of each score-reporting category to be assessed (ODE, 2012c). The content of these specifications reflects the skill expectations outlined in the Content Standards adopted by the State Board of Education (ODE, 2012d).

During the 2011 session, the Oregon legislature voted to suspend the Writing Performance Assessment at Grades 4 and 7. Only students currently enrolled in Grade 11 who have not yet met or exceeded the writing standard may take the writing assessment during the 2011-2012 and 2012-2013 school years. OAKS is also one way for students to demonstrate proficiency in the Essential Skills of writing that will be necessary for a high school diploma or modified diploma beginning with the graduating class of 2013.

Historically, the writing performance assessment has been administered in a paper/pencil format, although starting in the 2009-2010 school year; students in high school and Grade 7 have the option to take it electronically. Students have approximately three class periods, one on each of three days, to prepare their writing samples. Because this is not a timed test, students may be given additional time to complete their work. Although there is no specific writing process dictated, recommendations include (a) completing student information, prewriting and beginning the rough draft; (b) continuing drafts and beginning to revise and edit; and (c) revising, editing and copying the draft into final form to be scored. Currently, students in high school are provided with four writing prompts from which to choose (narrative, expository, imaginative and persuasive). Narrative writing is to tell a true story, expository writing is

to explain something, imaginative writing is to make up a fictional story and persuasive is to convince the audience.

High schools have the option for students to participate during the first window (winter) or during a second window (spring). Paper and pencil writing assessments include instructions for writing in the space allowed in the response folder. However, they may attach an extra page that may not exceed one half of the page. Maximum length for electronic administration is 850 words. For high school students, although they may activate a spell-check feature throughout a document, grammar-check features must be disabled (ODE, 2012d). There are score-reporting categories designed to reflect traits of good writing.

Traits of good writing include (a) Ideas and Content, (b) Organization, (c) Voice, (d) Word Choice, (e) Sentence Fluency, and (f) Conventions. Ideas and Content refer to the ideas in a writing sample being clear, focused, complete, and well developed with specific details. Organization is evident when the writer moves naturally from one idea to the next, presenting a strong beginning and ending. Voice is the writing style, which should be lively, interesting and appropriate to the audience. Word Choice means the careful selection of words to convey precise meaning, images, and tone. Sentence Fluency means sentences are smooth, varied, and carefully constructed. Conventions include correct spelling, grammar/usage, punctuation, capitalization, and paragraphing used throughout the paper.

Score points are assessed on a scale of 1-6 on each trait. A score of six is exemplary, meaning the paper shows outstanding performance and exceptional control in this trait of writing. A score of five is strong; in example, the paper shows many strengths

and the writer seems to be perfecting control of the writing. A score of four is proficient; in example, the paper shows more strengths than weaknesses, and the writer seems to be gaining control of the writing. A score of three is developing; in example, the paper needs further development in this trait because the writer seems only partially in control of the writing. A score of two is emerging; in example, the paper needs quite a bit more development, but the writer is addressing this writing trait. A score of one is beginning; in example, the paper needs significant development and represents a very beginning effort (ODE, 2012d).

Score-reporting categories contain a more detailed examination of the test content for writing; see the Appendix for descriptions of (a) content standards assessed for the particular score-reporting category, (b) details about how the standard would be assessed, and (c) sample prompts that are very similar to the types of prompts used on the state assessment. The OAKS assessment uses the six traits scoring rubric to assess student writing. Students must receive a composite score of 40 out of 60 on the state writing test (which includes doubling the score given for Conventions) to meet the standard.

Curriculum-Based Measures and Oregon Assessment of Knowledge and Skills

To meet accountability expectations set by policymakers (e.g., AYP, RTI), educators may use quick, inexpensive progress-monitoring tools like CBMs to further prepare high school students for rigorous writing standards. CBMs may serve as a predictor for student performance on the six traits of good writing measured in the OAKS assessments. Because the CBM CWS is the number of immediately adjacent correctly spelled word pairs that make sense together, given the context of the sentence (Videen et al., 1982), CIWS is the number of correct minus incorrect word sequences (Espin et al.,

1999), and TWW is the sum of words written in a specified amount of time (Scierka et al., 2003), they may be related to six traits of good writing. The trait Conventions includes correct spelling. Similarly, both CWS and CIWS measure correctly spelled word pairs. For this reason, CWS and CIWS may be predictive of how a student scores on the Conventions trait. The Conventions trait is scored twice, which may increase the relation between CWS, CIWS and the Conventions trait. CWS and CIWS may be a predictor for student assessment performance. Because CWS is defined as two words that make sense together and CIWS represents correct minus incorrect word sequences, they may be predictors of how a student scores on Organization, Sentence Fluency, Word Choice, and Ideas and Content traits. Organization is defined as the natural move from one idea to the next. To move from one idea to the next, a sentence must, as CWS characterizes, make sense. Ideas and Content include clear, focused, complete and well-developed specific details. The “clear” in Ideas and Content may be related to both CWS and CIWS and its ability to measure word pairs that make sense. CWS and CIWS may also be a predictor for the Sentence Fluency trait. Sentence Fluency includes natural flow of language. Natural flow of language may be correlated with CWS and CIWS and its word pairs that make sense together, given the context of the sentence. Defined as the use of functional words to convey the intended message, Word Choice may be linked to CWS and CIWS and their capacity to quantify word pairs that make sense. The following factors contribute to the efficacy of these CBMs: (a) clarity afforded in the Ideas and Content trait that provides the structure with a thread of central meaning; (b) patterns and devices that hold the writing piece together as well as a clearly focused body that accounts for the Organization trait; (c) the use of sufficient words written (dictating length) to demonstrate

a tone in Voice; (d) explication by use of functional words to convey the message in the Word Choice trait; (e) a natural flow or Sentence Fluency; and (f) correct spelling in Conventions. As a result, CWS, CIWS and TWW may provide important information enabling teachers to make curricular decisions that maximize student OAKS writing test scores (ODE, 2012d). The possibility of a causal relation between CBMs (CWS, CIWS, and TWW) and the OAKS six traits Writing scoring rubric may further support efforts in meeting AYP policy expectations.

Adequate yearly progress (AYP) is the measure by which schools, districts, and states are held accountable for student performance under Title I of the No Child Left Behind Act of 2001 (NCLB), the current version of the Elementary and Secondary Education Act (ESEA). Under NCLB, AYP is used to determine if schools are successfully educating their students. The law requires states to use a single accountability system for public schools to determine whether all students, as well as individual subgroups (e.g., special education students), are making progress toward meeting state academic content standards. The goal is to have all students reaching proficient levels in reading and math by 2014 as measured by performance on state tests. Progress on those standards must be tested yearly in Grades 3 through 8 and in one grade of high school. To meet AYP expectations, at least 95% of students in each of the subgroups, as well as 95% of students in a school as a whole, must take the state tests, and each subgroup of students must meet or exceed the measurable annual objectives set by the state for each year (No Child Left Behind Act of 2001). Although not every state includes writing in their AYP reports, there is cause for national alarm. Seventy percent of students in grades 4-12 are low achieving writers (Persky et al., 2003).

Writing Measurement Constructs Anchored to Validity

According to Cronbach (1949), “a test is valid to the degree that we know what it measures or predicts” (p. 48). In the shift to high-stakes assessment outcome-based educational measures, test validity has become an increasingly complex topic. In high school, outcomes are used to support both students and schools. Consequently, high-stakes assessment outcomes dictate student’s ability to meet graduation and AYP expectations. For this reason, assessors may consider the purpose and justification of the test to be part of a validity argument, focusing on interpretation and use (as part of the purpose) and evidence as well as consequences (as part of the justification; Messick, 1989).

As outlined in Table 1, assessors acknowledge that both test uses and consequences are largely beyond the constructor’s control. The test constructor can control only the *construct validity*. The motivation for test construction comes from its projected outcomes. Those outcomes suggest a test’s intended uses (Messick, 1989). The evidence for test interpretation may be referred to as the pattern of relations between the predictors (e.g., CWS, CIWS, TWW CBMs) and criterion variables (e.g., OAKS six traits scoring rubric; Messick, 1989).

One way to evaluate the type of assessment (direct or indirect) is to focus on construct validity, which would frame the use of CBMs in the larger contexts of accountability systems. Construct validity is the experimental demonstration that a test is measuring the construct it claims to be measuring. To support that claim, in the case of the CBMs, an atomistic measure may further determine the predictive validity of the CBM writing measure and its pattern of relatedness to the criterion measure explicated in

the six traits assessed on the OAKS writing assessment. Predictive validity is the degree of correlation between the scores on a test (e.g., CWS, CIWS, and TWW CBMs) and some other measure (e.g., OAKS composite score and six traits scoring rubric) that the test is designed to predict. Therefore, the predictive validity of CBMs (CWS, CIWS, and/or TWW) may correlate with a composite OAKS score (e.g., Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions) and indeed measure correlations with the OAKS writing score. The predictive validity

TABLE 1. Validity

		Purpose	
		Interpretation	Use
Justification	Evidence	Construct validity	Predictive validity
	Consequence	Value implications	Social consequences

Note. Adapted from “Validity,” by S. Messick, in *Educational Measurement* (3rd ed., pp. 13-103), by R. L. Linn (Ed.), 1989, New York, NY: Macmillan.

may further determine the relatedness between the CWS, CIWS, and TWW CBM scores and each of the six traits scored on the OAKS writing assessment. This information may support curricular decision-making that also meets the graduation and AYP expectations for both students and schools.

Decisions about the validity of CWS, CIWS and TWW CBM writing measures may be based on a pattern of relations with several criterion measures, each reflecting either the CBM or the OAKS writing assessment (as measured by the six traits scoring

rubric; Cronbach, 1949). Validity decisions may be based on both the consideration of use and the effects of employing CWS, CIWS, and TWW CBM writing measures for teacher instruction and student achievement (Messick, 1989).

There are social consequences for both individual students and schools that do not meet proficiency on the six traits scoring rubric for the OAKS writing assessment. Social consequences may affect individual students and their high school graduation and/or diploma options. Social consequences may also affect an individual school and/or school districts' AYP rates. Therefore, as described by Messick (1989), the social consequences of assessments impact the students and their educational experience as well as schools. Thus, valid, reliable CWS, CIWS, and/or TWW CBMs may further support both student graduation and AYP rates.

Using the CWS, CIWS, and TWW CBMs as predictors for the OAKS writing score (as measured by the six traits scoring rubric) may serve as a method for screening individual writers who need intensive strategy instruction, scaffold, and supports. Much like a thermometer, this assessment may serve as a quick, inexpensive tool for Response to Intervention (RTI) planning and intervention. To support the use of CWS, CIWS, and/or TWW CBMs as predictors for good writing (six traits), educators may find it advantageous to consider writing accountability.

Although much CBM research has been conducted, most has taken place in elementary schools. Few studies to date have examined the use of CBM measures to predict performance on state writing exams (Espin et al., 2008). An exception is a study that collected data on 10th-grade students in Minnesota who wrote for 3-, 5-, 7- and 10-minute intervals. The Minnesota state writing test (Minnesota Basic Standards

Test/Minnesota Comprehensive Assessments) is an untimed 10th-grade assessment that scores writing samples according to a holistic scoring rubric. In contrast to the eleventh-grade OAKS six traits scoring rubric, the MBST/MCA rubric scores tenth-grade writing samples holistically. These researchers (Espin et al., 2008) concluded the predictive validity in correlations of CBM measures in writing ranged from .23-.60. Differences in scoring procedure were large. Correlations for Words Written (WW) and Words Written Correctly (WWC) ranged from .23-.31, for CWS .43-.48 and for CIWS .56 to .60.

Because the MBST/MCA are (a) measuring Minnesota state standards, (b) on a 10th-grade level, and (c) using a holistic scoring rubric, it may be helpful to know if the CWS, CIWS, and TWW are sensitive enough on a 11th-grade level to support strategic writing instruction as measured by the OAKS six traits scoring rubric. Both OAKS and the MBST/MCA are high stakes assessment tied to both graduation and AYP expectations.

In my research educators I plan to explore the OAKS direct writing assessment measure (six traits scoring rubric) and the plausible relation between the six traits (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions), as well as the atomistic CWS (number of two adjacent correctly spelled word pairs that make sense together, given the context of the sentence), CIWS (the number of incorrect word sequences minus the number of correct word sequences in each portion of a writing sample), and TWW (the sum of words written in a specified amount of time, defining “word” as any numeral or letter sequence that is clearly separated from an adjacent numeral or sequence). If the CWS, CIWS, and/or TWW CBMs correlate with six traits (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions), the CBMs may be used to predict success on the OAKS writing

assessment. When instructors employ CWS, CIWS, and TWW CBMs such correlational evidence may further support student graduation rates and AYP. To bolster that claim, I propose a statistical correlational study to support the CWS, CIWS, and TWW CBM as a valid, reliable instructional tool to maximize student writing needs.

Based on the limited amount of research in the area of secondary writing CBMs, my research questions are as follows:

1. What is the relation between performance on the curriculum-based measures—correct word sequences (CWS), correct minus incorrect word sequences (CIWS), and total words written (TWW)—and the Oregon Assessment of Knowledge and Skills (OAKS) six traits of Writing (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, Conventions) in high school?

2. What is the predictive nature of CWS, CIWS, and TWW in relation to the Writing portion of the Oregon Assessment of Knowledge and Skills (OAKS) in high school?

The determination of a relation between CWS, CIWS and TWW as predictors of the OAKS six traits scoring rubric may, as I suggest, provide instructional guidance and improved OAKS writing performance. I suggest that, through the use of a correlation statistical measurement conclusion, CBMs will explicate a relation with the six traits scoring rubric. Finally, to conclude this study, I propose that, through the use of a multiple-regression statistical measurement conclusion, CBMs will serve as predictors for student writing as measured by the OAKS six traits scoring rubric.

CHAPTER III

METHOD

This study included data analyses on extant datasets containing results from statewide assessments and building-wide assessments. The analyses included only 11th-grade students who completed both of the assessments used in this study: (a) fall CBM, (b) winter CBM, (c) winter OAKS, and (d) spring OAKS.

Participants and Setting

Participants in this study included 43 eleventh-grade students (30 male, 13 female) from one large, urban northwestern high school (enrollment 1,256). Participants were recruited across a range of performance levels in four English III (one inclusion and three general education) classrooms to examine whether the CBMs CWS, CIWS, and TWW are predictors for student performance on the OAKS writing assessment (as measured by six traits).

The high school had relatively low ethnic and racial diversity. Eighty-eight percent of the participants identified themselves as Non-Hispanic/Latino and White ($n = 38$), and the remaining 12% identified as Hispanic/Latino and American Indian/Alaskan Native ($n = 5$). For this study, males represented a larger portion of population than females. Males represented approximately 70% ($n = 30$) of the students and females represented 30% ($n = 13$) of the students. Statistical analyses were not conducted to determine whether these differences were significant (see Table 2).

TABLE 2. High School Gender and Race/Ethnicity by 11th-Grade

Grade 11 Race/Ethnic Group	Sex			
	Male		Female	
	<i>N</i>	%	<i>N</i>	%
Non-Hispanic Latino/White	29	67.44	9	20.93
Hispanic Latino/American Indian/Alaskan Native	1	2.33	4	9.30
Total	30	69.77	13	30.23

TABLE 3. Participation of Special Education Students by Disability

Disability	Frequency	%
Specific Learning Disability	7	58.33
Autism	1	8.33
Emotional Disturbance	2	16.67
Communication	2	16.67
Total	12	100.00

Twenty-eight percent of the population sample received special education services (female, $n = 1$; male, $n = 11$). Decisions regarding the need for special education services were based on the discrepancy model for eligibility. This model included multiple sources of information, including a case history, educational history, and performance on CBMs, scores on a norm-referenced cognitive and achievement assessment, social emotional checklists, as well as Speech and Language examinations. Participants reflected four special education eligibility categories: 7 Specific Learning Disability (SLD); 2 Communication (COMM); 1 Autism (ASD); and 2 Emotional Disturbance (ED) (see Table 3). Statistical analyses were not conducted to determine whether these differences were significant (see Table 3).

The participants in this study included 11th-grade students in one high school from four English III classes that were administered OAKS sample writing prompt in the

fall, winter and spring. Also, all participants were required to have taken the writing portion of the Oregon Assessment of Knowledge and Skills (OAKS) in either the winter or spring of the 2011-12 OAKS test administration dates. Eleventh-grade students who participated in all three assessments (fall, winter CBM, and OAKS writing assessment) were included in the dataset ($n = 43$).

Nonperformance indicators were also used in the dataset. Each student who had the necessary scores had four additional pieces of data attached. First, the district information system was used to identify each student's gender. Second, each student was identified with a race ethnicity, including Non-Hispanic/Latino/White and Hispanic/Latino/American Indian/Alaskan Native. Next, SPED and eligibility status were recorded. First, CBM scores (for CWS, CIWS, and TWW) were collected and then the district's information system was used to insert composite OAKS scores and each individual six Trait score.

CBMs as Predictors

The predictor variables in this study were scores on curriculum-based measures of writing. Students wrote for 3 minutes in response to a sample OAKS narrative writing prompt. Writing samples were scored three different ways: correct word sequences (CWS), correct minus incorrect word sequences (CIWS), and total words written (TWW). Scores were calculated for 3-minute samples of writing performance.

CWS are the number of immediately adjacent correctly spelled word pairs that make sense together, given the context of the sentence (Videen et al., 1982). In the scoring of CWS, for a word to be scored as correct, capitalization and punctuation needed to be present. CIWS is the number of correct sequences minus the number of incorrect

word sequences (Scierka et al., 2003). TWW is the sum of words written in a specified amount of time regardless of spelling or usage. A word is defined as any numeral or letter sequence that is clearly separated from an adjacent numeral or sequence (Scierka et al., 2003). A description of the scoring procedures can be found in Table 4.

TABLE 4. Curriculum-Based Measurement Scoring Procedures for Writing Samples

I. Mark (underline) and count the number of words written.	
Life is full of choices. Tell a true story about a time when you or someone else had to make a choice. . . . <u>The refridgerader. This giant medal beast has been the death of many men. Sadly too say I was one of them.</u>	
TOTAL WORDS WRITTEN:	21
II. Mark (dashes) and count incorrect word sequences.	
Life is full of choices. Tell a true story about a time when you or someone else had to make a choice. . . . The_refridgerader._This giant_medal_beast has been the death of many men. Sadly_too_say I was one of them.	
INCORRECT WORD SEQUENCES:	6
III. Mark (caret) and count correct word sequences.	
Life is full of choices. Tell a true story about a time when you or someone else had to make a choice. . . . ^The_refridgerader.^This^giant_medal_beast^has^been^the^death^of^many^men.^Sadly_too_say^ I^ was^ one ^of them. ^	
CORRECT WORD SEQUENCE:	16
IV. Calculate correct minus incorrect sequences.	
Life is full of choices. Tell a true story about a time when you or someone else had to make a choice. . . . ^The_refridgerader.^This^giant_medal_beast^has^been^the^death^of^many^men.^Sadly_too_say^ I^ was^ one ^of them. ^	
(Correct word sequences) <u>16</u> - (incorrect word sequences) <u>6</u> = (correct minus incorrect word sequences) <u>10</u>	

OAKS as a Criterion Variable

The criterion variable in the study was performance on the Oregon Assessment of Knowledge and Skills (2011-12 Test Administration Manual) in writing. The OAKS are high-stakes summative assessments required for high school graduation and are designed to reflect mastery of content standards. The OAKS are high stakes tests designed to rank student performance across a continuum and are used for purposes of meeting the NCLB requirements. The OAKS performance-based writing test is designed to elicit one of four writing prompts (expository, narrative, imaginative, or persuasive). Students complete one writing sample for the OAKS. The sample is scored twice to meet the requirements of the test. Due to Oregon Department of Education budget constraints, during the 2011-12 school year, the Oregon legislature suspended the 4th and 7th-grade writing tests, and this past year only eleventh grade students took the writing test. (<http://ode.state.or.us/news/announcements.as>).

The writing test is scored using a process called six traits scoring (2011-12 Test Administration Manual). Because the writing samples are scored according to six traits (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions), the scoring focuses on a pre-established criterion. The writing samples are first scored on a scale of 0 to 4 to meet OAKS requirements. A score of 3 is necessary to pass the test. Students who do not earn a score of 3 or higher on the initial test are not able to take the test again. Effective for the Class of 2013 and beyond, the achievement standards for demonstrating proficiency in essential skills for high school include writing performance assessment. The required scores are 40 for meets, and 50 for exceeds.

About 1,000 Oregon classroom teachers of writing gathered for 6 days at 16 or more sites around the state to score the state performance assessments. Using the state-scoring guide, two teachers independently read and scored each student paper. If scores given by the first two teachers differed by more than one point, a third expert teacher read and scored the paper. The third teacher’s score replaced the first two scores. High school students must have received a composite score of 40 out of 60 on the state writing test (which includes doubling the score given for Conventions) to meet the standard. An example of this is shown in Table 5.

TABLE 5. Grade 7 or High School Scoring Example

	Ideas and Content	Organization	Sentence Fluency	Conventions	Composite Score	Decision
Rater 1	4	4	4	3 (x2)	36	Nearly Meets Standard
Rater 2	4	4	4	3 (x2)		

Note. Adapted from *Official Scoring Guide, Writing 2011-12*, by the Oregon Department of Education, 2012c.

In addition to the composite score, the State Board set minimum individual scores allowable to meet the standard. High school students must have a score of 3 or more on each required trait (Ideas and Content, Organization, Sentence Fluency, and Conventions). A score of 2 or 1 in any trait, from either rater, result in a paper not meeting the standard, regardless of the composite score.

The validity of the OAKS Writing Performance Assessment is defined as the extent to which the test is aligned with the content it is intended to measure. Involving educators, item development experts, assessment experts, and state staff members in the

development and annual review of items and scoring systems selected for the test ensured validity. No other validity data were reported for the OAKS writing assessment.

To increase the reliability of decisions regarding whether or not papers meet the state test performance standards, the State Board of Education adopted a composite scoring system for state writing and mathematics problem-solving tests. The following series of questions and answers describes the composite score for writing state tests. This composite scoring system does not apply to work samples. The scores from two raters are added together to obtain the total, or composite, score. High school students received a composite score of 40 out of 60 on the state writing test (which includes doubling the score given for Conventions) to meet the standard. An example for these grade levels is shown in Table 6.

In addition to the composite score, the State Board set minimum individual scores allowable to meet the standard. Students in Grades 4, 7, and high school must receive a score of 3 or more on each required trait (Ideas and Content, Organization, Sentence Fluency, and Conventions). A scores of 2 or 1 in any one trait from either rater result in a paper not meeting the standard, regardless of the composite score. The Conventions score is doubled because correct spelling, grammar and punctuation are especially important characteristics of good writing. The ability to produce a final written document, free of distracting mechanical errors, is tied to high school graduation requirements.

Voice and Word Choice were not added into the composite score because they were not required in the performance standards. However, they were still scored on the test because Oregon recognized the instructional value of these traits. By receiving

feedback in these areas, students learned that these traits are also important components of good writing.

A team of expert raters from around the state rescored all traits or dimensions on the test. The new scores replaced the original scores, even if the new scores were lower, in all student, building, district, and state records. Table 6 shows the levels at which writing tests may be rescored, nearly meet the standard, meet the standard, or exceed the standard.

TABLE 6. Eligibility for Rescoring

Grade	Eligible for rescoring		Meets standard	Exceeds standard
	Does not yet meet	Nearly meets standard		
Grade 4	20 to 27 points	28 to 31 points	32 to 39 points	40 to 48 points
Grade 7 and HS	25 to 34 points	35 to 39 points	40 to 49 points	50 to 60 points

Note. Adapted from *Official Scoring Guide, Writing 2011-12*, by the Oregon Department of Education, 2012c.

Procedure

Curriculum-Based Measure Administration

In the fall and winter, students completed narrative CBM writing prompts during their English III class (periods 2, 3, 4, and 6). The writing sample was collected on the same day because only one class period was available for data collection. Former Sample OAKS Writing Prompts were as follows: “Life is full of choices. Tell a true story about a time when you or someone else had to make a choice” and "Sometimes things turn out in a way we did not think would happen. Tell a story about a time or event that turned out differently than you expected." Participants were given 1 minute to think and 3-minutes

to write. At 3-minutes, students were instructed to stop and put their pencils down. Written Expression Curriculum-Based Measurement directions can be found in the Appendix.

Students were provided with lined sheets of paper. Each prompt was printed on the top of a sheet of paper, followed by lines printed on the same sheet. Prompts can be found in the Appendix. Students were given an extra sheet of lined paper stapled to the first in case their writing exceeded more than one page. Using a timer, the examiner provided students with 1-minute to think and 3-minutes to write. Students were then instructed to stop and put their pencils down. Handouts that students were provided to complete their fall and winter prompts are included in the Appendix.

Curriculum-Based Measure Training in Scoring Samples

Three teachers scored the CBM writing prompts, all of who have a Master's in Education. Prior to scoring, scorers participated in two 3-hour training sessions conducted by one special education teacher with 7 years of experience administering standardized and curriculum-based assessments. Training materials were adapted from (a) the Alaskan Alternate Assessment (Farley, Sherman, Felix, & Tindal, 2012); (b) Administration and Scoring of Written Expression Curriculum-Based Measurement (WE-CBM) for use in General Outcome Measurement (Powell-Smith & Shinn, 2004); and (c) Assessing Writing Skills Using Correct-Minus Incorrect Word Sequences: A National Study (Breux & Frey, 2009). Training materials are included in the Appendix.

For this study, a high school special education teacher recruited the examiners. All three had past experience in administering OAKS writing assessments, reading and math measures. At the end of the training session, participants were required to score five

samples and reach a level of 80% agreement with the trainer before proceeding with scoring. Dividing the smaller score by the larger score and multiplying by 100 calculated an interscorer agreement. All scorers reached at least 80% agreement on their first attempt. To ensure that scorer drift did not occur, an independent rater scored every 10th sample and an interscorer agreement was calculated. Average interscorer agreements across the time frames (fall and winter) were as follows: CWS (93%), CIWS (91%), and TWW (98%).

Criteria for excluding protocols included (a) poor samples, (b) repetition of the same things, (c) hieroglyphics, (d) less than 10 words, (e) the inclusion of hate, (f) inclusion of race, and (g) inclusion of violence. The number of each excluded protocol (a-c) was recorded (see Table 7). Three students did not complete the writing CBM in the winter CBM classroom administration. Instead, students wrote their names and the date on top of the handouts. Interestingly, all three 11th-grade students were (a) male, (b) had special education eligibility, and scored (c) "does not meet" on the Spring OAKS scoring rubric expectations. Student A, a male with a learning disability, was able to score 32 but "does not meet" the scoring rubric. Student B, a male with a learning disability, was able to score 27 and "does not meet" the OAKS six traits scoring rubric. Student C, a male with an emotional disturbance, was able to score 34 but "does not meet" the OAKS six traits scoring rubric. All students included in the study ($N = 43$) completed the 11th-grade OAKS writing assessment.

TABLE 7. Exclusion of School CBM/OAKS Writing by Special Education Eligibility and Gender: Grade 11

	Special Education Eligibility	Sex				OAKS Composite Score
		Male		Female		
		<i>n</i>	%	<i>n</i>	%	
Student A	Learning Disability	1	33			32, Does not meet
Student B	Learning Disability	1	33			27, Does not meet
Student C	Emotional Disturbance	1	33			34, Does not meet
Total		3	100			

Students completed the state writing test in February and May. The 2011-2012 OAKS writing prompts consisted of four modes: (a) narrative, (b) expository, (c) persuasive, and (d) imaginative. Due to confidentiality, ODE would not provide prompts from the 2011-2012 school year. As explained via phone and confirmed in an email (K. Hermens, personal communication, March 7, 2013),

The 11th-grade writing prompts for the 2011-2012 school year have not been released and remain secure test items. Because of ODE policy relating to the sharing of secure test items, I cannot comply with your request to obtain a copy of these prompts.

For this reason, prompts were not available to the public. Students were given as much time as needed to complete their essays.

For the high school students in the 11th-grade study, the passing rate of 40 or "meets" on the OAKS six traits scoring rubric was 51% ($n = 22$; DART, 2012); this can be compared to a passing rate of approximately 68% ($n = 237$) for the high school in which the study took place and approximately 63% ($n = 754$; DART, 2012) for the entire

school district. In the state of Oregon, approximately 61% ($n = 24,258$) of the 11th-grade population "meets" the OAKS six traits scoring rubric (ODE, 2013b). Seven percent ($n = 3$) of the students in the 11th-grade study "exceeds" the OAKS six traits scoring rubric expectations (DART, 2012); this can be compared to approximately 8% ($n = 27$) for the high school in which the study took place (DART, 2012) and approximately 7% ($n = 84$) for the entire school district. In the state of Oregon, approximately 5% ($n = 2,056$) of the 11th-grade population "exceeds" the OAKS six traits writing assessment (ODE, 2013b). Interestingly, 42% ($n = 18$) of the students in the study "does not meet" the OAKS Six traits Writing scoring rubric expectations. In contrast, approximately 18% ($n = 63$) of the students attending the high school the study took place "does not meet" the OAKS six traits writing expectations. Similarly, approximately 21% ($n = 254$) of the 11th-grade students in the school district "does not meet" the OAKS six traits scoring rubric. Throughout the state of Oregon, 33% ($n = 13,143$) "does not meet" OAKS six traits scoring rubric expectations.

An average of 33% ($n = 4$) of 11th-grade students in the study eligible for special education was able to score "meets" on the OAKS six traits scoring rubric. Sixty-seven percent ($n = 8$) of the students with a special education plan scored "does not meet" the OAKS six traits scoring rubric. None of the special education students scored "exceeds" the OAKS six traits scoring rubric. As for the high school in which the study took place, 4.3% ($n = 5$) of the 11th-grade special education students scored "meets" on the OAKS six traits scoring rubric. This number increased to 10.3% ($n = 12$) for special education students who scored "does not meet" the OAKS six traits scoring rubric.

The remaining number of 11th-grade students (i.e., those in study and in high school, the district, the state, and special education) within each of the three score classifications (meets, does not meet, exceeds) had no score. Students within the "no score" category may have relocated, opted out of the test opportunity, or taken an alternative assessment. Alternative assessments include (a) Extended Measure and (b) Writing Work Samples. The Extended Measure in writing is designed to measure students with the most significant cognitive disabilities. The decision to administer Oregon's Extended Assessment (the alternate assessment) can only be made by the student's IEP team (ODE, 2012b).

In the state of Oregon the Writing Work Sample assesses essential skills in writing for a high school diploma. Work samples are one assessment option that high school students may use to demonstrate they are proficient in the Essential Skills. Regarding demonstration of proficiency in the Essential Skills, districts must (a) provide students with instruction and multiple assessment opportunities to demonstrate proficiency in the Essential Skills for the purpose of earning a high school or modified diploma, and (b) allow students to use assessment options adopted in a student's ninth-through 12th-grade years that are equal to or lower than the achievement standards approved as of March 1 of the student's eighth-grade year (see Tables 8 and 9). At the high school level, students may use work samples to fulfill both the local performance assessment and the Essential Skills requirements (ODE, 2013a).

TABLE 8. OAKS Writing Test Scores by 11th-Grade Study, High School, District, and State

	OAKS writing scores					
	Does not meet		Meets		Exceeds	
	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%
Study	18	41.86	22	51.16	3	7.0
High school	62	17.9	237	69.0	27	8.0
District	252	21.0	752	63.0	84	7.0
State	13,143	33.0	24,258	62.0	2,056	5.0

TABLE 9. Special Education OAKS Writing Test Scores by 11th-grade Study, High School, District, and State

	OAKS writing scores					
	Does not meet		Meets		Exceeds	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Study	8	67.0	4	33.0	0	0.0
High school	16	29.0	37	63.0	5	0.08
District	93	74.0	33	26.0	0	0.0
State	3,454	78.0	938	21.0	37	1.0

Statistical Analyses

The statistical analyses addressed the relation between CWS, CIWS, and TWW and student performance on the OAKS writing assessment (as measured by the six traits scoring rubric). I have provided the descriptive statistics mean, median and the standard deviation of each measure. I also computed correlation coefficients among (a) CWS, OAKS writing composite scores and all six traits scores; (b) CIWS and OAKS composite

and all six traits scores; and (c) TWW and OAKS writing composite scores and all six traits scores for the assessments administered to the students and how they related to each other. I conducted a multiple-regression analysis to determine which of the predictor variables accounted for the most variance and were most predictive of future performance on the OAKS writing assessment as measured by the six traits scoring rubric. Finally, I conducted a scatterplot to visually represent the correlations between each of CBMs and the OAKS writing composite score.

CHAPTER IV

RESULTS

Prior to answering the research questions, I provide descriptive statistics for the variables used in the analyses. Research Questions 1 and 2 addresses the relation and predictive nature (reliability and validity) of the CBM written expression measures and differences in this reliability by scoring procedure. The first research question is answered through descriptive statistics and by computing correlation coefficients among the measures (CBMs and OAKS writing assessment). A scatter plot shows the relation between each CBM (CWS, CIWS, and TWW) and the OAKS composite score (Ideas and Content, Organization, Sentence Fluency and Conventions). The second research question is addressed through a multiple regression. The model analyzes the predictive nature of the CBMs (CWS, CIWS, and TWW) in relation to the OAKS writing scores (six traits and composite score).

Cases Included and General Description

In Table 10, I present counts and percent's variables for Time Of Testing (TOT). See Table 10.

TABLE 10. Time of Testing OAKS Writing Assessment

Season	Frequency	%
Winter	28	65.0
Spring	15	35.0
Total	43	100.0

Table 11 presents descriptive statistics (number of cases, means, standard deviations, and minimum and maximum scores) for (a) CWS, (b) CIWS, (c) TWW, (d) OAKS composite score, (e) Ideas and Content, (f) Organization, (g) Voice, (h) Word

Choice, (i) Sentence Fluency, and (j) Conventions. The number of student scores included all students who had reported for each of the two measures (CBMs and OAKS writing assessment).

TABLE 11. Descriptive Statistics of Assessment Results

Measure	Count	<i>M</i>	<i>SD</i>	Minimum	Maximum
Ideas (I)*	43	8.35	1.11	6	10
Organization (O)*	43	8.12	1.05	6	10
Voice (V)	43	8.47	1.14	6	12
Word Choice (W)	43	8.12	1.03	5	10
Sentence Fluency (S)*	43	7.81	1.24	5	10
Conventions (C)*	43	7.70	1.36	5	10

* = OAKS writing composite score with Conventions double weighted

A total of 112 eleventh-grade students attended four English III classes in the school during the school year. Of those students, 43 had scores reported for both CBMs and the OAKS writing assessment. This resulted in a reduction of cases to 43 included in the analyses. See Table 11 for complete descriptive statistics. Twenty-eight of those students took the OAKS writing assessment in the winter and 15 took it in the spring.

Research Question 1: Relation Among Measurement Variables

The first research question analyzed the relation among student performance on the OAKS, CWS, CIWS, and TWW. Table 12 provides the correlation coefficients for the two measures (CBMs and OAKS). According to Cohen (1988) the correlation between CWS and OAKS was moderate (.37, $p < .05$). The correlation between CWS and Sentence Fluency was moderate (.43, $p < .01$). Similarly, the correlation between CWS and Conventions was moderate (.43, $p < .01$). Although not included in the OAKS six

traits composite score, both Voice (.32, $p < .05$) and Word Choice (.31, $p < .05$) traits reveal a moderate correlation with CWS. A high correlation between CWS and TWW, (.93, $p < .01$); moderate correlations were found between (a) CIWS and TWW (.56, $p < .01$); (b) TWW and OAKS (.31, $p < .05$), (c) TWW and Sentence Fluency (.36, $p < .05$), and (d) TWW and Conventions (.32, $p < .05$). Moderately, negative correlations were found between special education (SPED) and (a) CWS (-.57, $p < .01$); (b) SPED and TWW (-.52, $p < .01$); (c) SPED and Sentence Fluency (-.37, $p < .05$); and (d) SPED and Conventions (-.36, $p < .05$). It may be important to note that all of the OAKS six traits correlations were moderate to quite strong (.67 to -.95, $p < .01$).

Research Question 2: Predictive Nature of Performance Indicators

The second research question addressed the predictive nature of the three CBMs administered. The CWS, CIWS, and TWW were included in a simultaneous multiple-regression analysis to investigate the strongest predictors of the OAKS writing. The combination of variables to predict OAKS six traits writing assessment from CWS, CIWS, and TWW was not statistically significant, $F(3, 39) = 2.589, p = .067$. See Table 13 for the complete ANOVA statistics. Additionally, the adjusted value indicated that

TABLE 12. Correlation Scores on Curriculum-Based Measures and OAKS Writing Assessment, Research Question 1

	CWS	CIWS	TWW	OAKS	I*	O*	V	W	S*
CIWS	.233	--	--	--	--	--	--	--	--
TWW	.928**	.558**	--	--	--	--	--	--	--
OAKS	.371*	.026	.308*	--	--	--	--	--	--
I*	.243	-.102	.161	.815**	--	--	--	--	--
O*	.222	.075	.189	.880**	.780**	--	--	--	--
V	.318*	.031	.281	.830**	.771**	.787**	--	--	--
W	.312*	.022	.261	.879**	.714**	.824**	.825**	--	--
S*	.433**	.010	.358*	.954**	.723**	.785**	.787**	.895**	--
C*	.432**	-.078	.316*	.910**	.673**	.778**	.771**	.829**	.944**

Note. CWS = Correct Word Sequence; CIWS = Correct minus Incorrect Word Sequence; TWW = Total Words Written; OAKS = Oregon Assessment of Knowledge and Skills; I* = Ideas; O* = Organization; V = Voice; W = Word Choice; S* = Sentence Fluency; C* = Conventions.

* = OAKS writing composite score

* $p < 0.05$ level. ** $p < 0.01$ level.

10% of the variance was explained by the model (see Table 14). According to Cohen (1988), this is a smaller than typical effect.

TABLE 13. ANOVA Statistics for Correct Word Sequence, Correct minus Incorrect Word Sequence and Total Words Written

Model	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Regression	223.724	3	74.575	2.589	.067
Residual	1123.393	39	28.805		
Total	1347.116	42			

Table 14 provides results from the multiple regression with OAKS as the constant and CWS, CIWS, and TWW as the predictor variables. The standardized coefficients indicated that CWS ($\beta = 1.759$) are relatively more predictive than CIWS ($\beta = .541$) and TWW ($\beta = -1.627$).

TABLE 14. Regression of Writing Oregon Assessment of Knowledge and Skills on Curriculum-Based Measures

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Standard error	Beta	<i>t</i>	
(Constant)	35.814	2.067		17.326	.000
CWS	.433	.314	1.759	1.378	.176
CIWS	.360	.382	.541	.942	.352
TWW	-.366	.338	-1.627	-1.084	.285

The multiple correlations coefficient R , using all the predictors simultaneously, is .408. The R^2 value (.166) presents in Table 15 documents the differences between the three predictors (CWS, CIWS and TWW). The adjusted R^2 of the CBMs is .102,

indicating that 10% of the variance is predicted by the CBMs predictors, CWS, CIWS, and TWW.

TABLE 15. Variance of OAKS Writing Assessment on CBMs

Model	R	R square	Adjusted R square
1. CWS, CIWS, and TWW	.408	.166	.102

The Pearson correlation coefficient reflects the relation between CWS, CIWS, and TWW and the OAKS six traits scoring rubric. A scatterplot summarizes these results graphically (Figures 1-3). Overall, the plots display no consistent scatter between the Curriculum-Based Measures (CWS, CIWS, and TWW) and the OAKS writing composite score (Ideas and Content, Organization, Sentence Fluency, and Conventions).

FIGURE 1. Relation Between CWS and OAKS Six Traits Composite Score

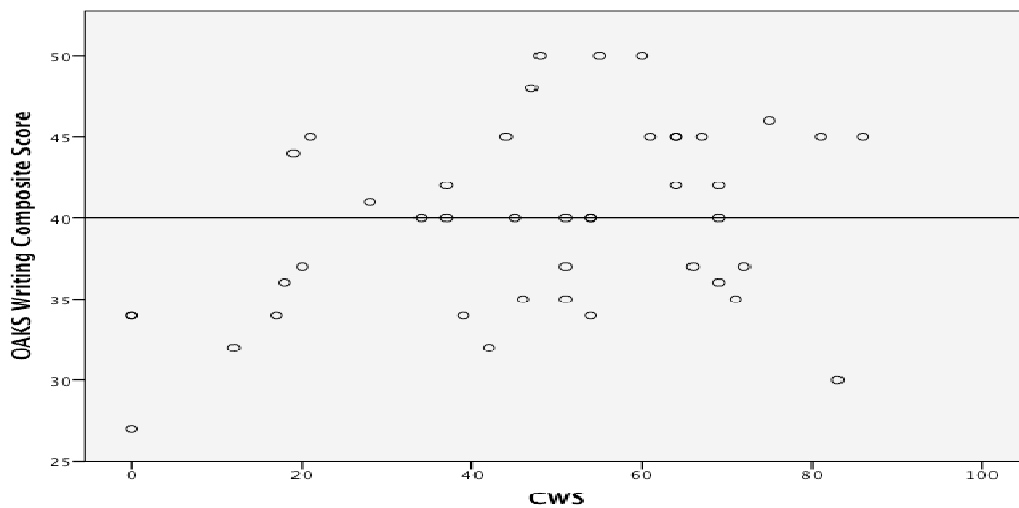


FIGURE 2. Relation Between CIWS and OAKS Six Traits Composite Score

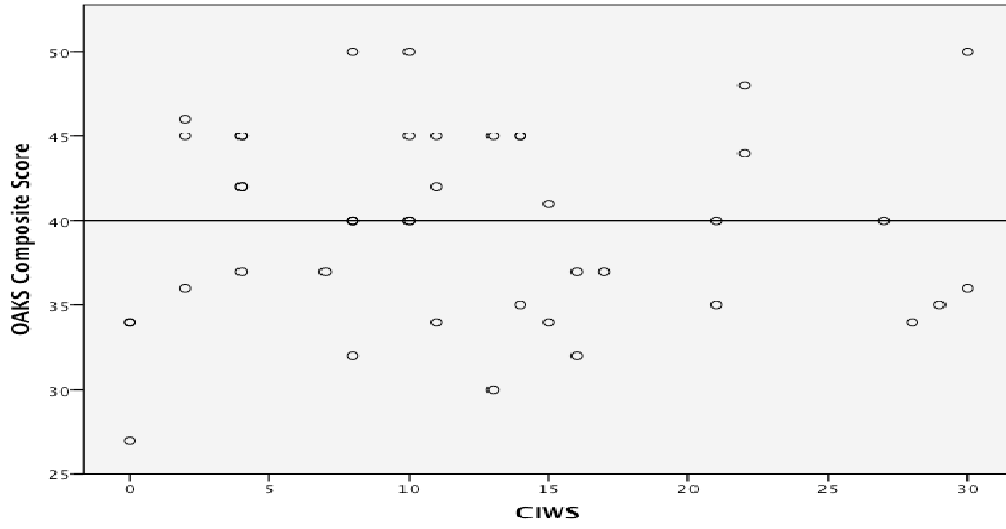
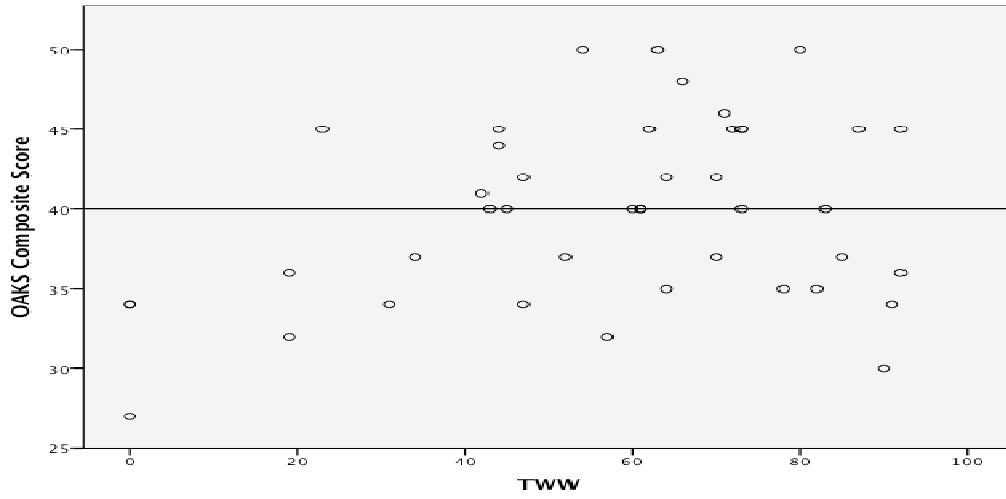


FIGURE 3. Relation Between TWW and OAKS Six Traits Composite Score



CHAPTER V

DISCUSSION

The primary intent of this study was to identify curriculum-based measures of written expression for high school students. Previous studies at middle and high school levels suggested the number of CWS, CIWS, and TWW were better indicators of writing proficiency for older students (Espin et al., 2008; Weissenburger & Espin, 2005). However, these measures have not correlated well with criterion measures at the high school level (Weissenburger & Espin, 2005). In a high stakes environment, secondary schools have required an efficient assessment tool to meet state standards and graduation rates. Thus, a need existed for additional research that examined the relation between high school performance on the CBM in written expression and the statewide writing assessments.

The current study investigated the relation between correct word sequences (CWS), correct minus incorrect word sequences (CIWS), and total words written (TWW)—and the Oregon Assessment of Knowledge and Skills (OAKS) six traits of Writing (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, Conventions) and OAKS composite score (Ideas and Content, Organization, Sentence Fluency, and Conventions) in high school. In addition, the study investigated the predictive nature of CWS, CIWS, and TWW in relation to the Writing portion of the Oregon Assessment of Knowledge and Skills (OAKS) in high school.

The correlations within each of the different measurement systems (CBM and OAKS) reflected the univariate analysis of each trait. Results revealed a moderate correlation among the CBMs and OAKS (see Table 13). With a small sample and with

limited variance, it was difficult to produce high correlations. These findings, however, were consistent with research that supports CWS as a measure of writing proficiency at the secondary level (Espin et al., 1999; Espin et al., 2000; Weissenburger & Espin, 2005).

The study's current findings yield somewhat promising results, particularly for CWS, the only scoring system that produced statistically moderate correlations with five of the criterion measures (OAKS, Sentence Fluency, and Conventions). Unfortunately, two of those criterion measures (Voice and Word Choice) have not been included in the OAKS writing composite score. Although, CIWS did not yield meaningful results, TWW revealed statistically moderate correlations with three of the criterion measure (OAKS writing composite score, Sentence Fluency, and Conventions). This study's current findings and their related implications are addressed in the following sections according to their respective research questions.

Research Question 1: The Relation Between Writing Curriculum-Based Measures and the Oregon Assessment of Knowledge and Skills

A relation between writing CBMs and the OAKS writing assessment may support diagnostic data collection to support targeted instruction (Deno, 2003). Because analytic scoring (i.e., OAKS six traits) is time intensive as well as expensive, identifying CBMs to support instructional practice may increase students' writing scores (Spandel & Stiggins, 1980). When considering CBMs and the OAKS six traits scoring rubric and writing composite scores, there are moderate correlations. However according to research, CBMs may be used to predict success on high-stakes assessments (Good, Kame'enui, & Simmons, 2001).

These moderate correlations suggest that teaching components of CWS may increase 11th-grade student OAKS writing scores. This may be attributed to several shared factors that define the measures. Each of these measures may, by definition, incorporate components of one another. In terms of construct validity and value implication (Messick, 1989), when interpreting the univariate nature of the OAKS six traits, all have high correlations within traits (range). The CWS, CIWS, and TWW CBMs all have moderate correlations within scoring systems but low correlations between them (see Table 13).

Interpretations of construct validity are partially justified by this evidence of moderately high correlation for some CBM and OAKS measures; this in turn allows the CBM measures to be used in a predictive sense. In the end, the purpose of these assessments is unified. As outlined in Table 1, to justify the use of CBMs to support instructional targets depends on the evidence or pattern of relations with the OAKS six traits scoring rubric. Thus, the effects of employing CWSs to support teacher instruction of the six traits scoring rubric in promoting student achievement clearly has consequences. The value implications imply that teachers can interpret the outcomes and use the data to change instruction, the (social) consequence of which (hopefully) leads to graduation and/or a diploma. As Cronbach (1949) suggests, the evidence for test interpretation is the pattern of relations between assessments. For this reason, in the section that follows, I interpret the patterns of relatedness of CBMs to the criterion measure exhibited in the OAKS six traits scoring rubric and OAKS writing composite score.

The univariate correlation analysis provides moderate intercorrelations among each type of measure (with different scoring systems) as well as across both types of measures (using different scoring systems). For example with the CBM, CWS moderately correlates with the (a) OAKS writing composite score, (b) Voice, (c) Word Choice, (d) Sentence Fluency, and (e) Conventions. Interestingly, CWS and CIWS moderately correlate with TWW. In addition, TWW moderately correlates with the OAKS composite score, Sentence Fluency, and Conventions traits. All six traits in OAKS correlate moderately to quite strong.

Messick's (1989) unified theory of validity provides a well-matched framework for integrating the purpose of testing (in both interpretation and use) with the justification of measures and scoring systems (in both the evidence and consequences). For example, the significant correlation between CWS and OAKS writing composite score may support the relatedness of every word pair that correctly uses (a) capitalization, (b) punctuation, (c) syntax, (d) semantics, (e) contractions, (f) abbreviations, or (g) unusual characters correctly to the OAKS writing composite score (Ideas and Content, Organization, Sentence Fluency, and Conventions). According to Messick, the evidence in construct validity may provide value for instructional writing targets, provide interpretations, and result in positive consequences. However, for this unified theory of validity to stand the test of empirical research, CBMS and OAKS need to be individually considered but also have technical adequacy as part of the evidence (both construct and predictive) as well as practical utility in being a timed formative measure.

Curriculum-Based Measures

Examining the scatterplots explicitly reveals the moderate correlations for CWS, CIWS, and TWW. The demonstration of the construct of CBMs in the larger context of direct OAKS six traits scoring rubric assessment measures, exemplifies a moderate pattern of relatedness between performance on the CWS or TWW and either OAKS six traits scoring rubric or OAKS composite writing score. There also are moderate correlations between CWS and (a) Voice and (b) Word Choice. Although not accounted for on the OAKS composite score, these secondary traits are also important components of good writing (Spandel & Stiggins, 1980). Because Voice and CWS include syntax, they may be reflected in the arrangement of words. Likewise, Word Choice and CWS may include words that are correct within the context of what is written. Likewise, both Sentence Fluency and Conventions share moderate correlations with CWS, which includes semantics. Because Sentence Fluency includes developing fluent sentence structures that support meaning and CWS integrates semantics into its scoring of word pairs, these two measures may promote clarity in communication.

Similarly, Conventions and CWS share the integration of spelling, grammar, punctuation, and capitalization rules into each of the scoring procedures. Furthermore, Conventions is double weighted on the OAKS writing composite score. This double weight exaggerates the value of the Conventions traits and its correlation to CWS (for further information regarding definitions, see Appendix). For this reason, as exemplified by the correlations table (see Table 13), CWS has a pattern of evidence to justify its use as an indicator of writing proficiency as measured by the OAKS six traits scoring rubric and/or writing composite score. This should come as no surprise; similar to Voice, Word

Choice, Sentence Fluency, and Conventions, CWS takes into account a great number of factors that separate good from poor writers. Such factors include production, fluency, spelling, word usage, grammar, and punctuation (Espin et al., 2008). For this reason, it is noted that CWS may produce stronger validity coefficients than the simpler measures (i.e., TWW) which rely solely on production.

Not surprisingly, TWW correlates with CWS. TWW includes any letter or groups of letters separated by a space, even if the word is misspelled or is a nonsense word. On the other hand, CWS accounts for every two adjacent words and punctuation that are correct within the context of what is written. So, that if a writer scores a seven on CWS, the writer may score an eight on TWW. For this reason, scorers are accounting for CWS in their counts of TWW (see Appendix for further information regarding scoring of CBMs). Although its utility may be supported by previous research, the fact remains that other variables may surpass its predictive power. Perhaps TWW works well with a larger range of students (Gansle et al., 2002). Even so, TWW provides teachers with a simple, practical way to score writing samples.

Moderate correlations were found between TWW and the OAKS writing composite score as well as the Sentence Fluency, and Conventions traits. As discussed, TWW also was moderately correlated to CWS. The possibility exists that because of the weight of Conventions plus Sentence Fluency and CWS, TWW had moderate correlations. Because the TWW was not the best choice for predicting skill in written language in third and fourth grades (Gansle et al., 2002) it may not be the best choice for predicting skills in written expression in 11th-grade.

As one might expect, TWW and special education are negatively correlated. However, special education also is negatively correlated with (a) CWS, (b) TWW, (c) Sentence Fluency, and (d) Conventions traits. Basically, students receiving special education services perform more poorly on the CBM measures of CWS, TWW, Sentence Fluency, and Conventions. Students with special education needs write fewer words, fewer correct word sequences and with less fluency (Saddler & Preschern, 2007). No other meaningful or significant correlations between student demographics were found for CWS, CIWS, or TWW (see Table 13 for further details on CWS, CIWS, and TWW correlations). The current study further supports that CWS has fairly consistent and reliable relation with other measures of writing (Tindal, 2013).

Technical Adequacy of Curriculum-Based Measures

Consistent with previous research, CBM written expression at the secondary level, it was clear that CWS has appeared to be a valid and reliable indicator of written expression (Espin et al., 2008; Weissenburger & Espin, 2005). CWS has a fairly consistent, reliable pattern of relations with other measures of writing. Such patterns include CWS as the strongest predictors of a holistic rating (Parker et al., 1991) and teacher ratings (Parker et al., 1991). Countable indices of written expression are useful for screening (Parker et al., 1991; Watkinson & Lee, 1992), and percentage measures appear to be more technically sound for this purpose than do fluency measures (McMaster & Espin, 2007). However, Tindal and Parker (1991) cautioned that percentage measure do not have equal interval scales and are thus difficult to interpret when trying to distinguish among students at different skill levels. This may mask

important student progress. In the majority of research conducted, CWS has been found to have moderately-strong correlations (Espin et al., 2005; Tindal, 2013).

On the contrary, CIWS has slightly stronger correlations than CWS (Espin et al., 2008). However, these results were not consistent across studies. Stronger correlations have been found for middle school (8th grade level) than high school (10th grade level) (Espin, et al., 2008). Nevertheless, researchers report stronger CWS correlations when percentages were used rather than straight counts. Still, in terms of criterion-related evidence, CWS may be a sensitive metric. For example, if a student spells a word incorrectly, it does not affect TWW and reduces CWS by two and CIWS by four (Espin, et al., 2008). Therefore, as reflected in this study, CWS appears to be moderately correlated with published tests, teacher grades, and most importantly state tests (Tindal, 2013).

The Effect of Time

The disappointingly low correlation coefficients among CIWS may be due to the three minute CBM assessment administration. CBMs may not be as sensitive to high school students. Secondary students are likely to have a stronger understanding of production, spelling, grammar, and punctuation. Therefore, with more time to write, the higher the score earned for high school students (Espin, 2008; Weissenburger & Espin, 2005).

Although inconsistent, previously, on state tests, CIWS has had the strongest reliability and coefficients (Espin et al., 2008). In spite of this research, the current study does not reflect such findings. Instead, although the interrater reliability was high, the coefficients were moderate. Like Amato and Watkins (2011), the current study also report high reliability for CBMs (among 10 scorers) and moderate correlations.

Even so, research suggests that time affects the reliability of CBMs on a secondary level. While many studies of secondary students used more than 3-minutes for administration time (Espin et al., 2005), a few studies examined administrative affects in reliability using 3, 5, 7, 10, 15, 30, and 35-minute sample lengths. Overall, an increase in reliability has been found with longer samples. However, validity is been found to be significantly affected by the increase of time between 3-30 minutes using CWS and CIWS. For this reason, it has been suggested that because 7-minute writing samples meet reliability standards, this length may be best for screening purposes (Espin, 2008; Weissenburger & Espin, 2005). Thus, with an increase in writing time, this study may have produced stronger correlations, particularly for high school students. Students on a high school level are likely to have a better understanding of production, fluency, spelling, word usage, grammar, and punctuation. Therefore, with more time to write, the higher the score earned for high school students.

OAKS Writing

With regard to the six traits scoring rubric, all traits correlate moderate to quite strong amongst themselves. This may be due to the interdependence among all six traits (Ideas and Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions). In order to communicate supported ideas (Ideas and Content) in a clear sequence (Organization), on purpose (Voice), using precise words (Word Choice), with a natural flow of language (Sentence Fluency) using knowledge of spelling, grammar, punctuation, and capitalization skills may construct the specific criteria to inform writing performance (Spandel & Stiggins, 1980).

Although the OAKS writing composite score also includes Ideas and Content as well as the Organization traits, these traits do not moderately correlate with CWS (see Table 13). Because this study reflect a population of 11th-graders that were unable to "meet" the OAKS writing assessment for two years in a row, the population may reflect students with low writing abilities. This may explain the attenuated correlations. Overall, the descriptive statistics data reveals that (a) the mean of Voice is the highest of all traits and (b) the mean of Conventions is the lowest of all traits. According to the Oregon Department of Education Scoring Guide, (see Appendix), Voice addresses a writer's commitment to a topic. This may further explain why Voice is not accounted for on the OAKS writing composite score.

On the other hand, Conventions may be the most difficult trait for this population. Conventions include knowledge of spelling, grammar, punctuation, and capitalization (see Appendix). Interestingly, for this population, both Word Choice and Sentence Fluency traits have similar means. Word Choice employs the use of precise language. Such precise language may further develop a writer's ability to develop a clear sequence of sentences or Organization (see Appendix). These traits, like CWS may complement one another. In addition, the variance (standard deviations) for all six traits is very similar, ranging from one in Word Choice to over one in Conventions. Reasonably, the highest maximum score is with Voice. Practically, in the current study, the lowest minimum scores include Word Choice, Sentence Fluency, and Conventions traits. This may further explain the attenuated population and therefore moderate correlations between each of the CBMs and both the OAKS writing composite score and six traits scoring rubric.

Struggling writers may be more likely to write fewer words (Saddler & Preschern, 2007). As reflected in this study, less skilled writers may have (a) shorter, (b) less syntactically complex, (c) lower quality, (d) more error filled, (e) less varied in terms of vocabulary and structure (Saddler & Preschern, 2007) writing samples. In terms of the current study, this may have been further exacerbated with the winter CBM writing prompt (see Appendix). Because the prompt asked a population of struggling writers to write about a singular "time" or "event," it may provide a compromised measure of student writing ability. Participants with considerable writing difficulties may have struggled with sentence construction and therefore completed the prompt expectations with limited elaboration.

Research Question 2: The Predictive Nature of Curriculum-Based Measures and the Oregon Assessment of Knowledge and Skills

The second research question addressed the predictive nature of CBMs on the OAKS six traits writing assessment. A multiple-regression model included the three performance indicators (CWS, CIWS, and TWW CBMs). The correlation coefficients were low for two curriculum-based scoring indices: CIWS and TWW. The strongest and most consistent were found for CWS. This indicated that CWS was relatively more predictive of future performance on the OAKS six traits scoring rubric.

One possible explanation for the lower standardized coefficients also may be due to the age of student participants. As students become more proficient in writing, the validity of CBM measures decreases (Espin et al., 2008; Weissenburger & Espin, 2005). According to Espin et al. (2008), who studied CBMs as a predictor on a 10th-grade state

writing assessment, as students get older, there is a general pattern of decreasing coefficients with shorter sample lengths. As students mature, countable CBM indices may lose sensitivity in a three minute writing prompt. CBM measures need to change as students become older and more skilled (Espin et al., 2005).

With the 2002 National Assessment of Educational Progress (NAEP) writing scores, there is cause for a national alarm. For example, seventy-seven percent of 12th-grade students did not meet writing proficiency goals. Researchers explain that only 70% of high school students graduate on time with a regular diploma (Graham & Perin, 2007).

In terms of predictive validity and social consequences (Messick, 1989), CWS holds promise for use in screening decisions as well as instruction for struggling writers (Parker et al., 1991). There are social consequences for both individual students and schools who do not meet the OAKS six traits scoring rubric for the OAKS writing composite score. Social consequences may affect (a) individual students and their high school graduation, (b) diploma options, and (c) individual schools/districts' AYP rates. Therefore, according to Messick (1989) the consequences of assessment necessarily impact the students and their educational experience.

The multiple regression produced evidence with OAKS as the dependent variable and CWS, CIWS, and TWW as the predictor variables. The standardized coefficients indicated that CWS was relatively more predictive than CIWS and TWW. The adjusted R^2 of the CBMs indicated that 10% of the variance was predicted by the CBMs predictors, CWS, CIWS, and TWW.

Therefore, both CWS and TWW CBMs may inform instructional targets for the high stakes OAKS writing assessments that are linked to graduation requirements. Thus,

CWS and TWW may further increase student graduation rates and AYP rates. The data from this research provides an impetus for learning how to develop low-achieving writers in a secondary setting, using the predictive validity of CWS (and TWW) to gain traction on improvement of writing.

Furthermore, the CWS CBM may capture the lowest tenth percentile (Parker et al., 1991) of writers. Although no data are available to support or deny TWW, it may provide an estimate for writing fluency (Gansle et al., 2002). Writers are typically measured by their ability to put words on paper. However, the unintended consequence of teaching discrete CWS skills (syntactical control, capitalization, punctuation) and TWW in isolation may not support mastery of low level writing skills (Parker et al., 1991). Without mastering these lower level skills and generalizing them onto the writing cycle (prewrite, rough draft, edit, revise, publish), students may not learn the value of both the editing and revising stages of the writing process. For example, in a six-month study, researchers explain, on a middle school level, students did not realize progress in the writing resource room (Parker et al., 1991). Both CWS and TWW may be used as a secondary indicator for educational decisions to support high stakes assessments tied to graduation standards. Once the instructional components of CWS are mastered, writers may benefit from moving through the writing cycle to generalize each of the skills across opportunities (Graham & Perin, 2007).

For secondary students, research supports CWS, were more sensitive metrics (in terms of criterion-related evidence). The amount of writing time may have influenced reliability more than validity, particularly for older students. Studies revealed that the genre of writing was not an influential variable (on either reliability or validity).

Furthermore, CWS was correlated with Oregon's state writing assessment. CWS, nevertheless was a good predictor of general writing performance (Tindal, 2013). In summary, CWS and TWW may provide an economically efficient tool to screen struggling writers and target instruction.

Limitations

Since this research was conducted in Oregon, one limitation is the lack of generalizability to other settings, regions, or school districts. Almost all participants in the study were categorized as white and from one urban northwestern setting. As a result, the current research may not be pertinent to urban communities beyond the northwest or more culturally-diverse in population. This could impact the external validity of the study. The small sample size of 43 students also were selected by convenience. This may reflect potential threats to statistical conclusion validity that may have influenced study results. Another limitation of this study may be the criterion measure. Critics may argue that the six traits scoring rubric has little research to support it. Lastly, it is important to note, the population of 11th-grade students in the 2011-12 class may have had multiple opportunities to "meet" the OAKS writing assessment. For this reason, students in this study may reflect a larger population of struggling writers.

Implications for Practice and Future Research

There are several important implications that can be derived from this study. First, the attenuated correlations may be due to the population sample reflecting struggling writers. The CBM CWS appears to be an indicator of (a) OAKS writing composite score, (b) Voice, (c) Word Choice, (d) Sentence Fluency, and (e) Conventions traits. Second, the CBM TWW appears to be an indicator of the (a) OAKS composite score, (b) Sentence Fluency, and (c) Conventions traits. CWS and Voice include context and the purpose of writing. CWS and Word Choice share the use of words that make sense together in the English language. Both CWS and Sentence Fluency consist of syntactical control that

develops a fluent sentence structure. CWS and Conventions incorporate the use of correct spelling, capitalization, punctuation, and grammar/usage. Providing struggling writers on a secondary level with instruction that targets CWS and TWW may increase their ability to "meet" on the OAKS writing assessment. These traits together may intertwine and together create good writing. Third, CIWS is not an indicator of writing proficiency for 11th-grade students (as measured by OAKS six traits scoring rubric). Fourth, TWW is an indicator of the OAKS, Sentence Fluency, and Conventions traits. Regardless of spelling, any group of words separated by a space in a 3-minute time period may indicate a writer's OAKS writing composite, Sentence Fluency, and Conventions score. High production rates of TWW may indicate stronger writer's that can "meet" both Sentence Fluency and Conventions trait expectations. Because the Conventions trait is scored twice, it may further increase the relation to both CWS and TWW CBMs.

Despite the results, further research is needed to investigate the use of CWS, CIWS, and TWW as indicators of writing proficiency at the secondary level. Further research is needed to determine whether the use of CWS, CIWS, and TWW can be used to monitor a secondary student's growth in writing proficiency as measured by the six traits scoring rubric.

In this study, possibly due to sample size, CIWS does not have significant correlations to measure writing proficiency (as measured by OAKS composite writing score and the OAKS six traits scoring rubric) for high school students. Nonetheless, this information may provide guidelines for future research. Further studies need to be conducted with different populations for at least seven-minutes of writing time to

determine whether the current research can be generalized across cultures and disability groups.

Conclusion

The use of curriculum-based measurement (CBM) in written expression is a common tool used for progress monitoring writing in secondary special education settings. However, more information is needed to understand whether technically adequate CBMs in writing exist for secondary level writers. A moderate correlation coefficients was found between the formative measures (CBMs) and the high stakes OAKS writing assessment. Though the combination of variables was not statistically significant, correct word sequence yielded the most promising result in correlating with (a) OAKS writing composite score, (b) Voice, (c) Word Choice, (d) Sentence Fluency, and (e) Conventions. CWS produced standardized coefficients that was relatively more predictive than CIWS and TWW. Thus, although replication is necessary, results indicate that CWS show promise as a curriculum-based measure of writing proficiency for Voice, Word Choice, Sentence Fluency, and Convention traits at the high school level. TWW also correlated with (a) OAKS writing composite score, (b) Sentence Fluency, and (c) Conventions. Evidence can also clearly indicate CIWS does not have sufficient coefficients to support a relation with the OAKS six traits scoring rubric.

APPENDIX
ASSESSING SECONDARY WRITING

Fall Writing Prompt #1

Name _____

teacher _____/period _____

Life is full of choices. Tell a true story about a time when you or someone else had to make choices.

Winter Writing Prompt #2

Name _____

teacher _____/period _____

Sometimes things turn out in a way we did not think would happen. Tell a story about a time or event that turned out differently than you expected.

Written Expression Curriculum-Based Measurement

Directions

1. Introduce self, distribute prompts on lined paper.
2. Recite the following instructions:

"I want you to write a narrative story. First I am going to read a prompt to you, and then you will write a story about what happens next. You will have one minute to think about what you will write and 3 minutes to write your story. For the next minute think about (fall prompt #1: Life is full of choices. Tell a true story about a time when you or someone else had to make choices. or winter prompt #2: Sometimes things turn out in a way we did not think would happen. Tell a story about a time or event that turned out differently than you expected.)"

3. At the end of 1 minute say: ***"Now begin writing."***
4. At the end of 3 minutes say: ***"Stop. Put your pencils down."***

*Scoring of Written Expression-Curriculum-Based Measurement
Training Guide: CBM Writing*

I. Count the number of Total Words Written:

Instructions

Underline in pencil or pen **Words** that are produced in the CBM writing sample. Sum the number of words. This score is recorded.

What Is A Word?

Any letter or group of letters separated by a space is defined as a word, even if the word is misspelled or is a nonsense word.

The sky was blue TWW = 4

The sky was blew TWW = 4

Rule 1. Hyphenated Words. Each morpheme separated by a hyphen (s) is counted as an individual word if it can stand alone.

My daughter-in-law had a baby boy. TWW = 8

Rule 2. Hyphenated Words. If one or more of the morphemes separated by a hyphen (s) cannot stand alone, the entire sequence is counted as one word.

We had to re-evaluate the case. TWW = 6

Rule 3. Abbreviations. Commonly used abbreviations are counted as words.

Chris watched T.V. TWW = 3

Rule 4. Story Titles or Endings. Words Written in the title or as an ending are counted in the TWW.

The Big Run
On the fourth of July, I ran the Boston Marathon.
The End. TWW = 15

Rule 5. Numbers. With the exception of dates and currency, numbers that are not spelled out are not counted as words.

<u>3</u> <u>men</u> <u>ran</u> .	TWW = 2
<u>Three</u> <u>men</u> <u>ran</u> .	TWW = 3
<u>I</u> <u>went</u> <u>2</u> <u>a</u> <u>party</u> .	TWW = 4
<u>It</u> <u>is</u> <u>June</u> <u>10</u> , <u>1989</u> .	TWW = 5
<u>I</u> <u>won</u> <u>\$100</u> .	TWW = 3
<u>I</u> <u>won</u> <u>100</u> .	TWW = 2
<u>I</u> <u>won</u> <u>100</u> <u>dollars</u> .	TWW = 4

Rule 6. Unusual Characters. Symbols used in writing such as (% , & , \$, # , @) , that are not spelled out , are not counted as words .

<u>I</u> <u>won</u> <u>\$100</u> .	TWW = 3
<u>I</u> <u>won</u> <u>100</u> .	TWW = 2

II. Count Correct Word Sequence

Instructions:

First, circle Words that are spelled incorrectly in the CBM. This will help in determining pairs of correct adjacent words. Second, place a caret " ^ " between words that are (a) mechanically (spelled correctly, appropriate capitalization), (b) semantically, and (c) syntactically correct. Sum the number of carets " ^ "s. Scoring CWS requires more inferences about what the student intended such as whether a sentence "ended " when a period was omitted.

What is a Correct Writing Sequence?

Two adjacent (words and punctuation) that are correct within the context of what is written.

Scoring Correct Word Sequences

A caret " ^ " is used to mark each unit of the correct writing sequence. There is an implied space at the beginning of the first sentence.

^The^sky^was^blue.^ CWS = 5

Rule 1. Pairs of Words Must Be Spelled Correctly.

^All^of^the^kids^started ^to^laugh.^ CWS = 8
 ^All^of^the^kids^started _to_laghf._ CWS = 6

Rule 2. Words Must Be Capitalized and Punctuated Correctly with the Exception of Commas. Correct punctuation must be present at the end of the sentence. The

first words of the next sentence must be capitalized and be spelled correctly for a correct writing sequence to be scored.

^The^sky^was^blue.^ ^It^was^pretty.^ CWS = 9
^The^sky^was^blue.^ it was^pretty CWS = 6

Rule 3. Words Must be Syntactically Correct. Sentences that begin with conjunctions are considered syntactically correct.

^I^had^never^seen^the^wolves^before.^ CWS = 8
^I^never^_seen^the^wolves^never.^ CWS = 6
^And^ then^ the^ boy^gave^ the^ duck^some^bread. CWS = 10

Rule 4. Words Must Be Semantically Correct

^Jamaal^went^to^the^library.^ CWS = 6
^Jamaal^went^_too^_the^library.^ CWS = 4
^My^Dad^made^the^treehouse^pecially^for^me.^ CWS = 9
^My^Dad^made^the^treehouse^_specially^_for^me.^ CWS = 7

Rule 5. Contractions. Apostrophes are required if the word cannot stand alone without it.

^I^ went^ to^ Sam's^house.^ CWS = 6
^I^ went^ to^ Sams house.^ CWS = 4

Rule 6. Words with Reversed Letters. Words containing reversed letters are included in the total CWS count unless the reversed letter causes a word to be spelled incorrectly.

^There^was^a^bad^storm.^ ^There^was^a^dad^storm.^ ^
^The^dolphin^swam^in^the^sea.^ ^The bolphin swam^in^the^sea.^

CWS = 6 CWS = 6 CWS = 7 CWS = 5

Rule 7. Story Titles and Endings. Words written in the title or endings that are capitalized and spelled correctly are included in the total CWS.

^The^Big^Run^ the Big ^Run^ the big run ^The^End.^ ^The end.^

CWS = 4 CWS = 2 CWS = 0 CWS = 3 CWS = 2

Rule 8. Abbreviations. Commonly used abbreviations that are spelled correctly are included in the total CWS count.

Jan lives on Sunset Blvd. CWS = 6 □ Rule 9. Hyphens. Hyphenated words are counted in the total CWS count as long as each morpheme separated by

hyphens is spelled correctly □ My sister-in-law graduated from school. CWS = 6

My sister-in-law graduated from school. CWS = 4 □ Rule 10. Numbers. With the exception of dates, numbers that are not spelled out are not included in the total CWS count.

3 men ran. Three men ran. It is June 10, 2004.

CWS = 2 CWS = 4 CWS = 4

Rule 11. Unusual Characters. Symbols used in writing that are not spelled out are not included in the total CWS count.

I won a prize @ the carnival. CWS = 6

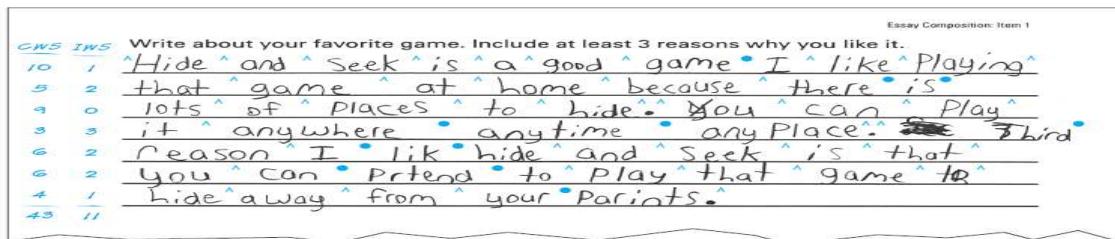
(Powell-Smith & Shinn, 2004; Farley, et al., 2012).

CIWS Scoring Rules

Rule 1. IWS An Incorrect Word Sequence is two adjacent words that do not qualify as a CWS. □ A dash is used to mark each IWS.

Rule 2. CIWS=CWS-IWS: To calculate the CIWS score, sum CWS and IWS separately, and subtract IWS from CWS. □

Write about your favorite game. Include at least 3 reasons why you like it.



(Breux & Frey, 2009).

Oregon Department of Education Scoring Guide, Writing

Ideas and Content	Score Reporting Category 1
Common Curriculum Goal: Communicate supported ideas across the subject areas, including relevant examples, facts, anecdotes, and details appropriate to audience and purpose that engage reader interest.	
High School Standard: Establish a coherent and clearly supported thesis that engages the reader, conveys a clear and distinctive perspective on the subject, maintains a consistent tone and focus throughout the piece of writing and ends with a well-supported conclusion.	
Explanation: The explanation in this trait addresses the writer’s purpose, focus, main ideas, and supporting details that develop the ideas. Proficiency may be demonstrated by a clear and easily identifiable purpose and main ideas; relevant supporting details such as examples, explanations, descriptions, reasons, logical arguments, facts, anecdotes, etc., are content and details that show an awareness of audience and purpose.	
Sample Prompt: Persuasive People are always looking for ways to improve schools, and some of the best ideas come from students. Think of ONE change you could propose that would make your school better. Write a paper to CONVINCe others to agree with you.	

Organization	Score Reporting Category 2
Common Curriculum Goal: Organize information in clear sequence, making connections and transitions among ideas, sentences and paragraphs.	
High School Standard: Create an organizational structure that logically and effectively represents information using transitional elements that unify paragraphs and work as a whole.	
Explanation: This trait addresses the structure of a piece of writing, including the thread of central meaning and the patterns and devices that hold the piece together. Proficiency may be demonstrated by a developed introduction about the equivalent of a full paragraph; a clearly sequenced body that is easy to follow with effective placement of supporting details; a variety of transitions (e.g., coordinating and subordinating conjunctions, effective repetition, the use of key phrases); a developed conclusion or sense of closure about the equivalent of a full paragraph (effective exceptions may occur); paragraph breaks that help establish the organizational structure.	
Sample Prompt Expository Prompt: Students choose a variety of ways in which to stay physically fit. Some choose organized team sports while others choose individual sports or out-of-school activities to stay fit. EXPLAIN why a physical activity you choose is important to you.	

Voice	Score Reporting Category 3
Common Curriculum Goal: NA	
<p>Explanation: This trait addresses a sense of the writer behind the words and a choice by the writer, whether conscious or not, to establish a certain distance from the topic and the audience. The choice of an appropriate voice depends on purpose, or mode, and audience. It can be discerned somewhere on a continuum from formal to casual, distant to personal, academic to anecdotal. The paper must be of sufficient length to demonstrate proficiency. Proficiency may be demonstrated by a sense of the writer's commitment to the topic; a tone appropriate to topic, audience, and purpose; passages, when appropriate, that are expressive, engaging, sincere, lively, original, suspenseful, or humorous.</p>	
<p>Sample Prompt Narrative Prompt: Think about a time when you faced a challenge. It may have been a difficult problem, a competition, or a task you faced. TELL A TRUE STORY about what happened.</p>	

Word Choice	Score Reporting Category 4
Common Curriculum Goal: Use precise words and fluent sentence structures that support meaning.	
High School Standard: Use precise language, action verbs, sensory details, and appropriate modifiers.	
<p>Explanation: This trait reflects the writer's use of words appropriate to topic, audience, and purpose to convey the intended message. Proficiency may be demonstrated by the use of a variety of specific, functional words; avoidance of clichés, for the most part; possible use of some slang, although it may not be effective; use of descriptive language, possibly with some attempts at figurative language (e.g., similes, metaphors, alliteration); these attempts may not be consistently effective; possible use of technical language or jargon, although not all terms may be effectively used or explained; avoidance of repetition and overuse of words.</p>	
<p>Sample Prompt: Imaginative Prompt: Using ONE of the following ideas, MAKE UP A STORY: (a) "Coals and Embers" or (b) "Injustice."</p>	

Sentence Fluency	Score Reporting Category 5
Common Curriculum Goal: Use precise words and fluent sentence structures that support meaning.	
High School Standard: Use precise language, action verbs, sensory details, and appropriate modifiers.	
<p>Explanation: This trait addresses the writer’s grasp of the underlying structures of the language. When read aloud, the writing creates a natural flow of language. Errors in punctuation should be ignored when assessing fluency; they will be assessed under the Conventions trait. Proficiency may be demonstrated by a natural flow of language if the writing were read aloud; some variety of sentence structures, with strong control over simple and compound sentences and variable control over longer, more complex sentences; possible incorporation of subordinate clauses and parallel constructions, used correctly; variety in sentence lengths; variety in sentence beginnings (e.g., infinitives, gerunds, prepositional and participial phrases); possible use of dialogue, which sounds natural, for the most part.</p>	
<p>Sample Prompt: Narrative Prompt: Sometimes things turn out in a way we did not think they would. TELL A TRUE STORY about a time when things did not happen the way you expected them to. Demonstrate an understanding of sentence construction—including parallel structure and subordination—to achieve clarity of meaning, vary sentence types and enhance flow and rhythm.</p>	

Conventions	Score Reporting Category 6
<p>Common Curriculum Goal: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas.</p>	
<p>High School Standard: Spelling: Produce writing that shows accurate spelling. Grammar: Show control of clauses, including main and subordinate, and phrases, including gerund, infinitive, and participial. Understand and use proper placement of modifiers. Demonstrate an understanding of proper English usage; including the consistent use of verb tenses and forms. Punctuation: Use conventions of punctuation correctly, including semicolons, colons, ellipses, and hyphens.</p>	
<p>Explanation: This trait addresses the mechanics of writing: spelling, grammar, punctuation, and capitalization. Proficiency may be demonstrated by grammar-solid control of subject/verb agreement; general control of noun/pronoun agreement; correct verb tense of regular and irregular verbs; consistent verb tense; consistent control of point of view (first, second, third person). Punctuation: Correct end-of-sentence punctuation; generally correct use of commas (after introductory phrases, in compound sentences, in a series); internal punctuation that is generally correct; correctly punctuated dialogue, if used; correct use of apostrophes in contractions, singular possessives, and plural possessives; generally correct use of conventions of punctuation, including semicolons, colons, ellipses, and hyphens;</p>	
<p>Sample Prompt: Persuasive Prompt: According to surveys, a majority of high school juniors and seniors work at part-time jobs during the school year. Take a position on whether or not you think working and going to school at the same time is a good idea. Write a paper to CONVINCE others to agree with you.</p>	
<p>High School Standard: Capitalization Use correct capitalization.</p>	
<p>Explanation: Spelling correctly spelled common words appropriate to grade level; few misspellings of more difficult words; Capitalization correct capitalization, including within quotation marks; Paragraphing correct paragraphing in dialogue.</p>	

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