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EXAMINING THE RELATIONSHIP BETWEEN AUTOMATICITY AND ORAL READING COMPREHENSION IN ENGLISH LEARNERS

Annamaria M. Miller
Saint John's University, Jamaica New York

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EXAMINING THE RELATIONSHIP BETWEEN AUTOMATICITY AND
ORAL READING COMPREHENSION IN ENGLISH LEARNERS

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by

Annamaria M. Miller

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Annamaria M. Miller   Dr. Clare Irwin

ABSTRACT

EXAMINING THE RELATIONSHIP BETWEEN AUTOMATICITY AND ORAL
READING COMPREHENSION IN ENGLISH LEARNERS

Annamaria M. Miller

This doctoral dissertation examined the relationship between automaticity and oral
reading comprehension in English Learners (ELs) by comparing outcomes with non-
English Learners. High fluency rate, or automaticity, is often used as a predictor of
reading comprehension in students. Much of the prior research conducted on the
relationship between reading rates and oral reading comprehension involved monolingual
populations. Few studies have investigated this correlation among EL populations. In this
present study, secondary assessment data were retrieved for third-grade students (N =
1,583) across 13 public schools within a single diverse school district in southern
Colorado during the 2017-2018 and 2018-2019 school years. The school district includes
20.8% EL students. The researcher chose this approach as most appropriate to examine
the relationship between oral reading rate and reading comprehension in ELs and non-
English learners. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral
Reading Fluency (DORF) was utilized as the measure for assessing third-grade reading
fluency (word-level decoding and accuracy) and the Colorado Measures of Academic
Success (CMAS) was used as the measure for assessing third-grade reading
comprehension in language arts. Results indicated that ELs who read at a high automatic
rate still scored significantly lower on reading comprehension than non-English learners
who read at the same rate. Future research should consider conducting additional studies
that analyze EL comprehension levels within the context of automaticity.

DEDICATION

To my friends and family, thank you for praying me through. You know who you are! To my husband. You know I couldn't have done this without you. Thank you for your love and support through this journey. To Jadon, Micah, Isaac, and Aniyah. You loved me through all of my busy days and celebrated with me when I made even the smallest accomplishments. To Dr. Grace. God sent you to be tangible grace. You jumped in the trenches with me and stayed there until the very end. Marty, thank you for being there and introducing us to such a wonderful woman! To Jackie. Thank you for your encouragement and support, especially our writing sessions!

Finally, to my beautiful mother. Although you are gone, you kept me going. Above all of this, only God alone sustained me from start to finish. Thank you God!

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CHAPTER 1

Introduction

Since the introduction of the No Child Left Behind Act (NCLB) of 2001, literacy proficiency has been required in every state (U.S. Department of Education, 2009). Federal policy has mandated that all schools produce literate students and accountability measures have created a new type of schooling. The drive for acquiring grants, as well as the avoidance of school closures, has increased the use of standardized testing and progress monitoring. Many teachers and students have become overwhelmed and, for some students, learning has become stifled (Wakefield, 2017). With the demand that students become competent in reading, teachers may rely on measures of oral reading rate, or automaticity, as a means of determining reading mastery (Rasinski et al., 2011).

Misunderstandings about reading comprehension and how it is used in classrooms to improve reading fluency have long been studied by experts like Dolores Durkin, who in a 1978 study of elementary students in Grades 3 through 6 found that teachers valued the mastery of facts over comprehension instruction. In fact, no comprehension instruction was found by Durkin in her study and more than three decades later, a fact that remains to be true within classrooms is that speed and accuracy continue to be primary indicators of success of reading fluency and comprehension. According to the National Reading Panel (2000), oral reading fluency has been neglected in the past due to the popular assumption that "fluency was the immediate result of word recognition proficiency" (p. 3). Consequently, literacy attainment has led to an emphasis on and the promotion of basic reading skills at the neglect of higher order critical thinking and reading comprehension (Harper et al., 2008; Wright & Choi, 2006). This could present

challenges in linguistically diverse children reading in a second language and whose levels of reading achievement hold a large gap when compared to monolingual learners (e.g., Durgunoglu & Verhoeven, 1998; August & Shanahan, 2006). When reading fluency is defined as word recognition proficiency, ramifications could result in erroneous measures of assessments for English Learners (ELs). This is significant considering that high-stakes testing has an impact on academic achievement, program placement, grade promotion, and high school graduation (Menken, 2008).

Purpose of the Study

Durkin (1978) conducted a study of third and sixth graders to observe the existence of adequate primary level reading comprehension instruction in classroom, only to report that such instruction was non-existent. In her observations, Durkin not only found that comprehension instruction had become obsolete, but that a significant focus on assignments and workbooks had failed to capture the level of comprehension students had of not only what they were reading, but the words that they were introduced to in classroom stories. According to Durkin, comprehension instruction was replaced with phonics instruction. At present, challenges in implementing comprehension instruction subsist (Wakefield, 2017). Teachers utilize high reading rate as a construct of assessing reading fluency, but are realizing its inadequacy (Goodman, 2006; Pressley, Hilden, & Shankland, 2005; Rasinski, 2006; Samuels, 2006, 2007). If reading comprehension instruction has been defective in schools for decades, what challenges does this present in a country that grows in diversity every year? When reading comprehension is a critical component of academic and professional success, having an instructional foundation based on automaticity can be a challenge where multilingual populations are concerned.

The increase in multilingual populations expands the necessity for comprehension instruction. Today, according to the National Center for Education Statistics (NCES, 2018), ELs in U.S. public schools have grown from two million in 1990 to 4.8 million in 2015. In addition, there has been a consistent academic achievement gap between EL students and their English monolingual peers (U.S. Department of Education, 2017). In the United States, 9 percent of fourth grade ELs scored at or above proficient in reading while 40 percent of non-ELs scored at or above proficiency on the 2017 National Assessment of Education Progress (NAEP) (The Nation's Report Card, n.d.). This reveals that literacy acquisition in ELs is more challenging than expected and that there is a need for holistic assessment and curriculum implementation practices for ELs.

Programs for ELs face challenges with accommodating and addressing the needs in the areas of social, cultural, and linguistic diversity. It is often the case that many policymakers, administrators, and educators make the assumption that ELs will gain equal benefit from the same instructional approach presented in the mainstream classroom (Gil & Bardack, 2010). However, EL students benefit from high-quality instruction that includes an understanding of the student's native language structures and a knowledge of the student's cultural and social development at home (Adams and Jones, 2006). ELs are able to employ linguistic elements of their first language to master their second language. With this knowledge, teachers could make use of these same strategies to facilitate an EL's learning of the second language (Verhoeven, 2011).

In addition to consideration of sociocultural influences, teachers and administrators must understand that not all students who speak English as a second language learn the same way. There are some students whose first language has an

association to the English language through cognates, while others do not. Consequently, students who have first languages that include distant orthographies (e.g., Mandarin, Arabic, Vietnamese) to English would have more difficulty obtaining English as their second language, and thus require varied methods of instruction (National Council of Teachers, 2008). Often, ELs are taught by teachers who lack a thorough understanding of second language acquisition and do not modify practice within the mainstream classroom (Adams and Jones, 2006). This could, in turn, fail to meet the needs of language proficiency and comprehension for these students. There is a necessity for general educators to be aware that students may have linguistic weaknesses in general literacy (reading and writing) that may not be obvious even after the student seems to have mastered social language (McLaughlin, 1992). If elementary level teachers view the mastery of oral language within the social domain as the sole measure of English language proficiency, academic gaps may continue to persist at the middle and high school levels (U.S. Department of Education, 2017; McLaughlin, 1992). This acknowledges the need for a more comprehensive approach to achieve the simultaneous attainment of academic and English language proficiency (Gil & Bardack, 2010, p. 8). The purpose of this study is to examine the relationship between oral reading rate and comprehension in ELs, thus providing a way toward determining appropriate implementation practices that exceeds an ELs' ability to comprehend beyond automaticity

Theoretical/Conceptual Framework

Theory of Automatic Processing in Reading Fluency

Reading fluency, a component of reading development, has been described in the past as the ability to recognize words in an automatic way (Cattell, 1886). In 1968, Huey stated that fluency was recognizing words quickly so that one could concentrate on the content of the reading. Following that, the theory of automaticity, presented by LaBerge and Samuels (1974) asserted that reading at a word level proficiency (e.g., letter sounds, blending, word recognition) contributed to reading fluency. Accomplishing this automaticity or reading automatically would create mental capacities to accomplish comprehension of the text (Unrau et al., 2019).

It is clear that accuracy and rate influence how we view reading fluency. Often, when one mentions reading fluency, it refers to oral reading with fluidity. As mentioned earlier, LaBerge and Samuels in their theory of automaticity (1974) believed that one should read at an automatic rate so that they can utilize their cognitive capacity toward understanding the text (Figure 1). They hypothesized that poor comprehenders existed because too much time was spent on the decoding of words or the slow processing of text (Rasinski et al., 2011). Samuels (1974) then hypothesized that readers could learn to read automatically through repeated reading of the text. He believed that students were not mastering the reading content because teachers did not spend enough time developing accuracy and automaticity. He argued that when readers practiced repeating passages, it increased the readers' ability to read other texts automatically**.** Perfetti (1985) also supported this viewpoint by emphasizing the efficient verbal processing of texts through word identification. Perfetti's theory asserted that, when a reader masters the lower level

processes (e.g., decoding and word recognition), they effectively utilize higher level

processes (i.e., comprehension) for reading fluency (Rasinski et al., 2011**).** Thus, theories

of the automatic processing of text influenced the pedagogy of reading development in

education (Figure 1).

Figure 1

Automatic processes in Reading (Farah & Malone, n.d.)
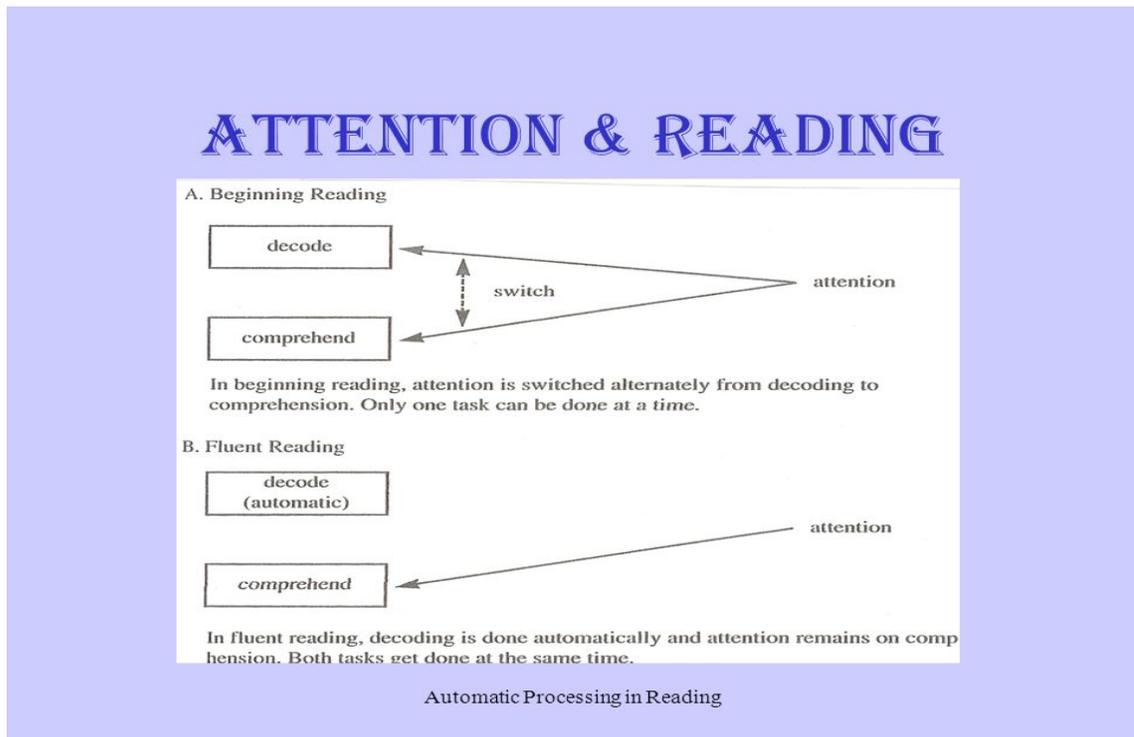
Today, reading rate and the ability to recognize words accurately have been used

to measure oral reading proficiency in students. Reading inventories and diagnostic

assessments in elementary schools have been utilized in determining reading

developmental levels for years (Rasinski et al., 2011). It provides a way to collect the

information necessary for literacy grants and other accountability requirements

implemented by the state.

Significance/Importance of the Study

Although there are challenges in the education of ELs, the review of literature in chapter 2 will examine how utilizing measurements of oral reading as a predictor of reading comprehension in ELs may hinder academic success for this group. It will also reveal that there are multiple variables that impact reading comprehension in ELs. High oral reading rate or automaticity is often used as a predictor of reading comprehension in students (Grabe, 2010). Much of the research conducted on the relationship between reading rates and oral reading comprehension involve monolingual populations. There are few studies that have investigated this correlation among ELs. This study addresses this gap. It will examine the connections between automaticity (high or rapid oral reading rate) and oral reading comprehension in ELs and add to the current research to reflect multilingual populations. With the analysis of this study, findings can be employed to promote the advancement of comprehension instruction within the mainstream classroom, create curriculum that will support practices to increase comprehension in EL students, and possibly close the reading proficiency gap between ELs and non-ELs.

Research Questions

The purpose of this study is to investigate the relationship between automaticity and reading comprehension in ELs. The following research questions guided the study:

1. What is the automaticity rate of 3rd grade monolingual and English learner students?

2. What is the average state assessment score for 3rd grade monolingual and English learner students?

3. Do English learners and monolingual students with high automaticity rates have similar Language Arts Colorado state assessment scores?

4. What is the association between 3rd-grade students' automaticity rates and their reading comprehension score for their Language Arts Colorado state assessment scores?

Definition of Terms

Annual Measurable Achievement Objectives (AMAO): A federal program under the No Child Left Behind Act intended to hold teachers accountable for student success.

Automaticity: Fast, effortless, and accurate word recognition.

Colorado Measures of Academic Success (CMAS): The State of Colorado's assessments for third to eighth graders measuring students' progress in language arts, math, science, and social studies at the end of the school year.

Comprehension Instruction: Instruction that focuses on teaching students strategies that will ensure a full understanding of terms and stories they are reading.

Culturally and linguistically diverse students: Students who come from an environment where a language other than English is spoken and whose cultural and background beliefs are different from mainstream society.

DIBEL Oral Reading Fluency (DORF): Assessments that measure fluency and accuracy in text recognitions or decoding of terms with little to no effort.

English Learner (EL): A student who receives English Language services at an educational establishment.

Language Status: The position, or standing, of a language against other languages as primary or secondary in terms of the speaker's use.

Monolingual Learner: A student who speaks one language. In this case, English.

Multilingual Learner: A student who speaks two or more languages.

Non-English Learner (Non-EL): A student whose primary language is English or who does not receive English language services from an educational establishment.

Oral reading rate: The speed with which a person reads written text aloud.

Oral reading fluency: The ability to read with speed, accuracy, and proper expression.

Reading comprehension: The understanding and interpretation of what is read.

Reading fluency: The ability to read with prosody, accuracy, and automaticity.

CHAPTER 2

Review of Related Research

Research on the development of reading fluency with monolingual students from the primary grades through middle school demonstrates a robust relationship between reading fluency and reading comprehension (e.g., Fuchs, Fuchs, & Maxwell, 1988; Hosp & Fuchs, 2005; Riedel, 2007; Shinn et al., 1992; Wiley & Deno, 2005). However, there are few studies that have investigated the correlation between automaticity and reading comprehension among ELs. The review of literature in this section will examine how utilizing measurements of oral reading rate alone as a predictor of reading comprehension in ELs may hinder academic success for this group.

Assessment and Achievement Gaps for ELs

The history of ELs in the United States has been filled with adversities and advancements. Although the founding fathers had a strong respect for the diversity of languages, the standardizing of English was still asserted by educational establishments (Heath, 1977). During this time, it was an acceptable norm to assimilate certain groups (e.g., Native and African Americans) by often forcing them to conform to Eurocentric mentality as well as learn the English language while discarding their own (Wiley, 2000). Beginning in the 1900s, the move toward monolingualism began to dominate as learning and speaking English became a symbol of true Americanism (Olneck, 1989). Soon, legislation shifted to require that English be made the official language of the United States, while prohibiting the teaching of other languages to young children (de Jong, E., 2011b). As a result, students who spoke languages other than English were placed in English-only classrooms without accommodations. Assessment procedures also

led to mislabeling and placement in special education classes, which also increased early dropout rates of multilingual learners. In order to defend their proposals, those who supported English-only policies claimed that the United States cultivated a nation of immigrants who had succeeded economically by learning English and by denying their ethnic roots (Schmidt, 2000). Although bilingual education and other bilingual programs attempted to impact the mindset of English-only supporters by increasing awareness and the benefits of learning more than one language, monolingual (English-only) policies have continued into the 21st century (de Jong, E., 2011).

With the emergence of the Elementary and Secondary Education Act (ESEA) by President Lyndon B. Johnson in 1965, the first Bilingual Education Act (BEA) in 1968, and the Equal Educational Opportunity Act in 1974, lawmakers wanted to ensure that students from low poverty, as well as minority students, would succeed at the elementary and secondary levels (de Jong, E., 2011). However, the definitions of bilingual education within the context of BEA would soon mean the sole teaching of English language instruction (de Jong, E., 2011). These policies increased the federal government's involvement in educational institutions. However, when the No Child Left Behind Act (NCLB) of 2001 came into effect, BEA was discontinued, and government accountability measures heightened their involvement to keep track of the financial investments allotted to schools (Klein, 2015).

For years, ELs have lagged behind their monolingual speaking peers on assessments offered by the state. For decades, the gap in academic achievement between EL and non-EL populations has existed within the United States. Accountability outcomes have created environments in which teachers feel overwhelmed with the

pressure to improve test scores, thus impacting curriculum implementation. Although

ESEA has evolved over its 50-year history and from NCLB to the Every Student

Succeeds Act (ESSA) in 2015, the necessity to determine how to address the needs of

ELs remains a challenge. Through annual measurable achievement objectives (AMAOs),

states must develop English language proficiency standards and assessments that measure

progress and proficiency (de Jong, E., 2011). Consequently, literacy attainment has led to

an emphasis on and the promotion of basic reading skills at the neglect of higher-order

critical thinking and reading comprehension (Harper et al., 2008; Wright & Choi, 2006).

Modern Day Comprehension Instruction

Reading fluency has its foundations in oral reading. In early American society,

reading was best known for the eloquence of spoken word over the comprehension of the

text (Hyatt, 1943; Smith 1965; Hoffman & Segel, 1983; Hoffman, 1987). Schools and

homes were filled with the dictation of the passage. Toward the end of the 19th century,

psychologists began to see weaknesses in the educational practices of reading

development and began to emphasize the need for understanding the text (Hyatt, 1943;

Parker, 1884). They discovered that 90% of reading students did not comprehend what

they read (Mann, 1891). Even after the realization that comprehension instruction should

be included in the classroom, the struggle over its importance remained (Pearson &

Cervetti, 2017). In the late 1970s and early 1980s, when the need to assess

comprehension was apparent while the comprehension skills taught remained at surface

level (Pearson & Cervetti, 2017). An important milestone during this period was Durkin's

1978 study on comprehension instruction implementation. She found that many teachers

taught very little direct instruction of comprehension. Assessments of comprehension

revealed students who regurgitated practice material given from their teachers. Quality comprehension instruction through the activation of schemata and discussion was close to obsolete.

Although comprehension instruction, especially through the use of strategies, has improved over the years, even today there is a struggle for teachers to find time to explicitly teach comprehension (Pearson & Cervetti, 2017). Curriculum demands as well as accountability measures required by the states make it difficult to sustain teaching practices that promote the mastery of higher level thinking. Teachers resolve to teach and assess comprehension through the use of text-based questions in which the student only had to locate the answer (Pearson & Cervetti, 2017). Although the instruction of reading comprehension has been endorsed as one of the essential elements of reading development (National Reading Panel, 2001), in many classrooms, phonics, automaticity, phonemic awareness, and vocabulary receive the most attention. Reading comprehension is often taught through the means of strategies which become ineffective after two weeks of instruction (Wexler, 2019). This presents a challenge when considering the needs of the EL student.

EL Reading Comprehension Growth Rate Comparison

In a six-year longitudinal study on the growth rates of reading comprehension in ELs and their monolingual counterparts, researchers found that the reading comprehension growth patterns of ELs and monolingual learners were not identical and that there was a significant gap between the two groups (Farnia & Geva, 2013). This gap revealed that ELs assimilate information in a different manner. Although their cognitive abilities or word level reading skills did not differ, ELs developed English oral language

skills over time and had a poor command of certain components of the language as compared to the monolingual group, especially in the area of comprehension. Although there is a desire to make certain that ELs are within inclusive environments, there must be a recognition that ELs comprehend text differently from their monolingual counterparts. As a result, the measurements for assessment should be adjusted.

The Impact of Schema on Reading Comprehension

In addition to the disproportionate growth patterns in reading comprehension, background knowledge is a function that is necessary for mastery of the English language for the EL student. In a study conducted by Reyes and Azuara (2013), young Mexican children were observed to identify how they learned language and literacy through their interactions in their immediate environments. As they observed how the participants acquired literacy from the sociocultural perspective, the schema formed was influenced by interactions with community, and environment as well. Schema is the process by which one organizes their knowledge of the world which creates the foundations for learning and comprehending their environments (Anderson, 2013). According to the authors, when a reader is able to bring to mind the schema that aid in understand the passage, comprehension comes naturally. Schema assists in summarizing information, it sets ups space in the memory in an orderly method, helps in knowing where to use the information, and allows logical reconstruction to form new schema (Anderson, 2013). Students may misunderstand what a phrase or passage is saying because their lack of experience with the subject. Their environmental interactions and backgrounds across cultures may create gaps in understanding.

In presenting evidence for the role of schema theory in comprehension, Anderson (2013) wrote about a cross-cultural experiment conducted by Steffensen, Joag-Dev, and Anderson (1979). In this study, people from India and America read letters about weddings that took place in their societies. Among the deficiencies in learning and memory, a major gap was found in the area of comprehension when the participants read the wedding passage unrelated to their own culture. What was realized is that if the participants were made aware of culturally appropriate schema, comprehension would increase.

This reveals the necessity of culturally sensitive comprehension instruction in the classroom. It also shows how students can read material, and if comprehensive inquiries are not performed, they could leave the classroom with little understanding about the subject. Teacher and teacher educators must recognize how schema theory impacts comprehension. They also must understand how culture, language, and social factors influence schema. In the article, *Schema Theory Revisited*, McVee, Dunsmore, and Gavelek (2013) introduce an example of a Hmong student named Deng. The videotaped session (Brock, 1997, as cited by McVee, Dunsmore, & Gavelek, 2013) revealed a teacher who presented a unit on the concept of racism and prejudice. During the unit, the teacher had the students read the book Maniac Magee and listen to the *I have a Dream* speech by Martin Luther King. The teacher also incorporated other activities so that the students could grasp the concepts that were being presented. In one lesson, the teacher read an excerpt from Maniac Magee. This led to a discussion about the various shades of colors in people. From this discussion, the teacher then had the students hold out their hands to present their own shades of color. Deng, who had only been in the United States

for 2 years, had not completely understood the purpose of the hand displaying activity. He thought that the teacher just wanted the students to look at each other's hands. He did not realize that the activity was for the purpose of creating more clarity of the concept of racism. In fact, Deng, did not fully comprehend the idea of racism. His schema was not sufficient enough for him to master the unit. Here, again, we see that there are other factors that influence fluency.

Linguistic Distance and Reading Comprehension

Another aspect in EL reading comprehension is the relationship between oral reading fluency and comprehension among ELs of different first language backgrounds. One hundred and forty-nine adult EL students with four different language backgrounds (Arabic, Japanese, Spanish, and Chinese) participated in a study that examined the relationship between oral reading fluency and reading comprehension (Jiang, 2016). Four elements of oral reading fluency were tested which included oral reading rate, accuracy, efficiency, and prosody. The results revealed that participants with Chinese and Japanese first language backgrounds, prosody was a significant predictor of reading comprehension in English. The significant predictor for ELs whose first language was Arabic, was oral reading efficiency. Participants whose background was Spanish, both accuracy and rate were significant predictors of English reading comprehension. Here we find that the relationship between oral reading fluency and reading comprehension was found to vary across language groups. It was also found that the distance between the students' first languages and the English language determined how easily they were able to learn the language.

In another study, 24 native Cantonese speaking second graders from Hong Kong primary schools participated in a study (Choi et al., 2017) that assessed reading comprehension difficulties in students who were considered poor comprehenders. The bilingual students were evaluated in the areas of word reading, phonological awareness, vocabulary, reading comprehension, nonverbal intelligence, and lexical tone and stress. The researchers found that the reading difficulties exhibited in the learner appeared not to be "universal" but suggested "potentially different linguistic and cognitive underpinnings of reading comprehension" (Choi et al., 2017, p. 194). The place of lexical tone was an additional discovery in this study. It was found that poor Chinese comprehenders and poor English comprehenders showed a weakness in lexical tone awareness or prosody in comparison with average comprehenders. Again, we see that learners of second languages had difficulties based on factors dissimilar to L1 learners.

Choi et al. (2017) also discovered that there were students who could decode well but lacked comprehension. This conflicted with prior findings of monolingual poor comprehenders (e.g., Nation et al., 2007). "While the current definition of poor comprehenders emphasizes normal word decoding, the present data seem to suggest that poor comprehenders might have intact semantic representation of words" (Choi et al., 2017, p. 195). It is evident that ELs not only experience the attainment of oral reading components unequally but may possess adequate decoding abilities and still not comprehend what is being read.

Oral Reading Fluency and Poor Comprehenders

Piper et al. (2015), analyzed reading acquisition in a multilingual environment. Two thousand children aged 6 to 15, from the provinces of Central and Nyanza

participated in this study. Four languages were represented in this group: English, Kiswahili, Dholuo, and Gikuyu. The multiple language assessment measured decoding fluency skills and comprehension.

A large population of multilingual students were found to be proficient in reading in English but did not comprehend what was being read. The students read more fluently in English than in their first language. Yet, their comprehension of English words was lower than their ability to comprehend in their first language. "Children's oral reading fluency scores in their first language were more predictive of reading comprehension than were those in their second language. However, these children's reading comprehension scores were significantly higher in their mother tongue than in English" (Piper et al., 2015, p. 145). Although the children could recognize words in English, the results showed that their understanding was limited. It revealed that a linear relationship between automaticity (reading accurately and quickly) and reading comprehension was often assumed especially in monolingual learners. It was found that children who read in their first language held different levels of automaticity and comprehension when reading in a second or third language. Although reading fluently is shown to have associations to reading success in students, it is important to distinguish differences in multilingual and monolingual learners' reading comprehension levels.

Word Callers

Teachers have reported an existence of students who can read fluently but have little comprehension, called "word callers" (Stanovich, 1986). These students are able to call out words but not able to understand the meaning of the words within a broader context. Although previous studies (Hamilton & Shinn, 2003; Meisinger et al., 2009)

have suggested that word callers do not exist in appreciable numbers, some studies

(Quirk & Beem, 2012; Knight-Teague, Vanderwood & Knight, 2014) reveal that they

may exist regardless of grade levels, especially within the EL population. The concern for

this group of word callers is that many are misidentified because their reading

comprehension problems go unnoticed. Findings suggest that utilizing data from reading

fluency assessments misinform reading comprehension for a significant amount of EL

students (Quirk & Beem, 2012; Knight-Teague, Vanderwood & Knight, 2014).

Research on ELs also indicates that there could be many reasons for inadequacies

in reading (Chiappe & Siegel, 1999; Vaughn et al., 2006). For example, ELs could lack

decoding skills and automaticity of words. On the other hand, ELs could also have high

automaticity skills and accurate decoding but not comprehend what they read. In both

cases, it appeared that teachers were not equipped to assess reading comprehension in

ELs. In one study, data were collected from a group of third and fifth grade EL students

whose first language was Spanish (Knight-Teague, Vanderwood & Knight, 2014). About

6% of third-graders and 8% of fifth-graders were identified as word callers and were

assessed with AIMSweb Curriculum-Based Measurement (R-CBM), California Standards

Tests – English Language Arts Reading Comprehension (CST-ELA-RC), and California

English Language Development Test (CELDT). The study revealed that while the

subsample of students was relatively small, the teacher's endorsement of Oral Reading

Fluency (ORF) was not sensitive to the word callers' below average comprehension

skills.

Relationship Between Prior Research and Present Study

The purpose of the present study was to examine the relationship between automaticity and reading comprehension in ELs and to begin promotion for more explicit and adequate comprehension instruction within the mainstream classroom. It contributes to the existing literature on the relationship between reading fluency and comprehension. It extends the previous research by examining reading rates and comprehension in ELs and comparing those rates to that of their monolingual peers. Furthermore, it fills a gap in the literature by analyzing multilingual populations within the United States whereas much of the literature on this topic is conducted outside of the United States.

Although elementary-level teachers may feel pressured to produce positive academic results within a given time period, utilizing reading rate and accuracy as a measure of determining fully fluent readers may hinder academic success for ELs. The literature suggests that there is a weak correlation between oral reading rate and reading comprehension in ELs and reveals that oral reading rate or automaticity should not be a sole predictor of reading comprehension in ELs. It revealed that there are various factors that affect reading comprehension in ELs. Prosody, accuracy, automaticity, and schema combined assist in determining reading comprehension rates in ELs, but there are other factors that influence the lack of proficiency such as socioeconomic environment (Heppt et al., 2014).

History has shown that educational institutions, especially on the elementary level, have struggled to determine measures that are appropriate for accommodating ELs and are unsure about how to address the academic achievement gap. The pressure of teaching to the test has created surface level reading and comprehension. Federal and

state policies that have promoted literacy proficiency for the general population make it difficult for teachers to implement practices that aid in second language acquisition in ELs. If policymakers, administrators, and educators recognized that there may be an existence of ELs whose reading levels exhibit similar characteristics of non-ELs but experience challenges in comprehension, greater access to appropriate comprehension instruction may be established.

As an educator of ELs, this proposed study would be instrumental in addressing the academic achievement gap of ELs. Educators, administrators, and policymakers must understand that ELs acquire language through a system that is nonlinear. Explicit reading comprehension instruction could improve their language acquisition process within the mainstream classroom. In addition, this study informs practice by revealing the challenges that could occur when educators accept reading rate as the sole component of fully fluent readers. It is important to understand that the academic gaps that may be present in minority and linguistically diverse students will not be addressed if comprehension is not thoroughly addressed. Additionally, it is my hope that policymakers will acknowledge the benefit in giving teachers quality time to teach comprehension or critical thinking skills which will impact not just the EL population, but the general student population as well. Overall, adjustments made to the curriculum to address EL needs within the mainstream classroom could also benefit the whole classroom. Improving instruction for ELs, could mean improving instruction for all.

CHAPTER 3

Methods and Procedures

Research Approach

This study will use a quantitative research approach. The researcher chose this approach as most appropriate to examine the relationship between oral reading rate and reading comprehension in monolingual and English learners. This will be achieved through analyzing secondary data that was previously collected by one school district in Colorado.

Research Questions

This study will examine the following research questions:

1. What is the automaticity rate of 3rd grade monolingual and English learner students?

2. What is the average state assessment score for 3rd grade monolingual and English learner students?

3. Do English learners and monolingual students with high automaticity rates have similar Language Arts Colorado state assessment scores?

4. What is the association between 3rd-grade students' automaticity rates and their reading comprehension score for their Language Arts Colorado state assessment scores?

Sample & Context

The sample includes data from the full population of third-grade students enrolled in 13 public schools within a single school district in southern Colorado during the 2017-2018 and 2018-2019 school years. The district spans 19 square miles of urban and rural

areas and serves more than 11,000 students with a high percentage living in or near poverty. The total amount of participants for this study included 1,583 third-grade students. From this total, 148 ELs and 606 non-ELs were from the year 2017-2018 ($N =$ 754) and 114 ELs and 715 non-ELs were from the year 2018-2019 ($N = 829$).

Non-English Proficiency (NEP) students are in the English language program and receive additional support, however, this particular subsample has been omitted from the study. NEPs in some cases speak no English at all. The researcher required participants who could read fluently and, for this study, NEP sample in the data revealed that a limited amount of NEP participants read at the desired reading rate. Table 1 shows descriptive statistics for the sample population in this study.

Table 1

Demographics of Study Sample for 2017-2018 School Year

2017-2018 School Year	Variables	Total Sample	Percent	Cumulative Percent
Sex	F	329	43.6	43.6
	M	425	56.4	100.0
	n =	754	100.0	
EL Status	ELs	148	19.6	19.6
	Non-ELs	606	80.4	100.0
	n =	754	100.0	
Race/Ethnicity	American Indian or Alaskan Native	5	0.7	0.7
	Asian	7	0.9	1.6
	Black or African American	98	13.0	14.6
	Hispanic	389	51.6	66.2

		Total Sample	Percent	Cumulative Percent
	Native Hawaiian or Other Pacific Islander	12	1.6	67.8
	Two or More Races	68	9.0	76.8
	White	175	23.2	100.0
	n =	754	100.0	
Free or Reduced Lunch	No	134	17.8	17.8
	Yes	620	82.2	100.0
	n =	754	100.0	
Special Education Services	No	667	88.5	88.5
	Yes	87	11.5	100.0
	n =	754	100.0	

Table 2

Demographics of Study Sample for 2018-2019 School Year

2018-2019 School Year	Variables	Total Sample	Percent	Cumulative Percent
Sex	F	436	52.6	52.6
	M	393	47.4	100.0
	n =	829	100.0	
EL Status	ELs	114	13.8	13.8
	Non-ELs	715	86.2	100.0
	n =	829	100.0	
Race/Ethnicity	American Indian or Alaskan Native	3	0.4	0.4

	Asian	3	0.4	0.7
	Black or African American	113	13.6	14.4
	Hispanic	430	51.9	66.2
	Native Hawaiian or Other Pacific Islander	11	1.3	67.6
	Two or More Races	74	8.9	76.5
	White	195	23.5	100.0
	n =	829	100.0	
Free or Reduced Lunch	No	177	21.4	21.4
	Yes	652	78.6	100.0
	n =	829	100.0	
Special Education Services	No	711	85.8	88.5
	Yes	118	14.2	100.0
	n =	829	100.0	

Procedures

The administrative secondary data for the 2017-2018 and 2018-2019 school years includes the full population of third graders for those years. First, a request was made by completing the school district's research application. After obtaining initial approval for data retrieval from the district, approval was obtained from the St. John's University Institutional Review Board. Once the investigator received IRB approval, she obtained a signed data sharing agreement from the district prior to the transfer of data. All data was stored on an encrypted thumb drive and only transferred via secure file transfer. The investigator collaborated with the district analyst to determine variables needed for the

study. All retrieved data was anonymized to maintain privacy.

Measures

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency (DORF) was the benchmark assessment of reading and the Colorado Measures of Academic Success (CMAS) was the Colorado state standardized assessment of language arts scores. The independent variable (IV) of interest in this study was automaticity rate or DORF (word accuracy and speed). The dependent variable (DV) was the standardized state assessment scores or CMAS (reading comprehension). The means and standard deviations of both the DORF and the CMAS were used as descriptive analyses (research questions 1 – 3). Language status (EL or non-EL), sex, race/ethnicity, free or reduced-price lunch status, and special education status were included as control variables in the regression models to determine the strength of the predictors (research question 4).

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency (DORF)

The DORF was used as the measure for assessing third grade reading fluency (word-level decoding and accuracy) (University of Oregon, 2018). The DORF measures fluency (automaticity) as reading words with minimal effort. It is expected that the student will recognize accurately and read words at an automatic rate. Students are given an unfamiliar passage to read according to grade level and are asked to read the passage for one minute. If substitutions, omissions, or hesitations for more than three seconds are present, it is counted as an error. The score is the result of the median number of words

read correctly and the median number of errors read across three passages. Figure 2

provides an example of DORF assessment material.

Figure 2

The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency

(DORF) Scoring Sheet Example

Source:

http://www.shastacoe.org/uploaded/Dept/is/2016_3rd_Grade_Testing_Materials.pdf

For this study, third grade middle of the year (MOY) DORF scores were analyzed for automaticity levels. The oral reading fluency words correct benchmark goals for third graders include a percentage of 86 for "At levels" and a percentage of 105 for "Above levels." For oral reading word accuracy, benchmark goals for third graders include a score of 96% for "At levels" and a score of 99% for "Above levels."

The DIBELS ORF 6th edition test-retest and alternate form reliability for third grade scores had median coefficients of .91 and .93 (National Center on Intensive Intervention, n.d.). A full chart of benchmark goals can be found in Appendix B.

The Colorado Measures of Academic Success (CMAS)

The CMAS was used as the measure for assessing third grade language arts reading comprehension. The CMAS is the state of Colorado's annual assessment of student proficiencies in subject matters that include language arts and is focused specifically on the testing of third to eighth graders. With regard to English Language Arts, the CMAS is designed to measure reading comprehension, written expression, knowledge and use of language conventions. CMAS assessments, according to the state's department of education website, are administered in a single testing window. For example, within the 2020-2021 school year the testing window is April 12th through April 30th. All students are required to participate in the state's assessment system, including those students with Individualized Education Programs or IEPs and EL students. Given state and federal laws regarding the measurability of assessments in the mastery of skills within English Language Arts for third graders, the following scoring rubric is used to measure a) reading comprehension and written expression; b) knowledge of language and conventions; c) written expression; and d) knowledge of language and conventions.

When the researcher refers to the reading comprehension measurement, she is referring to all elements of assessment within the CMAS language arts domain. For the purposes of this study, third grade scaled scores in language arts (α = .90) were analyzed.

Table 3

CMAS Scoring Rubric for Prose Constructed Response Item. Research Simulation Task (RST) and Literary Analysis Task (LAT) for Grade 3

Construct Measured	Score Point 3	Score Point 2	Score Point 1	Score Point 0
Reading Comprehension and Written Expression	The student response • demonstrates full comprehension by providing an accurate explanation/description/ comparison; • addresses the prompt and provides effective development of the topic that is consistently appropriate to task, purpose, and audience; • uses clear reasoning supported by relevant, textbased evidence in the development of the topic; • is effectively organized with clear and coherent writing; • uses language effectively to clarify ideas.	The student response • demonstrates comprehension by providing a mostly accurate explanation/ description/comparison; • addresses the prompt and provides some development of the topic that is generally appropriate to task, purpose, and audience; • uses reasoning and relevant, text-based evidence in the development of the topic; • is organized with mostly clear and coherent writing; • uses language in a way that is mostly effective to clarify ideas.	The student response • demonstrates limited comprehension; • addresses the prompt and provides minimal development of the topic that is limited in its appropriateness to task, purpose, and audience; • uses limited reasoning and text-based evidence; • demonstrates limited organization and coherence; • uses language to express ideas with limited clarity.	The student response • does not demonstrate comprehension; • is undeveloped and/or inappropriate to the task, purpose, and audience; • includes little to no text-based evidence; • lacks organization and coherence; • does not use language to express ideas with clarity.

Knowledge of Language and Conventions	The student response to the prompt demonstrates full command of the conventions of standard English at an appropriate level of complexity. There may be a few minor errors in mechanics, grammar, and usage, but meaning is clear.	The student response to the prompt demonstrates some command of the conventions of standard English at an appropriate level of complexity. There may be errors in mechanics, grammar, and usage that occasionally impede understanding, but the meaning is generally clear.	The student response to the prompt demonstrates limited command of the conventions of standard English at an appropriate level of complexity. There may be errors in mechanics, grammar, and usage that often impede understanding.	The student response to the prompt does not demonstrate command of the conventions of standard English at the appropriate level of complexity. Frequent and varied errors in mechanics, grammar, and usage impede understanding.
Written Expression	The student response • is effectively developed with narrative elements and is consistently appropriate to the task; • is effectively organized with clear and coherent writing • uses language effectively to clarify ideas.	The student response • is developed with some narrative elements and is generally appropriate to the task; • is organized with mostly coherent writing; • uses language in a way that is mostly effective to clarify ideas.	The student response • is minimally developed with few narrative elements and is limited in its appropriateness to the task; • demonstrates limited organization and coherence; • uses language to express ideas with limited clarity.	The student response • is undeveloped and/or inappropriate to the task; • lacks organization and coherence; • does not use language to express ideas with clarity.

Knowledge of Language and Conventions	The student response to the prompt demonstrates full command of the conventions of standard English at an appropriate level of complexity. There may be a few minor errors in mechanics, grammar, and usage, but meaning is clear.	The student response to the prompt demonstrates some command of the conventions of standard English at an appropriate level of complexity. There may be errors in mechanics, grammar, and usage that occasionally impede understanding, but the meaning is generally clear.	The student response to the prompt demonstrates limited command of the conventions of standard English at an appropriate level of complexity. There may be errors in mechanics, grammar, and usage that often impede understanding.	The student response to the prompt does not demonstrate command of the conventions of standard English at the appropriate level of complexity. Frequent and varied errors in mechanics, grammar, and usage impede understanding.
Source: Retrieved from www.cde.state.co.us/assessment/cmas_ela_g3pcr_rubric				

Table 4 shows CMAS score ranges and benchmarks. For the purpose of this

study, participants who met expectations (725-809) and exceeded expectations (810-850)

were considered proficient in the area of reading comprehension.

Table 4

CMAS ELA and CSLA Scale Score Ranges

CMAS ELA Content Area	Grade	Scale score ranges for meeting expectations				
		Did Not Yet Meet	Partially Met	Approached	Met	Exceeded
ELA	3	650–699	700–724	725–749	750–809	810–850

Data Analysis

Automaticity for each student was measured with the DIBELS Next benchmark goals in the DORF domain. Reading comprehension for each student was measured by means of the CMAS state assessment in the area of Language Arts. Descriptive analysis of data was conducted for all variables in the study. This analysis provides average, mean, and benchmark percentages of DORF and CMAS state assessment scores for both EL and non-EL participants. It also includes a description of those who scored proficient and above for each group. A multiple regression analysis of the variables automaticity (IV-DORF) and reading comprehension (DV-CMAS) controlling for EL status, sex, race/ethnicity, free or reduced lunch status, and special education status were analyzed and reported using the Statistical Package for the Social Sciences (SPSS) software. The interaction between DORF and EL status was analyzed to determine if the association between automaticity and reading comprehension was moderated by EL status. The questions were addressed through the following analyses:

- RQ1: (A) Comparisons of the average DORF for ELs and non-ELs, (B) Percent of ELs and non-ELs meeting benchmark at mid-year timepoint.

- RQ2: (A) Comparisons of average state assessment scores for ELs and non-ELs, (B) Percentage of each group that is proficient and above.

- RQ3: (A) Comparisons of the mean state assessment scores for ELs that met benchmark and mean of state assessment scores for non-ELs that met benchmark, (B) Percentage of ELs who met DORF Benchmark who were deemed proficient or above on state assessment and Percentage of non- ELs who met DORF Benchmark who were deemed proficient or above on state assessment.

- RQ4: Regression analyses examining the association between DORF scores and state assessment scores, controlling for EL status, sex, race/ethnicity, free or reduced-priced lunch status, and special education status. Regression analysis examining the interaction between DORF and EL status.

CHAPTER 4

Results

The purpose of this study was to examine the relationship between automaticity and reading comprehension in ELs, and to determine whether automaticity alone could predict reading comprehension in ELs. This study found that the automaticity rate (DORF) of 3rd grade monolingual (Non-EL) students in the 2017-2018 school year exceeded English Learner (EL) students by 30%. Data within the 2018-2019 school year showed that the automaticity rate (DORF) of 3rd grade Non-ELs students exceeded EL students by 24%.

This chapter includes analysis of two years (2017-2018 & 2018-2019) of secondary assessment data. The sample of both the EL and Non-EL students combined included 1,663 3rd grade students from a single district in Colorado. Results are organized by research question.

Research Question 1

What is the automaticity rate of 3rd grade monolingual and English learner students?

Average DIBELS Oral Reading Fluency scores for ELs and non-ELs are described in Tables 5 and 6. The percentage of ELs and non-ELs meeting mid-year benchmark are described in Figure 3.

Table 5

DIBELS Oral Reading Fluency (DORF) Means and Standard Deviations of English Learners (ELs) and Non-English Learners (Non-ELs) for 2017-2018 School Year

	DORF Accuracy 2017-2018 School Year					
	N	M	SD	SE	CI Lower Bound	CI Upper Bound
ELs 17-18	148	91.98	9.258	0.761	90.48	93.48

	N	M	SD	SE	CI Lower Bound	CI Upper Bound
Non-ELs 17-18	606	95.33	8.493	0.345	94.66	96.01
Total	754	94.68	8.744	0.318	94.05	95.30

Table 6

DIBELS Oral Reading Fluency (DORF) Means and Standard Deviations of English Learners (ELs) and Non-English Learners (Non-ELs) for 2018-2019 School Year

	DORF Accuracy 2018-2019 School Year					
	N	M	SD	SE	CI Lower Bound	CI Upper Bound
ELs 18-19	114	92.42	8.310	0.778	90.88	93.96
Non-ELs 18-19	715	94.89	9.417	0.352	94.20	95.58
Total	829	94.55	9.306	0.323	93.91	95.18

Table 5 and 6 shows DORF means and standard deviations of EL and Non-EL students for the years 2017-2018 and 2018-2019. The data had a sample of 148 ELs and a sample of 606 Non-ELs for 2017-2018 school year. For the 2018-2019 school year, the data had a sample of 114 ELs and a sample of 715 Non-ELs. For the 2017-2018 school year, ELs scored a mean of 91.98 (SD =9.26), and Non-ELs scored a mean of 95.33 (SD = 8.49). For the 2018-2019 school year, ELs scored a mean of 92.42 (SD =8.31) and Non-ELs scored a mean of 94.89 (SD = 9.42). For the 2017-2018 school year, ELs (90.48, 93.48) and Non-ELs (94.66, 96.01) had 95% confidence interval estimated mean ranges that did not overlap. For the 2018-2019 school year, ELs (90.88, 93.96) and Non-ELs (94.20, 95.58) also had 95% confidence interval estimated mean ranges and did not overlap.

Figure 3

Percentage of English Learners (ELs) and Non-English Learners (Non-ELs) Meeting

Mid-Year DIBELS Oral Reading Fluency (DORF) Benchmark for the 2017-2018 &

2018-2019 School Years
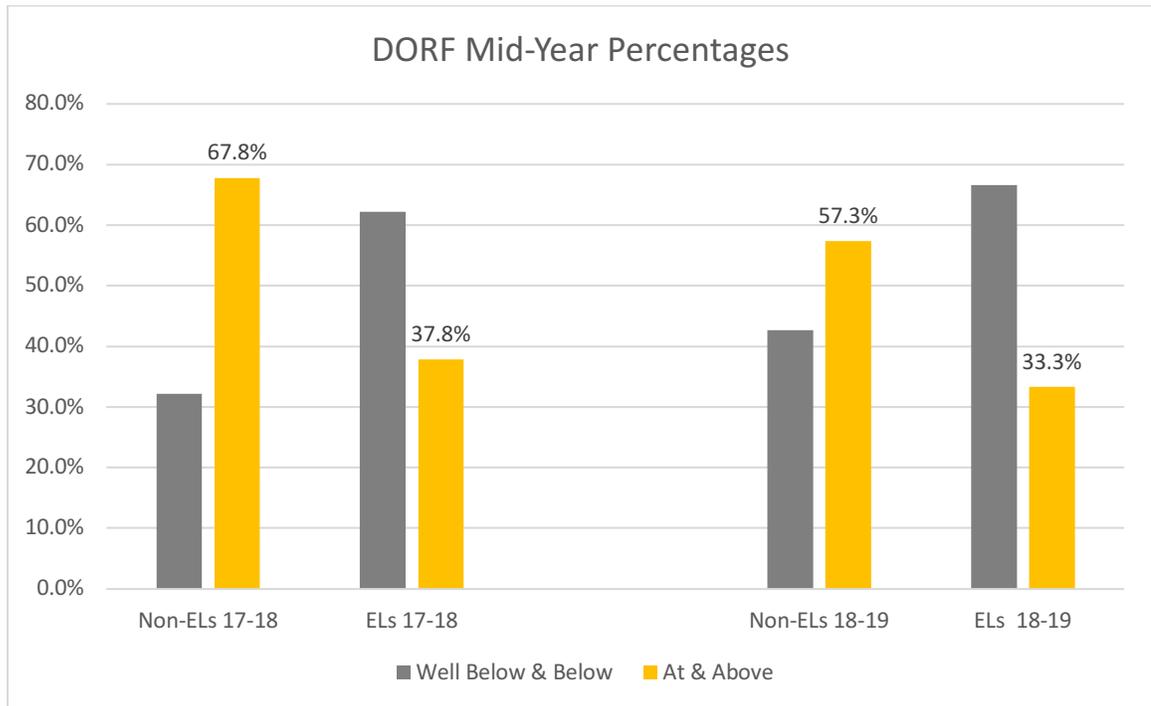
The 2017-2018 & 2018-2019 data in Figure 3 indicates the percentage from the chi

square of EL status and the DORF benchmark. The 2017-2018 data reveal that 67.8% of

non-ELs that had an At or Above benchmark was significantly x^2= 45.36; df=2; N=7,

p<.001) more than ELs (37.8%). The 2018-2019 data reveal that 57.3% non-ELs that had

an At or Above benchmark was significantly (x^2 = 22.82; df =2; p<.001) more than ELs

(33.3%).

Research Question 2

What is the average state assessment score for 3rd grade monolingual and English

learner students?

Average state assessment scores for ELs and non-ELs are described in Table 7

and 8. The percentage of each group that is proficient and above is described in Figure 4.

Table 7

Colorado Measures of Academic Success (CMAS) Means and Standard Deviations of

English Learners (EL) and Non-English Learners (Non-ELs) 2017-2018 School Year

| | CMAS Scaled Score 2017-2018 School Year | | | | | |
	N	M	SD	SE	CI Lower Bound	CI Upper Bound
ELs 17-18	148	718.85	33.36	2.743	713.43	724.27
Non ELs 17-18	606	746.25	40.43	1.642	743.02	749.47
Total	754	740.87	40.61	1.479	737.97	743.77

Table 8

Colorado Measures of Academic Success (CMAS) Means and Standard Deviations of

English Learners (EL) and Non-English Learners (Non-ELs) 2018-2019 School Year

| | CMAS Scaled Score 2018-2019 School Year | | | | | |
	N	M	SD	SE	CI Lower Bound	CI Upper Bound
ELs 18 – 19	114	709.33	26.693	2.500	704.38	714.29
Non ELs 18 – 19	715	737.86	39.514	1.478	734.96	740.76
Total	829	733.94	39.246	1.363	731.26	736.61

Tables 7 and 8 revealed CMAS means and standard deviations for EL and Non-

EL students for the years 2017-2018 and 2018-2019. In the 2017-2018 school year, the

data included 148 ELs and 606 Non-ELs. For the scaled score, ELs scored a mean of

718.85 (SD = 33.36) and the Non-ELs scored a mean of 746.25 (SD = 40.43). For the

2018-2019 school year, the data included 114 for ELs and 715 Non-ELs. For the scaled

score, ELs scored a mean of 709.33 (SD =26.69) and non-ELs scored a mean of 737.86

(SD = 39.51). For the 2017-2018 school year, ELs (713.43, 724.27) and Non-ELs (743.02, 749.47) had a 95% confidence interval estimated mean ranges that did not overlap. For the 2018-2019 school year, ELs (704.38, 714.29) and Non-ELs (734.96, 740.76) had a 95% confidence interval estimated mean ranges that did not overlap.

Figure 4

Percentage of English Learners (ELs) and Non-English Learners (Non-ELs) for Colorado Measures of Academic Success (CMAS) Meeting Proficiency 2017-2018 & 2018-2019 School Year
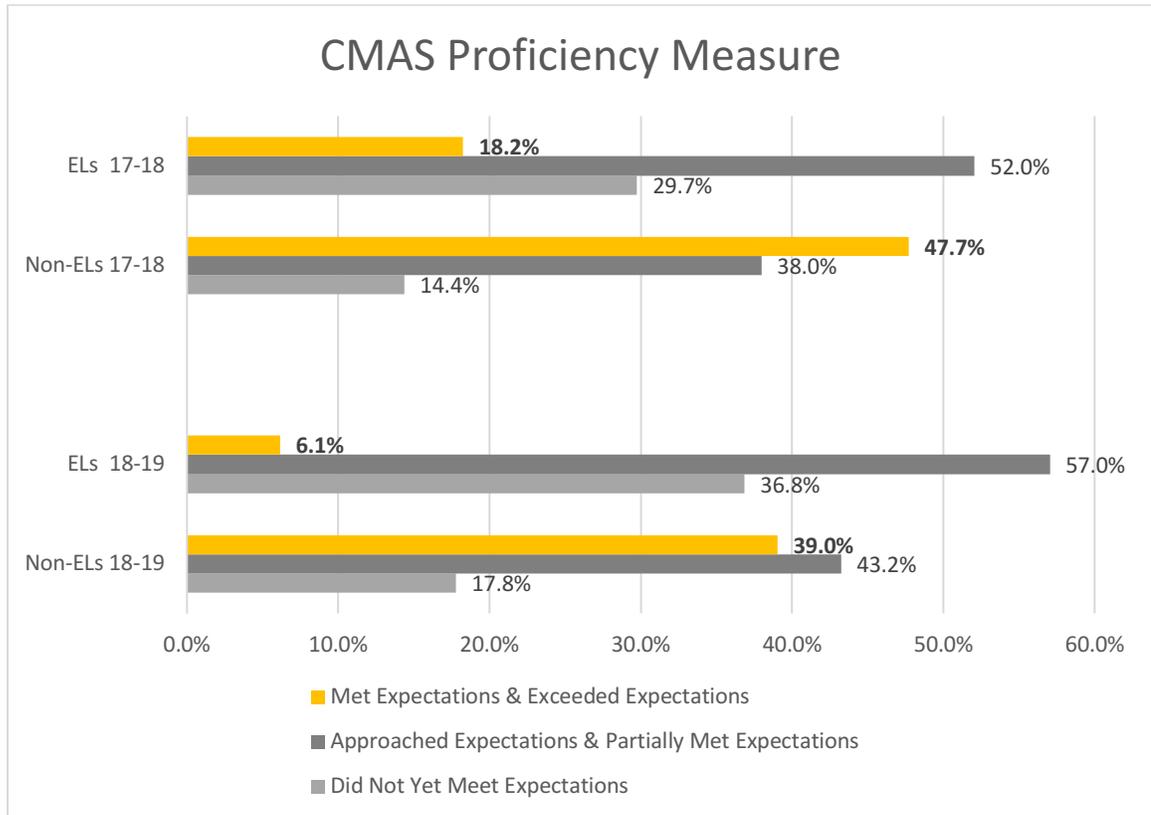
Figure 4 indicates percentages of ELs and non-ELs who met CMAS proficiency measures for the school years 2017-2018 and 2018-2019. In the 2017-2018 school year, data shows that 47.7% of non-ELs who met or exceeded expectations for the CMAS

measures was higher than the EL (18.2%) sample. In the 2018-2019 school year, data

show 39% of non-ELs who met or exceeded expectations for the CMAS measures was

significantly (x^2 = 52.52; df =2; p< .001) more than the EL (6.1%) sample.

Research Question 3

Do English learners and monolingual students with high automaticity rates have similar

Language Arts Colorado state assessment scores?

The mean of CMAS state assessment for ELs and non-ELs that meet benchmark

are described in Table 9 and Table 10. Percentage of ELs and non-ELs who meet DORF

Benchmark who are deemed proficient or above on the CMAS state assessment is

described in Figure 5.

Table 9

Colorado Measures of Academic Success (CMAS) Means for ELs and Non-ELs who Meet

Benchmark for 2017-2018 School Year

	CMAS Scale School Year 2017-2018					
	N	M	SD	SE	CI Lower Bound	CI Upper Bound
ELs 17-18	56	737.16	26.602	3.555	730.04	744.28
Non ELs 17-18	411	763.86	32.019	1.579	760.76	766.97
Total	467	760.66	32.572	1.507	757.70	763.62

Table 10

Colorado Measures of Academic Success (CMAS) Means for ELs and Non-ELs who Meet

Benchmark for 2018-2019 School Year

	N	M	SD	SE	CI Lower Bound	CI Upper Bound
CMAS Scale School Year 2018-2019						
ELs 18 – 19	38	727.47	24.078	3.906	719.56	735.39
Non ELs 18 – 19	410	757.93	32.546	1.607	754.77	761.09
Total	448	755.35	33.005	1.559	752.28	758.41

Table 9 and Table 10 shows CMAS means for ELs and Non-ELs who met benchmark for the school years 2017-2018 and 2018-2019. The data for the year 2017-2018 included 56 ELs, and 411 Non-ELs. For those who met At or Above benchmark, ELs scored a mean of 737.16 (SD = 26.60) and non-ELs scored a mean of 763.86 (SD = 32.02). The data for the year 2018-2019 included 38 ELs and 410 Non-ELs. For those who met At or Above benchmark, ELs scored a mean of 727.47 (SD = 24.08) and non-ELs scored a mean of 757.93 (SD = 32.55). For the 2017-2018 school year, ELs (730.04, 744.28) and Non-ELs (760.76, 766.97) had 95% confidence interval estimated mean ranges that did not overlap. For the 2018-2019 school year, ELs (719.56, 735.39) and non-ELs (754.77, 761.09) had 95% confidence interval estimated mean ranges that did not overlap.

Figure 5

Percentage of English Learners (ELs) and Non-English Learners (Non-ELs) Meeting

Benchmark and Met Colorado Measures of Academic Success (CMAS) Proficiency of

Measures for All Groups 2017-2018 & 2018-2019
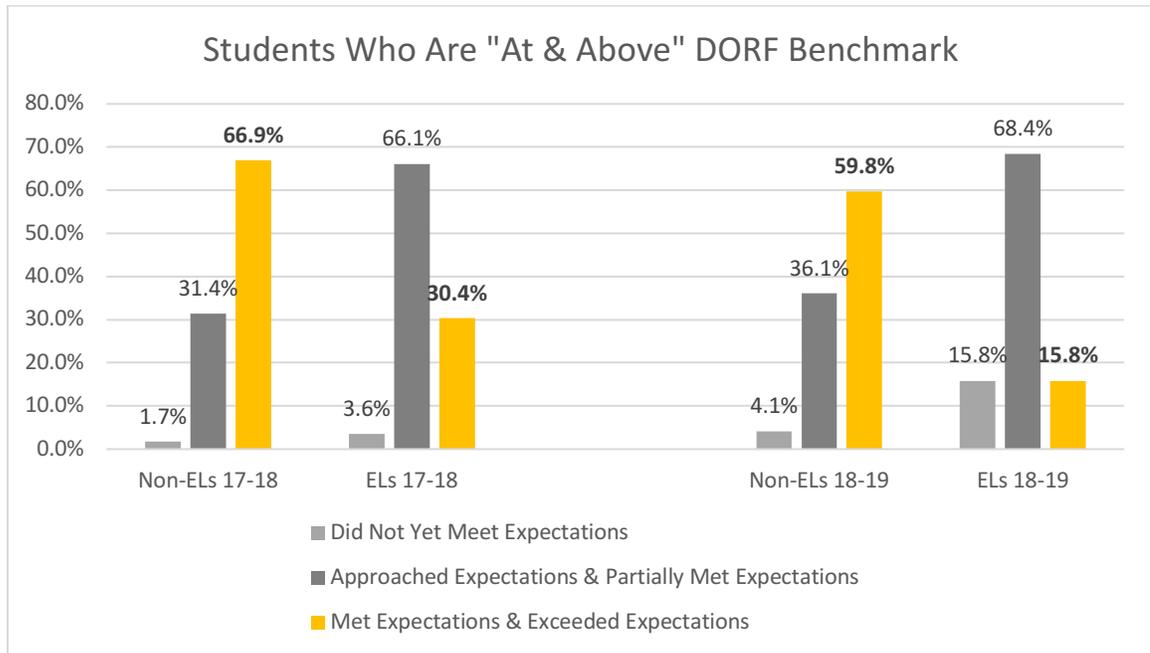
Figure 5 indicates percentages of ELs and Non-ELs who met DORF at or above

benchmark and who met or exceeded expectations on the CMAS state assessment in the

2017-2018 and 2018-2019 school years. In the 2017-2018 school year, data shows that

69.9% of non-ELs met or exceeded expectations who were "At or Above" in the DORF

benchmark. For the EL sample, 30.4% met or exceeded expectations who were "At or

Above" in the DORF benchmark. In the 2018-2019 school year, data show that 59.8% of

non-ELs who were "At or Above" in the DORF benchmark met or exceeded

expectations. For the EL sample, 6.8% who were "At or Above" in the DORF benchmark

met or exceeded expectations.

Research Question 4

What is the association between 3rd-grade students' automaticity rates and their reading

comprehension score for their Language Arts Colorado state assessment scores?

Results from the multiple regression analysis examining the association of DORF

Accuracy scores with CMAS state assessment scores, controlling for EL status, sex,

race/ethnicity, free or reduced-priced lunch status, and special education status are

described in Table 11 and Table 12.

Table 11

Regression Between DIBELS Oral Reading Fluency (DORF) scores and Colorado

Measures of Academic Success (CMAS) Assessment Scores of English Learners (ELs)

and Non-English Learners (Non-ELs) 2017-2018

Model		Unstandardized Coefficients		Standardized Coefficients	t	*p*
		B	SE	Beta		
1	(Constant)	526.84	15.99		32.95	<0.001
	DORF Accuracy	2.11	0.15	0.45	13.88	<0.001
	Non-ELs	17.21	3.36	0.17	5.13	<0.001
	Free & Reduced Lunch	-8.22	3.16	-0.08	-2.60	0.009
	Special Education Services	-17.65	4.13	-0.14	-4.27	<0.001
	African American	-8.99	4.10	-0.07	-2.19	0.029
	Hispanic	-8.05	3.19	-0.10	-2.53	0.012
	Two or More Races	-3.00	4.64	-0.02	-0.65	0.518

	B	SE	Beta	t	p
Other Race	-4.64	7.07	-0.02	-0.66	0.512
Sex	-3.70	2.42	-0.05	-1.53	0.126

Note: Dependent Variable: SCALE_SCORE

Table 12

Regression Between DIBELS Oral Reading Fluency (DORF) scores and Colorado Measures of Academic Success (CMAS) Assessment Scores of English Learners (ELs) and Non-English Learners (Non-ELs) 2018-2019

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		B	SE	Beta		
1	(Constant)	543.93	14.86		36.60	<0.001
	DORF Accuracy	1.73	0.14	0.41	12.57	<0.001
	Non-ELs	24.48	3.36	0.21	7.29	<0.001
	Free & Reduced Lunch	-10.37	2.70	-0.11	-3.84	<0.001
	Special Education Services	-18.42	3.67	-0.16	-5.02	<0.001
	African American	-19.74	3.69	-0.17	-5.34	<0.001
	Hispanic	-5.81	2.86	-0.07	-2.03	0.043
	Two or More Races	-7.44	4.24	-0.05	-1.75	0.080
	Other Race	-5.44	7.83	-0.02	-0.69	0.487
	Sex	-3.65	2.17	-0.05	-1.68	0.093

Note: Dependent Variable: SCALE_SCORE

In Table 11 and Table 12, a multiple linear regression analysis was used to predict 2017-2018 CMAS assessment scores based on DORF Accuracy assessment scores controlling for EL status, sex, race/ethnicity, free or reduced-priced lunch status, and special education status. A significant regression equation was found ($F_{(9, 744)} = 48.83$, $p < .001$), with an R^2 of 0.371. The results of the regression indicated that predictors explained 37.1% of the variance in CMAS scores. Individual predictors were further examined and indicated that DORF Accuracy scores (B = 2.11, $p < 0.001$), free or reduced-price lunch (B = -8.22, $p = 0.009$), special education status (B = -17.65, $p < 0.001$), EL status (non-ELs) (B = 17.21, $p < 0.001$), Race-African American (B = -8.99, p = 0.029), and Race - Hispanic (B = -8.05, p = 0.012) were significant predictors in the model. For every one point increase in DORF accuracy, a student was predicted to exhibit a 2 point increase in CMAS scaled scores. There was an 8 point decrease in CMAS scaled scores for students who were eligible for free or reduced-price lunch. There was a 17 point decrease in CMAS scaled scores for students who were in special education services. It was predicted that, compared to the white sample, African American students scored 9 points lower and Hispanic students scored 8 points lower in the CMAS. In addition, students were who considered non-ELs were predicted to have 17 point increase in CMAS scaled scores.

In the 2018-2019 school year, a significant regression equation was found ($F_{(9, 819)} = 57.58$, $p < .001$), with an R^2 of 0.388. The results of the regression indicated that predictors explained 38.8% of the variance in CMAS scores. Individual predictors were examined further and indicated that DORF Accuracy scores (B = 1.73, $p < 0.001$), free or reduced-price lunch (B = -10.37, $p < 0.001$), special education statis (B = -18.42, $p <$

0.001), EL status (non-ELs) (B = 24.48, *p*< 0.001), Race-African American (B = -19.74,

p< 0.001), and Race - Hispanic (B= -5.81, *p* = 0.043) were significant predictors in the

model. For every one point increase in DORF accuracy, a student was predicted to

exhibit a 1.7 point increase in CMAS scaled scores. There was a 10 point decrease in

CMAS scaled scores for students who were eligible for free or reduced-price lunch.

There was an 18 point decrease in CMAS scaled scores for students who were in special

education services. It was predicted that, compared to the white sample, African

American students scored 19 points lower and Hispanic students scored 5 points lower in

the CMAS. In addition, students were who considered non-ELs were predicted to have 24

point increase in CMAS scaled scores. Next, the same regression models were conducted

with interaction terms between DORF scores and EL status. See Tables 13 and 14.

Table 13

Regression Between Colorado Measures of Academic Success (CMAS) Assessment

Scores and Interaction Variable between DIBELS Oral Reading Fluency (DORF) scores

and English Learner (ELs) Status Year 2017-2018

Model	Unstandardized Coefficients		Standardized Coefficients	t	*p*
	B	SE	Beta		
1 (Constant)	555.92	55.69		9.98	<0.001
DORF * EL Status	0.18	0.33	0.19	0.55	0.586
DORF Accuracy	1.79	0.60	0.39	2.99	0.003
Non-EL	0.47	30.89	0.00	0.02	0.988
Free & Reduced Lunch	-8.14	3.16	-0.08	-2.57	0.010

	-17.38	4.16	-0.14	-4.18	<0.001
Special Education Services					
African. American	-8.94	4.11	-0.07	-2.18	0.030
Hispanic	-8.06	3.19	-0.10	-2.53	0.012
Two or More Races	-3.00	4.64	-0.02	-0.65	0.518
Other Race	-4.71	7.08	-0.02	-0.67	0.506
Sex	-3.68	2.42	-0.04	-1.52	0.129

Note: Dependent Variable: SCALE_SCORE

Table 14

Regression Between Colorado Measures of Academic Success (CMAS) Assessment Scores and Interaction Variable between DIBELS Oral Reading Fluency (DORF) scores and English Learner (ELs) Status Year 2018-2019

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	SE	Beta	t	*p*
1	(Constant)	591.38	67.21		8.80	<0.001
	DORF * EL Status	0.27	0.37	0.26	0.72	0.469
	Non-EL	-0.52	34.69	0.00	-0.01	0.988
	DORF Accuracy	1.22	0.72	0.29	1.68	0.092
	Free & Reduced Lunch	-10.35	2.70	-0.11	-3.84	<0.001
	Special Education Services	-18.61	3.68	-0.17	-5.05	<0.001
	African American	-19.68	3.70	-0.17	-5.32	<0.001
	Hispanic	-5.82	2.87	-0.07	-2.03	0.043

	-7.40	4.24	-0.05	-1.74	0.082
Two or More Races					
Other Race	-5.44	7.83	-0.02	-0.69	0.488
Sex	-3.55	2.17	-0.05	-1.63	0.103

Note: Dependent Variable: SCALE_SCORE

To measure the interaction effect between the 2017-2018 and 2018-2019 CMAS scaled scores with DORF and English Learner status, a moderated regression analysis was conducted and the results are presented in Table 13 and Table 14. The interaction variable was coded as the combined variables: DORF Accuracy * EL status. However, the added interaction variable controlling for EL status, sex, race/ethnicity, free or reduced-priced lunch status, and special education for both school years was not significant, suggesting that the relationship between DORF scores and CMAS scores did not statistically significantly vary by EL status.

CHAPTER 5

Discussion

This study examined the relationship between automaticity and reading comprehension in English Learners (ELs). The researcher to provide evidence that automaticity could not be the sole determiner of reading comprehension, especially within the EL population. This chapter summarizes and discusses the study's findings in accordance with the research questions presented. Recommendations for further research and limitations of the study are also outlined.

This study utilized secondary data obtained from the Colorado Measures of Academic Success (CMAS) and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency (DORF) assessment and represented a third-grade student population from 13 public schools within a single school district.

Summary of Findings

Research question one pertained to the automaticity rate of 3rd grade students who were classified as non-ELs and ELs. The results indicated that the majority of Non-EL students scored higher on their mid-year DIBELS oral reading fluency assessment as compared to EL students. Accordingly, EL students' automaticity rates were significantly lower than Non-ELs.

For research question two, average state assessment scores, CMAS, for both ELs and non-ELs were analzyed. The results indicated that the majority of Non-EL students scored higher on their CMAS state assessment than EL students. Accordingly, EL students' state assessment rates were significantly lower than Non-ELs. Given CMAS criteria within Table 3 of Chapter 3, results indicated that studied ELs "partially met

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expectations" as compared to their Non-EL counterparts who "approached expectations" within state literacy standards. Which means that compared to their Non-EL counterparts, EL student scores generally fell within the rubric criteria (Table 3).

Research question three included analyses of ELs and non-ELs who had high automaticity rates. This question analyzed whether these students had similar CMAS assessment scores. The results indicated that the majority of Non-EL students who were "At and Above" on the mid-year DORF assessment scored higher on their CMAS state assessment than EL students who were "At and Above" on the mid-year DORF assessment. Results indicated that although students who are learning English as an additional language read at a similar rate as their monolingual counterparts, they scored significantly lower on their CMAS state assessment. Consequently, it was revealed that ELs and Non-ELs with high automaticity rates do not have similar language arts Colorado state assessment scores.

The association between 3rd-grade students' automaticity rates and their reading comprehension score for their CMAS state assessment scores was analyzed by question four. The multiple regression analysis revealed that the association between third grade automaticity rates (DORF measure) and reading comprehension scores (language arts CMAS measure) had a 2 point increase that was significant. Additionally, the individual predictor EL status revealed that Non-ELs scored 17 points higher in the CMAS state assessment than EL students for the 2017-2018 school year. In the 2018-2019 school year, the individual predictor EL status revealed that Non-ELs scored 24 points higher in the CMAS state assessment than EL students. This reiterates that monolingual or Non-EL students scored significantly higher than English Learners on the language arts CMAS

state assessment. It should be noted that the EL status and DORF interaction variable that was included in the regression, was not significant.

Implications of Findings

There are several implications from the findings for this study. First, it was shown that even when ELs read quickly and at a similar rate as their monolingual counterparts, English learners scored significantly lower in their state assessment scores than non-ELs. Here, it is evident that the rate in which a student reads cannot be the dominant form of predicting reading comprehension in ELs. There is a consistent misunderstanding that the mastery of reading fluency is attained through automatic decoding or the rate at which one reads. The ability to recognize words accurately and the amount of time a student is able to do so, has been utilized in elementary schools to measure reading proficiency through inventories and through assessments that monitor developmental reading (Rasinski et al., 2011). Some believe that the rate at which one reads is also a predictor of reading comprehension (Grabe, 2010). This was established by theories of automatic processing in which researchers believed that reading development was the result of recognizing words quickly so that one could focus on making meaning with the content being read. It was asserted that once automaticity was established, readers can acquire reading comprehension with minor obstruction (Cattell, 1986; Huey, 1968; Laberge & Samuels, 1978; Perfetti, 1985). However, many of these studies included monolingual populations. For non-ELs, using accuracy and rate alone as reading fluency achievement could be an acceptable measurement. However, for ELs, this poses challenges that could lead to a gap in academic success. This study revealed that there is a consistent gap between ELs and non-ELs.

The second implication is that although rating rate, or automaticity, should not be used as the only predictor of reading mastery, it is still significant to reading comprehension. The regression analysis revealed that high oral reading rate (DORF) is associated with higher assessment scores. Learning to decode words accurately and at an automatic rate enhances reading development. However, to utilize automaticity alone as a predictor of reading fluency, particularly reading comprehension attainment, would cause challenges for ELs. Reading comprehension is a complex process and becomes more challenging when a student is learning additional languages. Many factors such as vocabulary acquisition, linguistic associations, background knowledge, and socioeconomic environment have an influence on language acquisition (Reyes and Azuara, 2013; Anderson, 2013; Jiang, 2016). Farnia and Geva's (2013) study on growth rates in the reading comprehension ELs and non-ELs revealed that the growth patterns between the two groups were dissimilar. ELs comprehend text differently and it is pertinent to include comprehension instruction that exists beyond basic skill sets. This study revealed that relying solely on automaticity to assess reading mastery, has its limitations when considering English learners.

The final implication is that of linguistic distance. Particularly the Jiang (2016) study which indicated that the distance between students' first languages and the English language determined how quickly they could learn the language. It was found that accuracy and rate in reading English words (automaticity) were significant predictors in reading comprehension for the sample of participants who spoke Spanish as their primary language. In this current study, the research found that the sample group for both the 2017-2018 and the 2018-2019 school year included a majority Hispanic population. This

study revealed that there was a significant relationship between DORF scores (automaticity) and CMAS scores (reading comprehension). With the knowledge that students with Hispanic descent revealed reading comprehension abilities through reading rate and accuracy, it is possible that the strength of the DORF scores compared with the CMAS scores in this study could be the result of the linguistic distance of the Hispanic population.

Overall, implications reveal the necessity of creating curriculum that will address the comprehension needs of English learners within the general education classroom. In addition, those conducting formal assessments including diagnostic measures for students should consider that English learners assimilate information differently than monolingual students. Utilizing automaticity as a main predictor of reading mastery could hinder academic success of students learning English as an additional language. It is also important to emphasize that policy makers have the power to facilitate the change necessary to increase quality reading comprehension instruction within the classroom. When the advancement for more explicit reading comprehension that goes beyond automaticity is enacted, English learners may have a greater opportunity of closing the existing academic gap.

Limitations and Recommendations for Future Research

The State of Colorado Department of Education includes 179 school districts, with 14 of those districts located within Colorado Springs. Data used for the study were limited to students within a single school district in Colorado Springs. Moreover, the researcher found that the percentage of EL students that participated in state CMAS

testing in the 2017-2018 and 2018-2019 school years, were less than that of their non-EL counterparts.

While the study illustrated that automaticity should not be the sole predictor of reading fluency, specifically reading comprehension, in English learners, there are additional questions that will require further research. First, there may be a threat to internal validity because of the participants sampled. As mentioned in chapter 2, the EL students could have greater difficulty learning an additional language depending on the linguistic (Jiang, 2016). For results to be generalizable, future researchers should examine associations with a participant's first language, additional languages, and influence of their proficiencies on reading comprehension.

Second, due to the COVID-19 pandemic, the 2019-2020 school year was truncated. Consequently, the researcher chose to conduct the study using secondary data from the school years 2017-2018 and 2018-2019. Future investigations should include current data for that particular year, as well as post COVID-19, to see the pandemic's implications on EL learning.

Third, as mentioned in chapter 3, the Colorado Measures of Academic Success (CMAS) was not a specific reading comprehension assessment. Although the sub-measures utilized within the CMAS are adequate for assessing reading comprehension in ELs, there are other specific assessments which test comprehension that could be used in future studies. Additionally, DIBELS Oral Reading Fluency (DORF) assessment, which was the automaticity measurement within this data set, also had limitations. For this study the DORF assessment used was from the mid-year assessment. The DIBELS assessment is given at the beginning of the school year, middle of the school year, and the end of the

school year. The DORF assessment used for this study reflects the performance of the third-grade students in the middle of the school year. End of the year performance may reflect variant outcomes. Future research could investigate the replication of this study and aim to collect primary assessment data for reading comprehension and reading rate.

Fourth, as previously mentioned, English learners' reading comprehension levels can be determined through reading rate, accuracy, efficiency, or prosody, depending on linguistic distance. Future studies should include examining relationships between automaticity and reading comprehension within the context of linguistic diversity and distance from the English language.

Last, although the multiple regression analyses controlled for sex, race, EL status, special education service status, and free or reduced-price lunch status, there may be other factors that were significantly related to the EL scores. Future research could investigate possible factors that could relate to EL scores on automaticity assessments (DORF) and standardized state assessments (CMAS).

Results of this study implied that there is a necessity to find a balanced approach to teaching reading fluency to English learner students. For this population, explicit reading comprehension instruction is critical in reading development. When the mastery of reading comprehension is emphasized, English learners will be more than Word Callers (Stanovich, 1986). Consequently, the existent academic gap may close.

APPENDIX A

IRB Approval

IRB #: IRB-FY2021-203
Title: EXAMINING THE RELATIONSHIP BETWEEN AUTOMATICITY AND ORAL READING COMPREHENSION IN ENGLISH LEARNERS
Creation Date: 11-4-2020
End Date:
Status: Approved
Principal Investigator: Annamaria Miller
Review Board: St John's University Institutional Review Board
Sponsor:

Study History

Submission Type Initial	Review Type Exempt	Decision Exempt

Key Study Contacts

Member Clare Irwin	Role Co-Principal Investigator	Contact irwinc@stjohns.edu
Member Annamaria Miller	Role Principal Investigator	Contact annamaria.miller18@stjohns.edu
Member Annamaria Miller	Role Primary Contact	Contact annamaria.miller18@stjohns.edu

APPENDIX B

DIBELS

DIBELS Next®: Summary of Benchmark Goals and Cut Points for Risk

(Each cell shows three values: Above Benchmark (blue) / Benchmark Goal (bold) / Cut Point for Risk (red).)

Measure	K Beg	K Mid	K End	1 Beg	1 Mid	1 End	2 Beg	2 Mid	2 End	3 Beg	3 Mid	3 End	4 Beg	4 Mid	4 End	5 Beg	5 Mid	5 End	6 Beg	6 Mid	6 End
DIBELS Composite Score	38 / 26 / 13	156 / 122 / 85	152 / 119 / 89	129 / 113 / 97	177 / 130 / 100	208 / 155 / 111	202 / 141 / 109	256 / 190 / 145	287 / 238 / 180	289 / 220 / 180	349 / 285 / 235	405 / 330 / 280	341 / 290 / 245	383 / 330 / 290	446 / 391 / 330	386 / 357 / 258	411 / 372 / 310	466 / 415 / 340	435 / 344 / 280	461 / 358 / 285	478 / 380 / 324
First Sound Fluency (FSF)		16 / 10 / 5	43 / 30 / 20																		
Phoneme Segmentation Fluency (PSF)		44 / 20 / 10	56 / 40 / 25	47 / 40 / 25																	
Nonsense Word Fluency (NWF) — Correct Letter Sounds		28 / 17 / 8	40 / 28 / 15	34 / 27 / 18	59 / 43 / 33	81 / 58 / 47	72 / 54 / 35														
NWF — Whole Words Read				4 / 1 / 0	17 / 8 / 3	25 / 13 / 6	21 / 13 / 6														
DIBELS Oral Reading Fluency (DORF) — Words Correct					34 / 23 / 16	67 / 47 / 32	68 / 52 / 37	91 / 72 / 55	104 / 87 / 65	90 / 70 / 55	105 / 86 / 68	118 / 100 / 80	104 / 90 / 70	121 / 103 / 79	133 / 115 / 95	121 / 111 / 96	133 / 120 / 101	143 / 130 / 105	139 / 107 / 90	141 / 109 / 92	151 / 120 / 95
DORF — Accuracy					86% / 78% / 68%	97% / 90% / 82%	96% / 90% / 81%	99% / 96% / 91%	99% / 97% / 93%	98% / 95% / 89%	99% / 96% / 92%	99% / 97% / 94%	98% / 96% / 93%	99% / 97% / 94%	100% / 98% / 95%	99% / 98% / 95%	99% / 98% / 96%	100% / 99% / 97%	99% / 97% / 94%	99% / 97% / 94%	100% / 98% / 96%
DORF — Retell						17 / 15 / 0	25 / 16 / 8	31 / 21 / 13	39 / 27 / 18	33 / 20 / 10	40 / 26 / 18	46 / 30 / 20	36 / 27 / 14	39 / 30 / 20	46 / 33 / 24	40 / 33 / 22	46 / 36 / 25	52 / 36 / 25	43 / 27 / 16	48 / 29 / 18	50 / 32 / 24
DORF — Retell Quality of Response								2 / 1	2 / 1	2 / 1	2 / 1	3 / 2	2 / 1	2 / 1	3 / 2	2 / 1	3 / 2	3 / 2	2 / 1	2 / 1	3 / 2
Daze Adjusted Score										11 / 8 / 5	16 / 11 / 7	23 / 19 / 14	18 / 15 / 10	20 / 17 / 12	28 / 24 / 20	21 / 18 / 12	21 / 20 / 13	28 / 24 / 18	27 / 18 / 14	30 / 19 / 14	30 / 21 / 15

DIBELS Composite Score: A combination of multiple DIBELS scores, which provides the best overall estimate of the student's reading proficiency. For information on how to calculate the composite score, see the *DIBELS Next Benchmark Goals and Composite Score* document available from http://dibels.org/.

ABOVE BENCHMARK (small blue number in each box): Students scoring above the benchmark are highly likely to achieve important reading outcomes (approximately 90% to 99% overall). These scores are identified as *Above Benchmark*. While students scoring Above Benchmark are likely to need *Core Support*, some may benefit from instruction on more advanced skills.

BENCHMARK GOAL (large bold number in the middle of the box): Students scoring at or above the benchmark goal have the odds in their favor (approximately 80% to 90% overall) of achieving later important reading outcomes. These scores are identified as *At or Above Benchmark* and the students are likely to need *Core Support*.

CUT POINT FOR RISK (small red number in each box): Students scoring below the cut point for risk are unlikely (approximately 10%–20%) to achieve subsequent goals without receiving additional, targeted instructional support. These scores are identified as *Well Below Benchmark* and the students are likely to need *Intensive Support*.

Scores below the benchmark goal and at or above the cut point for risk are identified as *Below Benchmark*. In this range, a student's future performance is harder to predict, and these students are likely to need *Strategic Support*.

Note: There is no benchmark goal for Letter Naming Fluency (LNF).
This is a summary of the DIBELS Next benchmark goals. For a full description, see the *DIBELS Next Benchmark Goals and Composite Score* document available from http://dibels.org/.
DIBELS is a registered trademark of Dynamic Measurement Group, Inc. This page is adapted from a chart developed by Cache County School District.

APPENDIX C

CMAS

Quick Reference on Federal and State
Required Assessments

COLORADO
Department of Education

	Federal Statute ESSA, Title I, Part A	State Statute Colorado Revised Statutes	State Purpose
English Language Arts (ELA): • **Colorado Measures of Academic Success (CMAS), including Colorado Spanish Language Arts (CSLA) form** • **SAT**	3rd – 8th grade and not less than once during 9th – 12th grade *§1111(b)(2)(B)(v)(I)*	3rd – 8th grade *§22-7-1006.3(1)(a)(I)* 3rd and 4th grade Spanish Reading and Writing *§22-7-1006.3(4)(b)* 11th grade college entrance exam *§22-7-1006.3(2)(b)*	The state uses these assessment results for evaluating students' mastery of and growth in the Colorado Academic Standards and postsecondary readiness, as well as for evaluating the performance of districts and schools.*
Math: • **CMAS** • **SAT**	3rd – 8th grade and not less than once during 9th – 12th grade *§1111(b)(2)(B)(v)(I)*	3rd – 8th grade *§22-7-1006.3(1)(a)(I)* 11th grade college entrance exam *§22-7-1006.3(2)(b)*	The state uses these assessment results for evaluating students' mastery of and growth in the Colorado Academic Standards and postsecondary readiness, as well as for evaluating the performance of districts and schools.*
Science: • **CMAS**	Not less than once during 3rd – 5th grade, not less than once during 6th – 9th grade, and not less than once during 10th – 12th grade *§1111(b)(2)(B)(v)(II)*	Once in elementary, once in middle school, and once in high school, in specific grades identified by CDE, but not in 12th grade. *§22-7-1006.3(1)(a)(II)*	The state uses these assessment results for evaluating students' mastery of the Colorado Academic Standards and evaluating the performance of districts and schools.*
Social Studies: • **CMAS**	N/A	Once in elementary and once in middle school, in specific grades identified by CDE (shall include sampling method of every school at least once every three years). *§22-7-1006.3(1)(a)(III)*	The state uses these assessment results for evaluating students' mastery of the Colorado Academic Standards.*

A PARENT'S GUIDE TO CMAS:
Colorado Measures of Academic Success

Assessments provide valuable information for students, parents and educators on whether students have mastered grade level and content standards and are on track to graduate prepared for the 21st century. Assessment results provide one measure in a body of evidence of your child's academic progress.

WHAT IS CMAS?

The *Colorado Measures of Academic Success*, or CMAS, is the Colorado state assessment for language arts, math, science and social studies. CMAS is a *summative* assessment that provides information on how well your child has mastered the key concepts and skills at his or her grade level.

Two of the assessments – language arts and math -- are created by PARCC, the *Partnership for Assessment of Readiness for College and Careers*, and aligned to the Common Core State Standards for language arts (which includes reading, writing and communicating) and math. The other two assessments – science and social studies – are created by Colorado and aligned to the Colorado Academic Standards.

CMAS English Language Arts and Math tests are given each year to all 3rd-9th grade students. CMAS Science is given each year to 5th and 8th grade students, and CMAS Social Studies is given each year to 1/3 of all 4th and 7th grade students.

WHEN IS MY CHILD BEING TESTED?

CMAS assessments are administered in one testing window. In spring 2016, schools can begin testing as early as March 14th and end on April 29th. Your child will only test on certain days based on grade and subject, not during the entire window. Consult your child's school for his/her specific testing schedule.

In most cases, students will take their tests online. These online tests feature a variety of interactive questions that foster increased student engagement with items types such as science simulations and technology-enhanced response items.

Similar to years past, the Colorado Department of Education estimates a typical student's testing time will be less than 1.5% of their total yearly instructional time. Specific to CMAS, students will spend between 8-14 hours taking CMAS tests this year. The exact amount of time is determined by grade and subject.

REFERENCES

Adams, M., & Jones, K. M. (2006). Unmasking the Myths of Structured English

Immersion: Why We Still Need Bilingual Educators, Native Language

Instruction, and Incorporation of Home Culture. *Radical Teacher*, *75*, 16–21.

Anderson, R. C. (2013). Role of Reader's Schema in Comprehension, Learning, and

Memory. In D. E. Alvermann, N. J. Unrau, & R. B. Ruddell (Eds.), *Theoretical*

models and processes of reading (6th ed., pp. 476–488). International Reading

Association, Inc.

August, D., & Shanahan, T. (2006). *Developing literacy in second-language learners :*

report of the national literacy panel on language minority children and youth. L.

Erlbaum.

Batalova, J. (2018, February 27). *Frequently Requested Statistics on Immigrants and*

Immigration in the United States. Migrationpolicy.org.

https://www.migrationpolicy.org/article/frequently-requested-statistics-

immigrants-and-immigration-united-states

Cattell, M. (1886). The time it takes to see and name objects. *Mind*, *11*(41), 63–65.

Chiappe, P., & Siegel, L. S. (1999). Phonological awareness and reading acquisition in

English-and Punjabi-speaking Canadian children. *Journal of Educational*

Psychology, 91(1), 20–28.

Choi, W., Tong, X., & Deacon, S. H. (2016). Double dissociations in reading

comprehension difficulties among Chinese-English bilinguals and their

association with tone awareness. *Journal of Research in Reading*, *40*(2), 184–198.

https://doi.org/10.1111/1467-9817.12077

de Jong, E. (2011a). *Early Years: Tolerance and Repression*. Colorín Colorado; Colorín

    Colorado. https://www.colorincolorado.org/article/early-years-tolerance-and-

    repression

de Jong, E. (2011b). *Toward a Monolingual USA? The Modern English-Only Movement*.

    Colorín Colorado; WETA Public Broadcasting.

    https://www.colorincolorado.org/article/toward-monolingual-usa-modern-english-

    only-movement

de Jong, E. (2011). *Foundations for multilingualism in education : from principles to

    practice*. Caslon Publishing.

Denver Public Schools. (n.d.). A parent's guide to CMAS. Retrieved February 25, 2021,

    from English Language Acquisition Annual Report (dpsk12.org).

Durgunoglu, A.Y., & Verhoeven, L. (Eds.). (1998). Literacy development in a

    multilingual context: Cross-cultural perspectives . Mahwah, NJ: Erlbaum.

Durkin, D. (1978). What classroom observations reveal about reading comprehension

    instruction. Reading Research Quarterly, *14* (4), 481-533.

Farah, M., & Malone, M. (n.d.). *Presentation on theme: "Automatic Processing in

    Reading Toward a Theory of Automatic Information Processing in Reading,

    Revisited by S. J. Samuels*. Retrieved October 29, 2020, from

    https://slideplayer.com/slide/5324708/

Farnia, F., & Geva, E. (2013). Growth and predictors of change in English language

    learners' reading comprehension. *Journal of Research in Reading*, *36*(4), 389–

    421. https://doi.org/10.1111/jrir.12003

Fuchs, L. S., Fuchs, D., & Maxwell, L. (1988). The Validity of Informal Reading

Comprehension Measures. *Remedial and Special Education*, *9*(2), 20–28.

https://doi.org/10.1177/074193258800900206

Gil, L., & Bardack, S. (2010). Common Assumptions VS. The Evidence: English

Language Learners in the United States. In *American Institutes for Research*.

English Language Learner Center American Institutes for Research. www.air.org

Goodman, K. S. (2006). A critical review of DIBELS. In K. S. Goodman (Ed.), *The truth

about DIBELS: What it is, what it does* (pp. 1–39). Heinemann.

Grabe, W. (2010). Fluency in reading—Thirty-five years later. *Reading in a Foreign

Language*, *22*(1), 71–83.

Grasparil, T. A., & Hernandez, D. A. (2015). Predictors of Latino English Learners'

Reading Comprehension Proficiency. *Journal of Educational Research and

Practice*, *5*(1). https://doi.org/10.5590/jerap.2015.05.1.03

Hamilton, C., & Shinn, M. R. (2003). Characteristics of word callers: An investigation of

the accuracy of teachers' judgments of reading comprehension and oral reading

skills. *School Psychology Review*, *32*, 228 – 240.

Harper, C. A., de Jong, E. J., & Platt, E. J. (2008). Marginalizing English as a second

language teacher expertise: The exclusionary consequence of No Child Left

Behind. *Language Policy*, *7*(3), 267–284. https://doi.org/10.1007/s10993-008-

9102-y

Heath, S. B. (1977). A National Language Academy? Debate in the New Nation.

Linguistics, *15*(189), 9–43. https://doi.org/10.1515/ling.1977.15.189.9

Heppt, B., Haag, N., Bohme, K. & Stanat, P. (2014). The role of academic-language

features for reading comprehension of language-minority students and students

from low-SES families. *Reading Research Quarterly*, *50(1)*, 61–82.

doi:10.1002/rrq.83

Hoffman, J. V. (1987). Rethinking the Role of Oral Reading in Basal Instruction. *The Elementary School Journal*, *87*(3), 367–373. https://doi.org/10.1086/461501

Hoffman, J. V., & Segel, K. (1983). *Oral reading instruction: A century of controversy (1880-1980).* (p.). Paper presented at the annual meeting of the international Reading Association. (ERIC Document Number: ED 239-237).

Hosp, M. K., & Fuchs, L. S. (2005). Using CBM as an indicator of decoding, word reading, and comprehension: Do the relations change with grade? *School Psychology Review*, *34*, 9–26.

Huey, E. B. (1968). The psychology and pedagogy of reading. . Boston: MIT Press. (Original work published 1908).

Hyatt, A. V. (1943). *The place of oral reading in the school program: Its history and development from 1880– 1941.* Teachers College, Columbia University. *Immigrants in the United States*. (2020, April 21). American Immigration Council. https://www.americanimmigrationcouncil.org/research/immigrants-in-the-united-states

Jiang, X. (2016). The role of oral reading fluency in ESL reading comprehension among learners of different first language backgrounds. *The Reading Matrix: An International Online Journal*, *16*(2), 227–242.

Kang, Y., Huh, Y., Moon, B., & Park, Y. (2014). Decoding Skills vs. Reading Fluency in Korean High School EFL Learners' Reading Comprehension. *English Teaching*, *69*(4), 123–143. https://doi.org/10.15858/engtea.69.4.201412.123

Klein, A. (2015) *ESEA's 50-Year Legacy a Blend of Idealism, Policy Tensions*. Education

    Week. https://www.edweek.org/ew/articles/2015/04/01/eseas-50-year-legacy-a-

    blend-of-idealism.html

Knight-Teague, K., Vanderwood, M. L., & Knight, E. (2014). Empirical investigation of

    word callers who are English learners. *School Psychology Review*, *43*(1), 3-18

LaBerge, D., & Samuels, S. Jay. (1974). Toward a theory of automatic information

    processing in reading. *Cognitive Psychology*, *6*(2), 293–323.

    https://doi.org/10.1016/0010-0285(74)90015-2

Mann, H. (1891). Second annual report of the secretary of the board of education - 1838.

    In *Life and works of Horace Mann.* Lee And Shepard.

McLaughlin, B. (1992). Myths and misconceptions about second language learning: what

    every teacher needs to unlearn. Center for Research on Education, Diversity &

    Excellence. NCRCDSLL Educational Practice Reports, Paper EPR05.

McVee M.B., Dunsmore K., & Gavelek J. R. (2013). Schema Theory Revisited. In

    Alvermann D. E., Unrau N. J., & Ruddell R. B. (Eds.), Theoretical models and

    processes of reading (pp. 489-524). Newark, DE: International Reading

    Association, Inc.

Meisinger, E. B., Bradley, B. A., Schwanenflugel, P. J., Kuhn, M. R., & Morris, R. D.

    (2009). Myth and reality of the word caller: The relation between teacher

    nominations and prevalence among elementary school children. *School*

    Psychology Review, 24(3), 147 – 159. https://doi:10.1037/a0017191

Menken, K. (2008). *English learners left behind : standardized testing as language*

    policy. Multilingual Matters Ltd.

Nation, K., Snowling, M. J., & Clarke, P. (2007). Dissecting the relationship between

    language skills and learning to read: Semantic and phonological contributions to

    new vocabulary learning in children with poor reading comprehension. *Advances*

    in Speech Language Pathology, *9*(2), 131–139.

    https://doi.org/10.1080/14417040601145166

National Center on Intensive Intervention. (n.d.). *DIBELS 6th Edition Oral Reading*

    Fluency. Charts.intensiveintervention.org.

    https://charts.intensiveintervention.org/screening/tool/?id=ffb663c84848b9bf#Rel

    iability

National Center for Statistics. (2018). *The Condition of Education - Preprimary,*

    Elementary, and Secondary Education - Elementary and Secondary Enrollment -

    English Language Learners in Public Schools – Indicator April (2018). Ed.gov.

    https://nces.ed.gov/programs/coe/indicator_cgf.asp

National Council of Teachers of English. (2008). *English Language Learners: A Policy*

    Brief.

    https://secure.ncte.org/library/NCTEFiles/Resources/PolicyResearch/ELLResearc

    hBrief.pdf

National Reading Panel (2000). *Teaching children to read: An evidence-based assessment*

    of the scientific research literature on reading and its implication for reading

    instruction. Washington, D.C.: National Institute of Child Health and Human

    Development.

Olneck, M. R. (1989). Americanization and the Education of Immigrants, 1900-1925: An

    Analysis of Symbolic Action. *American Journal of Education*, *97*(4), 398–423.

    https://doi.org/10.1086/443935

Park, J. (2018). Does Reading Fluency Predict Reading Comprehension of Korean

    Middle School EFL Learners? *Modern English Education*, *19*(4), 50–58.

    https://doi.org/10.18095/meeso.2018.19.4.50

Parker, F. W. (1884). *Talks on pedagogics*. Barnes and Co.

Pearson, P. D., & Cervetti, G. N. (2017). The roots of reading comprehension. In S. E.

    Israel (Ed.), *Handbook of Research on Reading Comprehension 2nd Edition*. The

    Guilford Press.

Perfetti, C. A. (1985). *Reading ability*. Oxford University Press.

Piper, B., Schroeder, L., & Trudell, B. (2015). Oral reading fluency and comprehension

    in Kenya: reading acquisition in a multilingual environment. *Journal of Research*

    in Reading, *39*(2), 133–152. https://doi.org/10.1111/1467-9817.12052

Pressley, M., Hilden, K., & Shankland, R. (2005). *An evaluation of end-grade-3 Dynamic*

    Indicators of Basic Early Literacy Skills (DIBELS): Speed reading without

    comprehension, predicting little (Tech. Rep.). Michigan State University, Literacy

    Achievement Research Center.

Quirk, M., & Beem, S. (2012). Examining the relations between reading fluency and

    reading comprehension for english language learners. *Psychology in the Schools*,

    49(6), 539–553. https://doi.org/10.1002/pits.21616

Rasinski, T. V. (2006). Reading fluency instruction: Moving beyond accuracy,

    automaticity, and prosody. *The Reading Teacher*, *59*, 704–706.

Rasinski, T. V., Reutzel, D. R., Chard, D., & Linan-Thompson, S. (2011). Reading

    Fluency. In M. L. Kamil, P. D. Pearson, E. B. Moje, & P. P. Afflerbach (Eds.),

    Handbook of Reading Research Volume IV (Vol. IV, pp. 286–319). Routledge.

Reyes, I., & Azuara, P. (2013). Emergent Biliteracy in Young Mexican Immigrant

    Children. In D. E. Alvermann, N. J. Unrau, & R. B. Ruddell (Eds.), Theoretical

    models and processes of reading (6th ed., pp. 228-264). International Reading

    Association.

Riedel, B. W. (2007). The relation between DIBELS, reading comprehension, and

    vocabulary in urban first-grade students. *Reading Research Quarterly*, *42*(4),

    546–567. https://doi.org/10.1598/rrq.42.4.5

Samuels, S. J. (2006). *Introduction to reading fluency.*

Samuels, S. J. (2007). The DIBELS tests: Is speed of barking at print what we mean by

    fluency? *Reading Research Quarterly, 42*, 563–566.

Schmidt, R. (2000). *Language policy and identity politics in the United States*. Temple

    University Press.

Shinn, M. R., Good, R. H., Tilly, N., Tilly, W. D., & Collins, V. L. (1992). Curriculum-

    based measurement of oral reading fluency: A confirmatory analysis of its

    relation to reading. *School Psychology Review*, *21*, 459–479.

Smith, N. B. (1965). American reading instruction. *International Reading Association*.

Soland, J. (2019). *English Language Learners, Self-efficacy, and the Achievement Gap*

    (The Collaborative for Student Growth at NWEA Research Brief). .

    https://www.nwea.org/content/uploads/2020/03/researchbrief-collaborative-for-

student-growth-english-language-learners-self-efficacy-and-the-achievement-gap-
2019.pdf

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual
differences in the acquisition of literacy. *Reading Research Quarterly, 21*, 360 –
406.

Steffensen, M.S., Joag-dev, C., & Anderson, R.C. (1979). A cross- cultural perspective
on reading comprehension. Reading Research Quarterly, 15(1), 10–29.

The Nation's Report Card. (n.d.). *NAEP Reading: National Achievement-Level Results*.
www.nationsreportcard.gov. Retrieved October 29, 2020, from
https://www.nationsreportcard.gov/reading_2017/#/nation/achievement?grade=4.

U.S. Department of Education. (2017). *Academic Performance and Outcomes for English
Learners*. Ed.gov. https://www2.ed.gov/datastory/el-outcomes/index.html

University of Oregon. (2018). *8th Edition of Dynamic Indicators of Basic Early Literacy
Skills (DIBELS ®)*. Http://Dibels.uoregon.edu/.

Unrau, N. J., Alvermann, D. E., & Sailors, M. (2019). Literacies and their investigation
through theories and models. In *Theoretical Models and Processes of Literacy*
(7th ed.). Routledge.

Vaughn, S., Mathes, P., Linan-Thompson, S., Cirino, P., Carlson, C., Pollard-Durodola,
S., et al. (2006). Effectiveness of an English intervention for first-grade English
language learners at risk for reading problems. *The Elementary School Journal*,
107, 153–180.

Verhoeven, L. (2011). Second Language Reading Acquisition. In M. L. Kamil, P. D.

    Pearson, E. B. Moje, & P. P. Afflerback (Eds.), *Handbook of Reading Research*

    Volume IV (pp. 661–683). Routledge.

Wakefield, D. V. (2017). Perfect Storm Hits Georgia Schools: Teachers

    Overwhelmed. *AILACTE Journal*, *14*(1), 69–101.

    https://doi.org/https://files.eric.ed.gov/fulltext/EJ1198462.pdf

Wexler, N. (2019). *Why We're Teaching Reading Comprehension In A Way That Doesn't*

    Work. Forbes. https://www.forbes.com/sites/nataliewexler/2019/01/23/why-were-

    teaching-reading-comprehension-in-a-way-that-doesnt-work/?sh=2060b67f37e0

Wiley, T. G. (2000). Continuity and change in the function of language ideologies in the

    United States. In T. Ricento (Ed.), *Ideology, politics, and language policies:*

    Focus on English (pp. 67–85). John Benjamins.

Wiley, I. H., & Deno, S. L. (2005). Oral Reading and Maze Measures as Predictors of

    Success for English Learners on a State Standards Assessment. *Remedial and*

    Special Education, *26*(4), 207–214.

    https://doi.org/10.1177/07419325050260040301

Wright, W. E., & Choi, D. (2006). The Impact of Language and High-Stakes Testing

    Policies on Elementary School English Language Learners in Arizona. *Education*

    Policy Analysis Archives, *14*(13). http://epaa.asu.edu/epaa/v14n13/

Vita

Name	*Annamaria M. Miller*
Other Degrees and Certificates	*Master of Arts in Teaching/Education, Andrews University, Berrien Springs, Major:TESOL*
Date Graduated	*August 2009*
Other Degrees and Certificates	*Bachelor of Arts/Science, Oakwood University, Huntsville, Major: Elementary Education*
Date Graduated	*May 2004*