

EXAMINING READING-RELATED TEACHER EDUCATION AMONG TEACHERS OF
STUDENTS WITH LEARNING DISABILITIES IN SAUDI ARABIA

By

© 2019

Turkey Khalaf Alzahrani

B.A., King AbdulAziz University, 2009
M.A., Marshall University, 2014

Submitted to the graduate degree program in the Department of Special Education and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Co-Chair, Jennifer Kurth

Co-Chair, Suzanne Robinson

James Basham

Melinda Leko

Barbara Bradley

Bruce Frey

Date Defended: 12 February 2019

The Dissertation Committee for Turkey Khalaf Alzahrani certifies that this is the approved
version of the following dissertation:

**EXAMINING READING-RELATED TEACHER EDUCATION AMONG TEACHERS OF
STUDENTS WITH LEARNING DISABILITIES IN SAUDI ARABIA**

Co-Chair, Jennifer Kurth

Co-Chair, Suzanne Robinson

Date Approved: 16 February 2019

ABSTRACT

The purpose of this study was to examine the relationship between reading-related training (university courses and professional development beyond university training) and the implementation of reading instruction among teachers of students with LD in Saudi schools. A survey was sent to both male and female teachers of students with LD ($N = 2158$) in Saudi schools, asking them about their demographic information, reading-related courses, reading-related professional development activities, and their implementation of reading instruction in their classroom. A multiple regression analysis was conducted to examine the correlation between teachers' reading-related training and their implementation of 17 reading practices for students with LD. The results indicated that teachers' reading-related training was significantly related to their implementation of ten reading practices. The implications and recommendations for future research, policy, and practice are discussed.

DEDICATION

To my father, Khalaf Alzahrani, for reinforcing the necessity of education in my life. You raised me to be imperturbable.

To my mother, Fatimah Alzahrani, for replenishing my withering leaves. I see your love and prayers in every aspect of my life.

To my wife, Shannon Dunn, for being the anchor that held me steady through the tumultuous ocean. Your unwavering support is the cornerstone of my success.

To my twin boys, Abdullah & Ibrahim, for filling my heart and life with joy and happiness. Your delightful smiles and giggles pierce my heart.

To my brothers and sisters, for your love, guidance, and support. My memories with you have shaped my life and made me the person I am.

To Dr. Michael Kallam, for strongly believing in and advising me to apply for KU Special Education Doctoral Program. You have passed away from this life, but your influence has not faded from my soul.

ACKNOWLEDGMENTS

In the Name of Allah, the Merciful, the Beneficent

My thanks Allah (God), my creator, for guiding my life to this point and beyond. I am grateful to Allah for giving me health, patience, and guidance.

My gratitude to the Kingdom of Saudi Arabia, who financially supported my academic life in the United States. I specifically thank the Department of Special Education at Al-Jouf University for seeing my potential as a future scholar and researcher.

My sincerest appreciation to my academic advisors at the University of Kansas, Dr. Suzanne Robinson and Dr. Jennifer Kurth for your dedication, support, and time. Your patience and supervision have guided me to the completion of my doctoral journey. For that, I am eternally grateful.

My deepest gratitude to my doctoral committee members, Dr. Melinda Leko, Dr. James Basham, Dr. Barbara Bradley, and Dr. Bruce Frey, for your guidance throughout my doctoral journey, and your time and patience during my dissertation. Special thanks to Dr. Melinda Leko, for guiding me through my second and third years of the doctoral program and helping me conceive this dissertation.

Special thanks to my family and friends, who have supported me throughout this amazing journey. Thanks for being in my life!

TABLE OF CONTENTS

| | |
|--|-------------|
| ABSTRACT..... | iii |
| DEDICATION | iv |
| ACKNOWLEDGMENTS | v |
| TABLE OF CONTENTS | vi |
| LIST OF TABLES | x |
| LIST OF FIGURES | xiii |
| CHAPTER I: INTRODUCTION | 1 |
| Conceptual Framework | 3 |
| Arabic and English orthographic characteristics | 4 |
| Arabic and English phonological characteristics | 6 |
| Arabic and English morphological characteristics | 7 |
| Possible implications on readers with LD | 8 |
| Arabic and English reading skills: Progression and curriculum | 9 |
| Utilizing English-language reading research in Arabic: Application | 10 |
| Education System in Saudi Arabia | 11 |
| Special education | 12 |
| Students with LD in Saudi Arabia | 13 |
| Teacher Education in Saudi Arabia | 15 |
| Teacher preparation programs | 15 |
| Professional development | 17 |
| Reading Instruction for Students with LD | 18 |
| Statement of the Problem..... | 19 |
| Rationale and Significance | 19 |
| Purpose and Research Questions | 21 |
| Definitions of Variables..... | 21 |
| Conclusion | 23 |
| CHAPTER II: LITERATURE REVIEW | 25 |
| Learning Disabilities in Saudi Arabia..... | 25 |
| Reading in Arabic Language | 27 |
| Arabic orthography | 28 |
| Arabic phonology..... | 30 |
| Arabic morphology | 32 |
| Implications on Reading Performance of Students with LD | 34 |
| Reading Approaches and Arabic Curriculum in Saudi Arabia..... | 35 |

| | |
|--|-----------|
| Reading Instruction Literature of Students with LD..... | 37 |
| Common findings | 41 |
| Reading Practices for Students with LD | 43 |
| Teacher Education Special Education in Saudi Arabia | 44 |
| Teacher preparation programs of teachers of students with LD | 45 |
| <i>Critical features of effective teacher preparation programs</i> | 47 |
| Professional development | 48 |
| <i>Critical features of effective professional development</i> | 50 |
| <i>Content focus</i> | 51 |
| <i>Active learning</i> | 52 |
| <i>Coherence</i> | 52 |
| <i>Duration</i> | 53 |
| <i>Collective participation</i> | 53 |
| Implementation of Reading Instruction | 54 |
| Conclusions..... | 57 |
| CHAPTER III: METHODOLOGY | 58 |
| Research Questions | 58 |
| Design, Participants, and Setting | 58 |
| Power Analysis | 59 |
| Consideration of Human Subjects' Approval | 60 |
| Research Field Study Approval | 60 |
| Instruments..... | 60 |
| Procedures..... | 62 |
| Validity and reliability | 62 |
| Translating the survey from Arabic into English..... | 62 |
| <i>Translation</i> | 63 |
| <i>Synthesis</i> | 63 |
| <i>Back translation</i> | 63 |
| <i>Expert committee review</i> | 63 |
| <i>Focus group</i> | 63 |
| <i>Submission and appraisal</i> | 64 |
| Data Collection | 64 |
| Data Analysis | 64 |
| Research question 1 | 65 |
| Research question 2 | 65 |

| | |
|---|-----------|
| Research question 3 | 65 |
| Open-ended questions..... | 66 |
| CHAPTER IV: RESULTS..... | 67 |
| Introduction..... | 67 |
| Descriptive Statistics..... | 67 |
| Participants' demographics | 67 |
| Research Question One: Reading-Related University Courses | 71 |
| Number of courses | 71 |
| <i>Courses in general</i> | 71 |
| Courses for students with disabilities | 71 |
| <i>Courses for students with LD</i> | 72 |
| <i>Courses on reading curriculum</i> | 72 |
| The structure of courses | 73 |
| The content of courses | 74 |
| Research Question Two: Reading-Related Professional Development..... | 75 |
| Number of professional development events..... | 75 |
| <i>Reading-related professional development in general</i> | 75 |
| Reading-related professional development for students with disabilities..... | 76 |
| <i>Professional development on reading curriculum</i> | 76 |
| Types of professional development activities..... | 77 |
| The content of professional development activities..... | 78 |
| Reading Minutes | 79 |
| Teachers' Frequency of Implementing Reading Instruction | 80 |
| Open-ended Question: Other Reading Practices..... | 82 |
| Research Question Three: Reading Instruction Implementation and Teachers' Training..... | 83 |
| The implementation of explicit, direct comprehension instruction | 85 |
| The implementation of explicit, direct vocabulary instruction..... | 86 |
| The implementation of explicit, direct fluency instruction..... | 87 |
| The implementation of explicit, direct phonics instruction | 88 |
| The implementation of explicit, direct morphological instruction | 89 |
| The implementation of explicit, direct orthographic instruction | 90 |
| The implementation of repeated reading | 90 |
| The implementation of repeated feedback..... | 91 |
| The implementation of questioning | 92 |
| The implementation of collaborative learning..... | 93 |

| | |
|--|------------|
| The implementation of multicomponent strategies..... | 94 |
| The implementation of content enhancement tools | 95 |
| The implementation of computer-assisted instruction..... | 96 |
| The implementation of reinforcement | 97 |
| The implementation of motivation and self-directed learning..... | 98 |
| The implementation of extended time for reading..... | 99 |
| The implementation of summarizing/note taking..... | 99 |
| Summary | 100 |
| CHAPTER V: DISCUSSION | 102 |
| Introduction..... | 102 |
| Major Findings and Relationship to Previous Research | 102 |
| Demographic information..... | 102 |
| Reading-related university courses | 103 |
| Reading-related professional development activities | 105 |
| Implementation of reading instruction for students with LD..... | 107 |
| <i>Correlation between reading practices implementation and teachers' training</i> | 108 |
| Study Limitations..... | 109 |
| Implications for Future Studies..... | 110 |
| Recommendations..... | 112 |
| Recommendations for future research | 113 |
| Recommendations for policy | 113 |
| Recommendations for practitioners | 114 |
| Summary | 114 |
| REFERENCES..... | 116 |
| APPENDICES | 139 |
| Appendix A: Human Subjects Committee Approval..... | 140 |
| Appendix B: Letter of Definition from Saudi Arabian Cultural Mission | 142 |
| Appendix C: The Original Reading Survey..... | 144 |
| Appendix D: English Version of the Modified Survey | 152 |
| Appendix E: The Final Arabic Version of the Modified English Survey..... | 159 |
| Appendix F: Consent Form (English Version) | 165 |
| Appendix F: Consent Form (Arabic Version) | 167 |

LIST OF TABLES

| | |
|--|----|
| Table 1: Saudi School System | 22 |
| Table 2: The Arabic Alphabet..... | 28 |
| Table 3: The Similarity among Arabic Letters | 28 |
| Table 4: Arabic Letters Forms Based on their Position of the Sentence | 29 |
| Table 5: Hamza Positions | 29 |
| Table 6: Arabic Letters with Diacritic Marks | 30 |
| Table 7: Arabic Phonemes with their Corresponding Graphemes..... | 31 |
| Table 8: Meanings of the word “ <i>سَكَنَ</i> ” | 32 |
| Table 9: Example of an Arabic Word with its Different Forms | 33 |
| Table 10: Meta-analyses and Literature Reviews of Reading Instruction for Students with LD . | 39 |
| Table 11: Common Findings and their Corresponding LR and MA | 42 |
| Table 12: The Framework of Teaching Standards..... | 47 |
| Table 13: Demographics of Teachers of Students with LD in Saudi Arabia..... | 59 |
| Table 14: Valid and Excluded Cases | 67 |
| Table 15: Participants' Demographics..... | 68 |
| Table 16: Participants' Current School Region and Region of Obtained Degree | 69 |
| Table 17: Participants' Age, Teaching Experience, and Number of Served Students | 70 |
| Table 18: Number of Reading Courses..... | 72 |
| Table 19: The Structure of Reading Courses..... | 73 |
| Table 20: The Content of Reading Courses | 74 |
| Table 21: Number of Reading-Related Professional Development Activities | 77 |
| Table 22: Types of Reading Related Professional Development | 78 |
| Table 23: Emphasis of Professional Development Activities on Reading Strategies | 79 |

| | |
|--|----|
| Table 24: Teachers' Daily Reading Minutes | 80 |
| Table 25: Descriptive Statistics of the Implementation of Reading Instruction..... | 82 |
| Table 26: Collinearity Test | 84 |
| Table 27: Summary of the Multiple Regression Analyses | 85 |
| Table 28: Reading-Related Training and Implementation of Explicit, Direct Comprehension Instruction | 86 |
| Table 29: Reading-Related Training and Implementation of Explicit, Direct Vocabulary Instruction | 87 |
| Table 30: Reading-Related Training and Implementation of Explicit, Direct Fluency Instruction | 88 |
| Table 31: Reading-Related Training and Implementation of Explicit, Direct Phonics Instruction | 88 |
| Table 32: Reading-Related Training and Implementation of Explicit, Direct Morphological Instruction | 89 |
| Table 33: Reading-Related Training and Implementation of Explicit, Direct Orthographic Instruction | 90 |
| Table 34: Reading-Related Training and Implementation of Repeated Reading | 91 |
| Table 35: Reading-Related Training and Implementation of Repeated Feedback | 92 |
| Table 36: Reading-Related Training and Implementation of Questioning..... | 93 |
| Table 37: Reading-Related Training and Implementation of Collaborative Learning | 94 |
| Table 38: Reading-Related Training and Implementation of Multicomponent Strategies..... | 95 |
| Table 39: Reading-Related Training and Implementation of Content Enhancement Tools..... | 96 |
| Table 40: Reading-Related Training and Implementation of Computer-Assisted Instruction | 96 |
| Table 41: Reading-Related Training and Implementation of Reinforcement | 97 |

| | |
|--|-----|
| Table 42: Reading-Related Training and Implementation of Motivation and Self-Directed Learning | 98 |
| Table 43: Reading-Related Training and Implementation of Extended Time for Reading..... | 99 |
| Table 44: Reading-Related Training and Implementation of Summarizing>Note Taking | 100 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1. The first exercise in the first grade Arabic curriculum..... | 36 |
| Figure 2. Factors related to reading instruction implementation of teachers of students with LD54 | |
| Figure 3. Power analysis from G*power | 60 |
| Figure 4. Illustration of data analysis procedures | 66 |
| Figure 5. Implementation frequency of reading instruction | 81 |

CHAPTER I

INTRODUCTION

Literacy is a critical skill, in that it inspires and enables individuals to clearly see their world, which encourages educators to strive to promote literacy among their societies. Literacy can be defined as the ability to read and write or acquire a specified knowledge related to a certain subject (Gee, 1989). The power and importance of literacy is not only related to the ability to become literate but its long-lasting effects on individuals as well as societies (Bruce, 2004). In other words, literacy can positively transform societies educationally, professionally, civically, culturally, and economically.

Literacy does not only benefit societies by enabling them to have unique features. Literate societies reform themselves by themselves (Goody & Watt, 1963), meaning change comes from inside these societies. These societies are also independent (Kaestle, 1985), so they are able to solve their challenges and problems through acquired and shared knowledge. These characteristics, therefore, empower these societies to maintain their economic growth, reduce their poverty level, decrease the crime rate, encourage democracy, increase civic engagement, prevent diseases, and promote cultural diversity.

At the individual level, literacy has a plethora of academic and social benefits. Literacy enables individuals to think critically (Goody & Watt, 1963), meaning they can think logically and rationally and understand the connections between ideas. It enhances comprehension-extracting meaning from text (Scribner, 1984), which plays a strong role in academic accessibility (Eisenchlas, Schalley, & Guillemin, 2013). Literacy also affects knowledge acquisition, belief systems, cognitive processes, and reasoning (Stanovich & Cunningham,

1992). It empowers individuals to improve their language and thoughtfully articulate and express their ideas (Scribner, 1984). Literate individuals are able to access supportive resources (Stanovich & Cunningham, 1992), which ultimately increases their chances of effective competition in their society (Eisenchlas et al., 2013). Literacy enhances social engagement (Scribner, 1984) and enables individuals to fully participate in the society (Snell, 2008). The aforementioned benefits of literacy, consequently, make literate people effective contributors, confident individuals, and responsible citizens.

Given the criticality of literacy, some countries have raised concerns related to their citizens' literacy, especially school age students. In Saudi Arabia, for instance, educators and parents have been disturbed by school students' literacy performance, especially when it comes to reading. In 2011, 35% of primary and 53% of secondary students in Saudi Arabia did not meet the basic literacy learning level as assessed by the PIRLS assessments (Mullis, Martin, Foy, & Drucker, 2012). In 2015, Saudi Arabia was ranked among the least four countries in science achievement (Kena et al., 2015). In 2011, Saudi fourth grade students performed below PIRLS Scale Centerpoint (500), with an average scale score of 430 (Mullis et al., 2012). These troubling statistics, related to students' literacy and reading achievement, have encouraged the government of Saudi Arabia along with Saudi Ministry of Education to intervene through two main projects: *Tatweer* and *2030 Vision*.

A notable project established to develop education in Saudi Arabia was *The King Abdullah Bin Abdul Aziz Public Education Development Project*, which is most commonly referred to as *Tatweer* (development). The Saudi government spent roughly 21 billion dollars to launch this project in 2014. The aim of this program is to reform several aspects of the Saudi education system by focusing on students' literacy, especially reading skills, developing schools and curricula, building research centers, enhancing teachers' practices through professional

training, and improving special education services (Alyami, 2014; Tatweer, 2015). In addition to *Tatweer* project, the new *2030 Vision* was approved and announced in June 2016. The main goal of this vision is to decrease Saudi Arabia's dependency on oil (Al Surf & Mostafa, 2017) by focusing on economic, social, and educational development of the country. This vision also intends to restructure and reform the Saudi education curriculum in order to improve teachers' performance and students' academic and social outcomes (Al-Zahrani & Rajab, 2017).

The establishment of *2030 Vision* and *Tatweer* projects has promoted the overall development of the Saudi education system, its schools, and special education as well. Special education for students with disabilities has been a primary focus of Saudi Arabian education reform (Battal, 2016). New policies regarding the education of students with disabilities, such as Rules and Regulations of Special Education Programs (RRSEP) (Aldabas, 2015), guaranteed access to academic accommodations, special transportation, access to higher education, and many other resources. As a result of RRSEP, students with disabilities, specifically students with learning disabilities (LD) in reading, writing, or mathematics, are able to access public schools. It should be noted that LD is the only disability category included in general education classrooms, but they still receive special education services in a pullout program.

Conceptual Framework

Orthographic, phonological, morphological, and semantic knowledge enable readers to read words in any language. The characteristics of any language affect the way readers access and understand words. Simply, effective reading entails knowledge of letters, sounds, and meaning of words (Al Ghanem & Kearns, 2015). When it comes to Arabic, a Semitic language with unique alphabetic and linguistic characteristics, there is limited knowledge of how these processes and language characteristics contribute to children's reading development (Al Ghanem & Kearns, 2015). Understanding how readers use orthographic, phonological, and morphological

information to read Arabic can enable researchers to develop and improve reading instruction. However, Al Ghanem and Kearns (2015) indicated that research related to Arabic reading skills is extremely limited. Most reading research utilized in Saudi Arabia teacher preparation is translated from English, and reflects how children learn to read in English, with its orthographic, phonemic, and phonetic complexities. This research informs Saudi teacher education programs, given most faculty members attained their degrees in English speaking countries, such as America, Britain, and Australia. Comparing English and Arabic languages' characteristics, therefore, can distinctly uncover the extent in which English-based reading strategies are applicable to Arabic readers.

Arabic and English orthographic characteristics. Orthographic skills comprise of both orthographic processing, “the ability to form, store, and access orthographic representations” (Stanovich & West, 1989, p. 404); and orthographic knowledge, the declarative knowledge of “the unique array of letters that defines a printed word, as well as general aspects of the writing system such as sequential dependencies, structural redundancies, letter position frequencies, and so forth” (Vellutino, Scanlon, & Tanzman, 1994, p. 314). The commonalities and differences between Arabic and English orthographies are highlighted in the next lines.

Both Arabic and English are alphabetic languages, meaning they use letters to represent sounds. However, Arabic language reads from right to left, while English reads from the left to right. Arabic sentences can either include: subject-verb-object or verb-subject-object, while English sentences should contain subject-verb-object. Arabic language consists of 28 basic letters and three additional letters (س and ،، و). Three of the basic letters (ل, و, and س), which are called elongation letters can either: (1) represent consonant or long vowel sounds and (2) appear between the letters' consonantal roots.

English language, on the other hand, consists of 26 letters that represent 44 sounds. Five of these letters represent the long vowels: a, e, i, u, o (Venezky, 1999). English letters can be capital and small (e.g., A and a). In certain situations, letters are always capitalized, such as first letter of the first word of the sentence or proper nouns (i.e., cities, people's names). On the other hand, most Arabic letters have four different forms, and the form of letters is based on where they fall within a given word. The letters, which look similar, are divided into categories based on their basic letter shapes; these letters can be distinguished by having dots above, under, or in the letter (Al Ghanem & Kearns, 2015).

Short vowels in English are represented through letters (e.g., a in apple). Arabic short vowels, however, are represented through diacritic marks, and they differ in regards to their function, distribution, and form. They are used to indicate the elongation of consonant and vowel and provide grammatical and syntactic information; therefore, they change the word meaning, the part of speech, and the verb tense, and the form of the word (Elbeheri & Everatt, 2007; Mahfoudhi, Elbeheri, Al-Rashidi, & Everatt, 2010; Taibah & Haynes, 2011; Taouk & Coltheart, 2004). In addition, vowel digraphs in English (e.g., oi in oil; ee in sheep), meaning two letters that spell or represent one sound (Ehri, Nunes, Stahl, & Willows, 2001; S. Stahl, Duffy-Hester, & K. Stahl, 1998), do not exist in Arabic. In Arabic, one long vowel plus a diacritic mark make one sound (e.g., و) pronounced /wa/. Furthermore, English language consonant digraphs (e.g., sh, ch, th), two letters produce and represent a distinct sound, trigraphs (e.g., spr, squ), and split digraphs (e.g., ae in lake), a digraph split by a consonant, do not exist in Arabic. In Arabic, each sound is represented only through one letter. Finally, diphthongs, sounds made by the combination of two vowels, exist in both English (e.g., ie in pie) (Saigh & Schmitt, 2012; S. Stahl et al., 1998) and Arabic (e.g., يو /yawm/) (Elbeheri & Everatt, 2007; Taouk & Coltheart, 2004). It should be noted that Arabic has only two diphthongs (waw and yaa').

Arabic and English phonological characteristics. Phonological skills consist of both phonological processing, “using the phonological or sound structure of oral language when one processes oral and written language” (Wagner et al., 1997, p. 468); and phonological awareness, “the ability to detect and manipulate sound structures” (Al Ghanem & Kearns, 2015, p. 84). The commonalities and differences between Arabic and English phonologies are highlighted in the following lines.

Arabic is a diglossic language, so speakers use both MSA, called *Fusha*, and a spoken Arabic vernacular (SAV), called *Ammia*. SAV, which has many dialects, is spoken informally by language speakers in a specific geographic location and taught to children through their families. MSA is the formal language that is universally used by *all* Arabic speakers. SAV’s characteristics differ by region, and all dialects greatly diverge from MSA, especially when it comes to their phonemic systems. SAVs and MSA are usually different in terms of rules related to syllabic structure, consonant clusters, or phoneme combinations (Mohamed, Elbert, & Landrel, 2011; Tibi & Kirby, 2018). English, on the other hand, is not known to be a diglossic language. MSA contains 35 phonemes; these phonemes have 28 consonant sounds, three long vowel sounds (/a:/, /u:/, and /i:/), three short vowel sounds (/a/, /u/ and /i/), a reduced vowel sound (schwa; /ə/), and multiple vowel allophones (Al Ghanem & Kearns, 2015). English contains 44 phonemes, which can be represented through one or more graphemes (Wilson & Iacobani, 2006).

In both Arabic and English languages, there are discrepancies between spelling and sounds, yet the nature of discrepancies is different. In English, different letters can represent the same sound (Ehri et al., 2001). For example, different letters can represent the same vowel sound (e.g., succeed, each, neither, achieve, busy) or the same consonants (e.g., national, sure, conscience, commission). In Arabic, each sound is usually represented by only one letter

(Elbeheri & Everatt, 2007; Taibah & Haynes, 2011; Tibi & Kirby, 2018). In English, different sounds may be represented by the same letter (Ehri et al., 2001). For example, the letters /a/ in: take, father, against, tall and the letter /s/ in: vision, soon, sale, resume, sugar stand for and represent different sounds. In Arabic, the same letter represents only one sound; however, different diacritic marks change the pronunciation of the letter (Elbeheri & Everatt, 2007; Taibah & Haynes, 2011; Tibi & Kirby, 2018). For example, the letter /ت/ can be pronounced differently based on the diacritic mark (تـ: /ta/, تـ: /te/, تـ: /tu/).

In English, a combination of letters can represent one sound (e.g., thick, tough, phonology, attempt), which does not exist in Arabic. In English, one letter can represent more than one sound (e.g., h in human, x in exit) (Ehri et al., 2001). In Arabic, all letters represent different sounds based on the diacritic marks; therefore, one word in Arabic can have different meanings and pronounced differently based on the diacritic marks (Mahfoudhi et al., 2010; Saigh & Schmitt, 2012). In English, on the other hand, some words can have different meaning. For example, the word “date” can mean: period of time which something belongs, time of event, an appointment, or an engagement for a professional performance. In Arabic, some words have letters that are pronounced but not written. For example, the word ذلك is pronounced /thalek/; if we are to write the word as pronounced, it will be **ذالك**. In English, however, there are some letters that are written but not pronounced (e.g., t in listen).

Arabic and English morphological characteristics. Morphological skills consist of using morphological processing, “the unconscious use of morphology”; and morphological awareness, “the ability to analyze words into smaller meaningful parts such as prefixes, roots, and suffixes” (Nagy, Carlisle, & Goodwin, 2014, p. 4). Al Ghanem and Kearns (2015) also defined morphological skills as the “conscious and unconscious use of morphological

knowledge” (p. 84). The commonalities and differences between Arabic and English morphologies are highlighted in the following lines.

Both Arabic and English have affixes: prefixes and suffixes (Al Ghanem & Kearns, 2015; Ehri et al., 2001; Rastle, 2018). However, Arabic has also infixes and circumfixes (two or more affixes). Examples of prefixes in English are /re/ in reaction and /pre/ in preschool, and suffixes /ly/ in quickly and lovely. It should be noted that adding suffixes in English words change them from adjectives to adverbs (e.g., quick, quickly) or from nouns to adjectives (love, lovely). Finally, both Arabic and English have subject-verb agreement.

Possible implications on readers with LD. Given the provided orthographic, phonological, and morphological characteristics of Arabic and English, students with LD in both languages can struggle with reading-related tasks in many ways, which are addressed in the following points. First, both Arabic and English speakers with LD struggle with recognizing letters and their sounds. However, given many Arabic letters and words are similar orthographically, students with LD may not be able to differentiate between these letters or words. In addition, Arabic letters have four orthographic forms or shapes depending on its position (first, center, last) in the word, which can hinder students with LD’s ability to accurately read written words. Second, both Arabic and English speakers with LD struggle with reading sight words, silently or orally. Reading in Arabic, however, is more complicated given its diglossic nature, meaning Arabic students with LD’s have to simultaneously acquire MSA phonological skills as well as reading skills (Al Ghanem & Kearns, 2015), which can decelerate their reading development, and ultimately reading performance. At the same time, reading in English can also be complicated because its phonemes can be represented through one or more graphemes.

Third, given the discrepancies between spelling and sounds in both Arabic and English languages, English and Arabic students with LD struggle with reading words accurately and fluently. However, reading for Arabic adolescents with LD can be extremely challenging because they have to rely on their lexical orthographic skills while reading unvowelized words or texts (Saigh & Schmitt, 2012). Fourth, Arabic readers do not only need to acquire prefixes and suffixes knowledge, like English readers, but they also have to gain infixes and circumfixes information in order to read accurately and fluently. Therefore, Arabic readers with LD may face greater reading challenges in: (1) applying their root-related knowledge while reading, despite the fact that the roots are the center of the orthography and phonology, (2) identifying and recognizing disrupted roots, and (3) recognize consonantal roots and similar words (Al Ghanem & Kearns, 2015; Taouk & Coltheart, 2004). Finally, both Arabic and English readers with LD can encounter comprehension difficulties, which include: constructing meaning from written text, connecting meaning to words, making inferences, drawing conclusions, recalling and summarizing information, and actively monitoring their comprehension (Dexter & Hughes, 2011; Jitendra, Kay Hoppes, & Xin, 2000; Kaldenberg, Watt, & Therrien, 2015; Snider, 1989; Watson, Gable, Gear, & Hughes, 2012; Williams, Hall, Lauer, Stafford, DeSisto, & de Cani, 2005).

Arabic and English reading skills: Progression and curriculum. Before addressing reading curriculums in both Saudi Arabia and the United States, two notes should be mentioned. First, the U.S. curriculum technically starts at the Kindergarten level while Saudi curriculum starts at first grade, while both curriculums end at twelfth grade. Second, all Saudi public schools have one national Arabic curriculum, while U.S. schools do not. Arabic curriculum in Saudi Arabia and English curriculum in the U.S. use two distinct approaches to teach reading. Arabic curriculum in Saudi schools utilizes the whole language approach to reading; the whole language

approach promotes students to learn whole words through associating those words with objects and ideas (Stahl & Miller, 1989). English curriculum in the U.S. schools, on the other hand, utilizes a balanced approach (blend of whole language and phonics approaches). Even though Saudi schools' Arabic curriculum utilizes the whole language approach, teachers practically have to use a balanced approach (blend of whole language and phonics approaches) in the classroom to create foundational language skills.

Utilizing English-language reading research in Arabic: Application. Understanding how Arabic characteristics affect students with LD' reading performance can enable researchers to develop and improve reading instruction; however, research related to Arabic reading skills is extremely limited. Even though English and Arabic have dissimilar orthographic, phonological, and morphological characteristics, and given US/British/Australian preparation of most Saudi teacher preparation faculty, many English-based reading strategies (e.g., peer tutoring, graphic organizers) are core to Saudi teacher preparation, and reasonably seem applicable to Arabic learning; however, there are no evidence-based reading practices specifically for Arabic readers, especially those with LD. Moreover, some Arabic characteristics cannot be addressed with or taught using English strategies, such as using diacritic marks and reading unvowelized text. Teacher education special education, including preservice and professional development, in Saudi Arabia revolves around English-based reading instruction research because of America's leading role in special education research. Since English special education reading research is central to Arabic academics, special education teachers learn English-based strategies, which then may be implemented in classrooms.

Given students with LD in Saudi Arabia still struggle with reading-related tasks, their teachers must be prepared to meet their academic needs, including reading. However, there are not Arabic-specific evidence-based reading practices, so Saudi universities' preservice

preparation programs and inservice professional development activities are initially built on English-language special education literature. Therefore, it is questioned whether teachers of students with LD are sufficiently prepared to meet the needs of Arabic language students. In light of that, this dissertation focuses on examining Saudi teachers of students with LD's reading-related university training and inservice professional development as well as the implementation of reading instruction learned during their training.

Education System in Saudi Arabia

Prior to the unification of Saudi Arabia in 1932, education was only accessible to a limited number of individuals, specifically individuals from elite families (Battal, 2016). However, mosques were considered schools, where children learn to read and write the *Holy Quran* (Al-Ahmadi, 2009). The first formal education institute was established in 1924; in 1925, the Directorate of Education was established, which contributed to the initial development of the Saudi education system. At that time, there were 12 schools with a total of 700 students until 1938. The number of schools had increased to 365 educating 42,000 students by 1950 (Alamri, 2011).

In 1954, the Ministry of Education was established, which replaced the Directorate of Education (Al-Ahmadi, 2009). Since the establishment of the Ministry of Education, education has been free for Saudi and non-Saudi citizens. The Ministry of Education in Saudi Arabia is the central authority of the educational system. Therefore, all schools in Saudi Arabia have the same educational policies, textbooks, and curricula (Alquraini, 2010; Mansour, EL-Deghaidy, Alshamrani, & Aldahmash, 2014). It should be noted that educational policy in Saudi Arabia is derived from the Islamic religion, which basically guides the whole system, whether political, social, or educational (Ministry of Education, 2012); therefore, males and females attend separate schools.

In regards to higher education, the first university in Saudi Arabia, King Saud University, was established in 1957 (Al-Ahmadi, 2009; Alamri, 2011). In 1975, the Ministry of Higher Education was established in order to regulate and support public and private universities (Alamri, 2011; Alkhazim, 2003). By 2005, there were only seven universities. However, there are currently 29 public universities, 10 private universities, 56 technical and vocational colleges, five industrial colleges, and one military college for health sciences, and 10 private colleges (Aldiab, Chowdhury, Kootsookos, & Alam, 2017). Most public universities have teacher education programs (general and special education). It should be mentioned that in 2015, both the Ministry of Education and Higher Education were merged together to become the Ministry of Education, which regulates both K-12 schools as well as postsecondary schools.

Special education. Prior to the 1950s, individuals with disabilities in Saudi Arabia did not receive special education services. Therefore, those individuals had to completely depend on their parents for social and academic support (Al-Ajmi, 2006; Aldabas, 2015). Special education services started in Saudi Arabia in 1958 through individual efforts, specifically through Sheikh Al-Ghanem, a blind man, who learned and introduced Braille to the blind community. After receiving a fund from a private organization, this Braille training program, which was offered during the evening in Riyadh city, provided blind individuals the opportunity to learn how to Braille (Al-Kheraigi, 1989). In 1960, the Ministry of Education established the first institute for individuals with blindness, Al-Noor Institute, in Riyadh city. This institute had five main branches and three professional levels, where 40 students with blindness received their education and services (Ministry of Education, 2012).

Two years later, the Ministry of Education established the Department of Special Learning in 1962 in order to develop academic, social, and rehabilitation services for three main categories: blindness, deafness, and mental retardation (intellectual disability) (Alquraini, 2010;

Afeafe, 2000). In 1964, three institute for students with blindness were established in three cities: Mecca, Unaizah, and Al-hofuf (Al-Mousa, 1999). In the same year, the first institute for deaf students, Al Amal Institute, was established. In 1971, the first special education residential institute for students with intellectual disabilities was established in Riyadh (Al-Ajmi, 2006). These early movements did not only lead to a rapid increase in special education institutions, specifically 27 institutions by 1987 and 54 by 2000 (Al-Kheraigi, 1989), but also to establish regulations that ensure individuals with disabilities' rights as well as how to educate professional who teach these students (Alquraini, 2010).

Inclusive education was not implemented until 1989, when children with special needs were able to attend kindergarten at King Saud University. In 1999, formal mainstreaming started in Saudi Arabia through including students with visual impairments in general education classrooms and students with mild/moderate intellectual disability into separate classes within public schools (Al-hano, 2006; Alqahtani, 2016). In the same year, learning disabilities (LD) was recognized as a disability in Saudi Arabia. These efforts led the Ministry of Education to publish the Provision Code for Persons with Disabilities in the Kingdom in 2000 and the Document of Rules and Regulations for Special Education Institutes and Programs in 2002. Both laws were passed to ensure students with disabilities' rights through having free and appropriate education, early intervention services, individual educational programs, and any related services (Aldabas, 2015; Al-Mousa, 2010; Alquraini, 2010). Currently, students with mild learning disabilities are included in general education classrooms, but they receive services in pull-out programs, such as resource rooms (Alquraini, 2010).

Students with LD in Saudi Arabia. In the past few years, the Saudi special education system has started to improve its services, especially for students with LD. LD was recognized in 1999 as a special education category within the Saudi Arabian education system (Al-Ajmi,

2006), and these students have been able to receive academic support since 2005 (Al-Ahmadi, 2009). The percentage of students with LD in Saudi Arabian schools is roughly between 5-10% (Abu Nayyan, 2015). These students spend most of their day in general education classroom (Aldabas, 2015) but receive academic support services in resource rooms twice or three times a week (Al-Khateeb & Hadidi, 2009; Al-Zoubi & Rahman, 2016; Mohammed & Ahmad, 2013), which include reading-related skills. Although students with LD in Saudi Arabia are included in general education classrooms, they are more likely to continue struggling with academic related tasks, especially reading.

Reading is a critical skill; however, it is the most significant challenge for students with LD (Hallahan, Kauffman, & Pullen, 2012). These students generally struggle with recognizing letters and their sounds, reading visual words, silently or orally (Catts, Adlof, & Ellis-Weismer, 2006), constructing meaning from written text, connecting meaning to words, making inferences, drawing conclusions, recalling and summarizing information, and actively monitoring their comprehension (Dexter & Hughes, 2011; Jitendra et al., 2000; Watson et al., 2012; Williams et al., 2005). It should be noted that Arabic speakers with LD encounter more complicated reading challenges faced by English speakers with LD, given the extreme complexity of Arabic language.

The aforementioned reading difficulties may be due to a variety of factors; these factors can be summarized as limited critical reading skills (Al-Khateeb, 2013) or limited vocabulary knowledge (Elleman, Lindo, Morphy, & Compton, 2009), lack of prior knowledge (Hirsch, 2003), deficits with working memory (WM) (Carretti, Borella, Cornoldi, & De Beni, 2009), lack of fluency (Hirsch, 2003), lack of metacognition or self-regulation strategies (Lan, Lo, & Hsu, 2014), and poor text structure (e.g., density of ideas, amount of ambiguous information, and increased use of details that are unrelated) (Seifert & Espin, 2012). These reading challenges can

be associated with complications in phonological awareness (Gillon, 2004), decoding (Swanson, Zheng, & Jerman, 2009), or cognitive processes (Kudo, Lussier, & Swanson, 2015). Given students with LD in Saudi Arabia receive specialized academic supports in resource rooms, it can be argued that teachers of students with LD need reading instruction training that enable them to improve their students' academic performance.

Teacher Education in Saudi Arabia

Students' achievement has preoccupied reformers and critics nationally (e.g., United States) and internationally (e.g., Saudi Arabia). Nonetheless, improvements in students' outcomes rely on the reforms related to educating and supporting teachers (Ball & Forzani, 2009; Darling-Hammond & Youngs, 2002). Teacher education, including preservice training and professional development, ultimately plays a strong role in students' success. Teachers' primary mission is to improve students' academic performance through the utilization of instructional strategies, including reading instruction. To promote this mission, the Saudi Arabian education system has recently begun to foster professionalism among teachers through focusing on teacher education (Aldabas, 2015). The Ministry of Education started to reform preservice general and special education programs as well as provide more professional development opportunities in order to enhance teachers' theoretical and practical knowledge.

Teacher preparation programs. Saudi Arabian preservice special education programs differ from U.S. preservice programs. The only way to obtain a teacher license in Saudi Arabia is to complete an accredited four-year teacher preparation program in a university setting. Special education preservice teachers take general courses in their first year. In the second year, courses become more specialized by content for general education and by disability category for special education. However, special education teachers have to select a specific special education category (e.g., LD, intellectual disability, autism) to focus on for the rest of their university

training. All of their training is concentrated on that disability category. During the last semester, which is usually the eighth semester, special education preservice teachers have to complete a practicum in order to graduate.

Educators and reformers in Saudi Arabia have consistently stressed on the importance of reforming teacher preparation programs in order to improve teachers' performance and ultimately students' outcomes. Given the Saudi education system's effort toward including students with disabilities in public schools, specifically students with LD, teacher education programs need to spearhead the inclusive education movement. However, several scholars (e.g., Al-Ahmadi, 2009; Alnahdi, 2014) argued that the nature of teacher education programs present several challenges, especially when it comes to educating students with LD in general education classrooms.

Although the provision of special education for students with disabilities depends upon the availability of well-qualified special educators (Keller, Al-Hendawi, & Abuelhassan, 2016), the nature of special education programs does not enable special education teachers to be highly qualified. When preservice teachers enroll in a special education program, they must choose a specific special education category (e.g., LD, emotional and behavioral disturbance, intellectual disability) to focus on for the rest of their undergraduate training. Once they choose their special education category, their coursework only target that specialization, but they do not focus on a specific content area (Almuaqel, 2008; Alnahdi, 2014; Alquraini, 2010). Therefore, special education teachers are only prepared to support students with a specific disability, meaning teachers are trained categorically based on their respective selected disability category.

Another challenge related to special education teacher preparation is the focus of university coursework. Coursework in Saudi Arabian special education teacher preparation programs is only conceptualized based on the developmental contexts of elementary school aged

theories and practices (Almuaqel, 2008; Alnahdi, 2014). There is currently no special education teacher preparation program that offers a separate program for secondary special education. Therefore, special education teachers in Saudi Arabia are prepared to work mainly with elementary school students.

Professional development. Professional development is an essential part of the teaching profession. It is considered a critical mechanism that deepens teachers' content knowledge and develops their teaching practices. Therefore, professional development plays a key role in addressing the gap between teacher preparation and standards-based reform (Birman, Desimone, Porter, & Garet, 2000; Desimone, Smith, & Ueno, 2006). As a result, current educational reform initiatives (Corcoran, Shields, & Zucker, 1998; Desimone et al., 2006) and multiple research teams (Borko & Putnam, 1995; Desimone, Porter, Garet, Yoon, & Birman, 2002; Desimone, 2009; Garet, Porter, Desimone, Birman, & Yoon 2001; Brownell & Leko, 2014; Lumpe, Haney, & Czemiak, 2000; Miller & Ellsworth, 1985; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Talbert & McLaughlin, 1993) have mainly focused on teacher's professional development.

Professional development has recently become a critical subject in the Saudi education community. Currently, professional development is not a standard requirement for teachers. It is usually provided by the citywide school districts and enforced by school building administrators. Professional development activities for teachers in Saudi Arabia usually take the form of workshops, lectures, and informal observations of other teachers. These activities are extremely limited because there are no minimal professional development hours required to maintain a teaching license. Given that teachers are not required to *regularly* engage in professional development activities, certain challenges can arise.

The first challenge is that teachers have limited access to professional development. Therefore, special education teachers have limited access to current research and practices,

which ultimately affects their development negatively. In addition, there is no interdisciplinary professional development for special education teachers. Special and general education teachers receive different professional development activities. Furthermore, while receiving professional development, special education teachers do not learn about curriculum or discipline specific reforms or improvements, while general education teachers do not learn about strategies related to supporting students with disabilities in their classrooms. Therefore, it is questioned whether special education teachers in Saudi schools can support students with disabilities, especially when it comes to students with LD and their challenges with reading related tasks.

Reading Instruction for Students with LD

Given the reading challenges encountering students with LD, multiple research teams have conducted series of studies in order to identify “what works” for these students. These practices have been grouped and compiled through many meta-analyses and reviews. A careful, extensive, and systematic search procedure determined 30 meta-analyses and literature reviews (e.g., Ciullo, Lo, Wanzek, & Reed, 2016; Edmonds et al., 2009; Swanson, 1999) conducted between 1994-2017 in order to identify research-based reading instruction for students with LD. The reading instruction identified include but not limited to graphic organizers (DiCecco & Gleason, 2002), computer-assisted instruction/multimedia (Okolo & Ferretti, 1996), identifying main idea (Graves & Levin, 1989), repeated reading (Therrien, 2004), summarization (Gajria & Salvia, 1992), collaborative strategic reading (CTR; Klingner & Vaughn, 1996), and peer-assisted learning strategies (PALS) (D. Fuchs, L. Fuchs, Mathes, & Simmons, 1997). Although it is clearly these practices are found mainly the United States special education literature, Arabic and English reading instruction are similar, especially when it comes to the implementation of reading instruction. However, Saudi Arabian special education literature still has not contributed to the reading instruction literature.

Statement of the Problem

As the Saudi education system has become more inclusive, students with special needs including students with LD need reading support from special education teachers. However, students with LD still struggle with reading-related tasks. These students are included in inclusive settings and receive specialized academic support two-three times weekly, so their teachers play a significant role in their success. However, it is unknown whether teachers of students with LD have adequate training in reading instruction in order to support these students, whether in inclusive settings or resource rooms. The structure of teacher education programs (e.g., not interdisciplinary) and the limited access to professional development hinder teachers from gaining the theoretical and practical knowledge needed to support their students. With the aforementioned challenges related to preservice and inservice reading-related training, it is questioned and unclear whether preservice and inservice trainings enable teachers of students with LD to effectively *implement* reading instruction in their classrooms.

Rationale and Significance

In this dissertation- and for every study, the overarching question is: Where were we? Where are we? Where are we headed? Twenty years ago, inclusive education was a controversial subject in Saudi Arabia (Aldabas, 2015) (where were we?). Several educators doubted the feasibility of implementing inclusion in Saudi schools, while others have stressed on the importance of inclusive education for students with disabilities. These educators believe that including these students can enable them to meet the school's academic and social expectations because inclusive education promotes “equal opportunities, economic self-sufficiency, independent living, and full participation” (Turnbull, Stowe, Huerta, 2007, p. 11-12). Ten years later, policymakers passed regulations and legislations in order to embrace inclusion in Saudi educational environments. Currently (where are we?), inclusive education has taken place in

Saudi schools. Students with LD, for example, have been included in general education classroom since 2005. However, it is imperative to note the education system needs to be restructured in order to effectively embrace inclusion in Saudi schools (Alquraini, 2010).

Implementing inclusion in Saudi educational curriculum requires that teachers are prepared to accommodate all students, including students with disabilities, and those with LD. The success of inclusive education for students with LD *ultimately* depends on teacher preparation. However, many scholars (Al-Ahmadi, 2009; Almuaqel, 2008; Alnahdi, 2014; Alquraini, 2010) argued that the effort to embrace inclusive education in Saudi schools seems disjointed. They claimed that the legislative changes related to inclusive education have been implemented in schools without focusing on teacher education. At the preservice level, for example, special education teachers cannot fulfill the standards of becoming highly qualified special education teachers (Al-Ahmadi, 2009), and they are only prepared to teach elementary school students (Almuaqel, 2008; Alnahdi, 2014). Preservice general education teachers also do not take many courses of how to support students with disabilities. At the inservice level, teachers in Saudi school historically have limited access to professional development activities. Teacher education program can affect the collaboration between general education teachers and teachers of students with LD in inclusive settings, which can negatively affect the educational outcomes of these students, including reading outcomes.

The significance of this dissertation is that it uncovers whether teachers of students with LD receive adequate training related to reading instruction through examining their implementation the current reading practices. Examining teachers' previous experience with teacher education and their current implementation of reading practices can contribute to the special education field through the following points. First, this dissertation results will inform Saudi policymakers about the current status of teachers of students with LD's reading-related

teacher preparation. The data derived from this study can enable educators and policymakers to rethink Saudi teacher education programs, especially when it comes to reading-related preparation. Second, this dissertation will empower teacher education programs to rethink their current practices related to educating preservice teachers. Third, this study will help the Saudi Ministry of Education with identifying needed professional development opportunities for inservice teachers. Fourth, this dissertation will help Saudi schools better support teachers of students with LD. By supporting teacher of students with LD, they will effectively implement reading instructions in their classrooms, which ultimately improves students with LD's reading outcomes. Finally, this dissertation will enable and guide researchers who are interested in Arabic reading instruction to conduct studies that mainly address Arabic reading skills.

Purpose and Research Questions

The purpose of this dissertation is to examine teachers of students with LD's reading-related teacher education and its impact on the implementation of reading instruction in Saudi Arabian schools through addressing the following questions:

1. What reading-related university training experiences do Saudi teachers of students with LD report having completed?
2. What reading-related professional development experiences beyond university training do Saudi teachers of students with LD report having completed?
3. To what extent are reading-related university training and professional development experiences related to the implementation of teachers' current classroom practices?

Definitions of Variables

Literacy: Literacy is “the ability to decode and comprehend written language at a rudimentary level, that is, the ability to look at written words corresponding to ordinary oral discourse, to say them, and to understand them” (Kaestle, 1985, p. 13).

Reading: Reading is the action of reading and comprehending written materials.

Reading Instruction: A set of practices that enable teachers to effectively teach and enhance students' phonological awareness, phonics, vocabulary, fluency, and comprehension.

Students with Learning Disabilities (LD): Students with LD in this study are students who are eligible for special education services because they struggle with reading, writing, or mathematics-related tasks, and receive their reading instruction in general education from general education teachers and in resource rooms from teachers of students with LD (two-three classes a week).

Teachers of Students with LD in Saudi Arabia: Teachers of students with LD are graduates who earned a bachelor's in special education degree with emphasis on LD. These teachers study four years taking general and special education courses as well as courses that specifically focus on LD and teaching reading, writing, and math skills to students with LD.

Teaching System in Saudi Arabia: Teaching system (general and special education) in Saudi Arabia is divided into male and female sections, which are administered by the Ministry of Education. Both sections teach the same curriculum, yet female students are taught by female teachers while male students are taught by male teachers. Students study 12 years in order to earn their high school degree (see Table 1).

Table 1

Saudi School System

| School Grade | Number of Years |
|---------------------|------------------------|
| Elementary School | 6 |
| Middle School | 3 |
| High School | 3 |
| Total | 12 years |

University Training: University training in this study refers to any undergraduate/graduate

courses that focus on reading in which taken by general or special education.

Professional Development: Professional development in this study refers to reading-related professional development activities beyond university training, such as conference or workshops.

Inclusive Education (Full Inclusion): Kurth and Gross (2014) indicated that inclusive education means including all students, regardless of their disability, in the homeroom, general education classroom, in which the general education teacher is the teacher of record, and special education teacher and supporting staff are supporting the general education teacher in providing the academic and social services that enable the students to succeed in inclusive settings.

Resource Room: A resource room is a pullout program where students with SLD receive reading-related supports and services through teachers of students with SLD. Students with SLD in Saudi Arabia usually spend two-three classes a week in this room in order to receive math, reading, or writing services and supports.

Co-teaching: A partnership between general and special education teachers to jointly delivering instruction to a diverse group of students, such as students with disabilities, in a general education setting in order to meet the students' academic and social needs (Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010).

Implementation: Implementation refers to teachers' level of using reading practices learned during university training as well as professional development activities.

Conclusion

This chapter conceptualizes the relationship between teacher education and teachers' current practices through addressing the importance of literacy and reading, conceptual framework related to Arabic characteristics and their implications on Arabic readers, students with LD and general reading-related issues, teacher education including university training and professional development, reading instruction for students with LD, statement of problem,

rationale and significance, purpose and research questions, and definitions of variables. In the following chapter, an extensive review of the pertinent literature of the Saudi educational system is presented and illustrated, especially in the areas reading instruction, teacher education, and the implementation dilemma of reading instruction in special education settings.

CHAPTER II

LITERATURE REVIEW

In this chapter, the following six elements are reviewed extensively in order to understand reading-related teacher preparation for teachers of students with LD in Saudi Arabia: (1) the history, context, and status of LD in Saudi Arabia, (2) Arabic language orthographic, phonological, and morphological characteristics and their impact on readers with LD, (3) reading approaches and Arabic curriculum in Saudi Arabia, (4) English-based reading instruction literature of students with LD, (5) teacher education, specifically reading-related teacher education of teachers of students with LD in Saudi Arabia, and finally (6) teachers of students with LD's implementation of reading instruction.

Learning Disabilities in Saudi Arabia

LD has been recognized in Saudi Arabia as a special education category since 1999 (Al-Ajmi, 2006) and supported academically since 2005 (Al-Ahmadi, 2009; Aldabas, 2015). The prevalence of LD in Saudi Arabia is roughly 5-10% (Abu Nayyan, 2015). LD in Saudi Arabia is defined as:

Disorder in one or more of the primary and psychological processes, which include understanding and using the written and spoken language, and are exhibited in difficulties in listening, thinking, speaking, reading, writing, and mathematics; these difficulties should not be due to intellectual or sensory disabilities, or any other disability, curriculum, or family status (AbuNayyan, 2001, p. 20).

Aljohani and Alzarea (2014) presented the common reading difficulties among Arab students with LD: omitting letters from words, adding letters to words or words to sentences, substituting

a word for another, insufficiency in differentiating between letters or words different orthographically but are similar phonologically, inability to distinguish between vowelized letters, reading unclearly, inability to concentrate for a long time and finish tasks, and onerousness in moving between lines while reading. Currently, students with LD in Saudi schools are included in general education classrooms, but they receive help and support with their academic skills, such as writing, reading, and mathematics in resource rooms (2-3 times a week) (Al-Zoubi & Rahman, 2016; Mohammed & Ahmad, 2013).

Identifying and diagnosing students with LD in Saudi schools differs from the United States schools. In Saudi schools, the resource room teachers (teachers of students with LD) are solely responsible for assessing, diagnosing, identifying, and supporting students with LD. They are also responsible for creating individual educational program (IEP) for students with LD. LD in Saudi schools is identified in the following way. First, the general education teacher refers a student who struggles with mathematics, reading, or writing to the resource room for further assessment. The first step for the resource room teacher is to obtain the parents' permission to assess and diagnose the student. The resource room teacher then reviews the student's academic records to determine if the student academic achievement is low in one or more subject. If further assessment is needed, the teacher compiles a case study about the student's personal and academic history.

Then, the resource room teacher will give the student an assessment to measure his/her ability in the subject they were referred for (reading, writing, mathematics). These assessments are created by the Ministry of Education based on grade level performance skills and expectations. Students are assessed with the assessment according to their last completed grade level. Specifically for the reading test, students are expected to perform at 100% mastery for reading and writing individual letters and at 80% mastery for other grade level reading skills. If

the student does not meet the threshold, he/she is tested for the next grade below until mastery is met. Once the student completes the grade level assessment with mastery, the discrepancy model is used to show the difference between their ability (assessment score) to their grade level expectations. Concurrently, the resource room teacher gathers information about the student's personal and academic history to ensure that the student's academic issues are not caused by any other disability (e.g., intellectual, visual, or auditory), family issues, or environmental problems (e.g., inefficient classroom instruction). Once the student is identified with LD, the resource room teacher must obtain approval from the student's parents in order to move forward and create the IEP based on the student's grade level achievement (Alqahtani, 2016).

Reading in Arabic Language

Arabic language is the official language in 27 countries; it is spoken by roughly 300 million individuals around the world. Given Arabic is the language of the *Holy Quran*, it is the ritual and religious language of all Muslims worldwide. Arabic is a diglossic language, so it has types: Modern Standard Arabic (MSA) and Spoken Arabic vernacular (SAV); they are usually different in terms of rules related to syllabic structure, consonant clusters, or phoneme combinations (Mohamed et al., 2011; Tibi & Kirby, 2018). MSA is the formal language that is universally used by *all* Arabic speakers. However, it is the language of literacy (given its standardized written form), so children at school are taught to read and write in MSA. The SAV, however, includes vernaculars in various local dialects. It is spoken informally by language speakers in a specific geographic location and taught to children through their families. It is phonetically represented through the Arabic alphabet, nevertheless some sounds do not have congruent letters; therefore, there is no unanimity in regard to the orthographic characteristics of SAV given its plethora number of dialects. Given the complex structure of MSA, it is worthwhile to highlight its orthographic, phonological, and morphological characteristics.

Arabic orthography. Arabic, which is an alphabetic language, is written from right to left. It consists of 28 letters that represent consonants (see Table 2).

Table 2

The Arabic Alphabet

| Standard Arabic letters | | | | | | |
|-------------------------|------------|------------|-----------|-----------|-----------|-----------|
| /alif/ ا | /ba:?'/ ب | /ta:?'/ ت | /θa:?'/ ث | /dʒi:m/ ج | /ħa:?'/ ح | /xa:?'/ خ |
| /da:l/ د | /ða:l/ ذ | /ra:?'/ ر | /za:?'/ ز | /si:n/ س | /ji:n/ ش | /sˤa:d/ ص |
| /tˤa:d/ ض | /tˤa:?'/ ط | /ðˤa:?'/ ظ | /qajn/ ع | /χa:jn/ غ | /fa:?'/ ف | /qa:f/ ق |
| /ka:f/ ك | /la:m/ ل | /mi:m/ م | /nu:n/ ن | /ha:?'/ ه | /wa:w/ و | /ja:?'/ ي |

| Additional letters | | |
|--------------------|-------------------|---------------------|
| /hamzah/ ه | /əlíf maqṣū:ra/ ى | /ta:?' marbu:tˤa/ ة |

Note. Table adapted from Al Ghanem & Kearns (2015).

Most Arabic letters have four different forms, and the form of letters is based on where they fall within a given word. Arabic letters also can have identical shapes, so they are divided into categories (see Tables 3 and 4). These letters can be distinguished by having dots above, below, or on the letter (Al Ghanem & Kearns, 2015).

Table 3

The Similarity among Arabic Letters

| | | |
|-------|-------|-----|
| ب ت ث | ج ح خ | د ذ |
| ر ز | س ش | ص ض |
| ط ط | ع غ | ف ق |

Table 4

Arabic Letters Forms Based on their Position of the Sentence

| Letter | Initial position | Example | Medial position | Example | Final position | Example |
|--------|------------------|----------------|-----------------|---------------|----------------|---------------|
| ن | ن | (stars) نجوم | ن | (Crazy) مجنون | ن | (Art) فن |
| ف | ف | (Elephant) فيل | ف | (Child) طفل | ف | (skinny) نحيف |

In addition, aleph (the first letter) can be a bearer (chair) of hamza that takes different forms, which is an additional sign (see Table 5). Three of the Arabic letters (ء and ؤ, ئ), which called *huruf Alella* or letters of defectiveness, represent MSA long vowels. These letters can be called *huruf almadd* and allin or letters of softness and elongation because they represent the elongation of the preceding short vowel sound, which is represented orthographically via a vowel mark.

Table 5

Hamza Positions

| Hamza positions | Its morphological form |
|--------------------------------------|------------------------|
| On the line | ء |
| On aleph in the middle of a sentence | ئ |
| On aleph at the end of a sentence | ئ |

MSA script has two types of diacritics: graphemic and phonemic. The graphemic script consists of dots used to phonetically distinguish between letter consonants. The phonemic type includes diacritic marks, which are called *harakat al tashkeel*, that represent Arabic short vowels (see Table 6). These diacritic marks are: (1) *fatha* (opening) for a short /a/—placed above letters, (2) *kasra* (breaking) for a short /i/—placed below letters, (3) *damma* (pressing together) for a short /u/—placed above letters, and (4) *sukun* (silence) indicating a vowelless letter—placed

above letters. In addition to the aforementioned diacritic marks, there is shadda mark (sh)—placed above letters indicating double consonants. It should be noted that diacritic marks are used to indicate the elongation of consonant and vowel and provide grammatical and syntactic information; therefore, they change the word meaning, the part of speech, and the verb tense, and the form of the word (Elbeheri & Everatt, 2007; Mahfoudhi et al., 2010; Taibah & Haynes, 2011; Taouk & Coltheart, 2004). Most importantly, they help readers phonemically while reading texts with diacritic marks.

Table 6

Arabic Letters with Diacritic Marks

| | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| أَ أِ أُ | بَ بِ بُ | تَ تِ تُ | ثَ ثِ ثُ | جَ جِ جُ | حَ حِ حُ | خَ خِ خُ |
| دَ دِ دُ | ذَ ذِ ذُ | رَ رِ رُ | زَ زِ زُ | سَ سِ سُ | شَ شِ شُ | صَ صِ صُ |
| ضَ ضِ ضُ | طَ طِ طُ | ظَ ظِ ظُ | عَ عِ عُ | غَ غِ غُ | فَ فِ فُ | قَ قِ قُ |
| كَ كِ كُ | لَ لِ لُ | مَ مِ مُ | نَ نِ نُ | هَ هِ هُ | وَ وِ وُ | يَ يِ يُ |

Arabic phonology. MSA contains 35 phonemes; these phonemes have 28 consonant sounds, three long vowel sounds (/a:/, /u:/, and /i:/), three short vowel sounds (/a/, /u/ and /i/), a reduced vowel sound (schwa; /ə/), and multiple vowel allophones (Al Ghanem & Kearns, 2015) (see Table 7).

Table 7

Arabic Phonemes with their Corresponding Graphemes

| Phoneme | Corresponding grapheme(s) | Phoneme | Corresponding grapheme(s) | Phoneme | Corresponding grapheme(s) |
|---------|---------------------------|---------|---------------------------|---------|---------------------------|
| /q/ | ڧ، ڦ، ڻ | /s/ | س | /m/ | ڻ |
| /a:/ | ا | /ʃ/ | ش | /n/ | ن |
| /b/ | ٻ | /sڻ/ | ص | /h/ | ه، هه |
| /t/ | ٿ، ڌ | /dڻ/ | ض | /w/ | و |
| /θ/ | ٿ | /tڻ/ | ط | /u:/ | و |
| /dʒ/ | ج | /ðڻ/ | ڏ | /j/ | ي |
| /h/ | ح | /ؤ/ | ع | /i:/ | ي |
| /x/ | خ | /ڦ/ | غ | /ə/ | ى |
| /d/ | د | /f/ | ف | /a/ | ـ |
| /ð/ | ڏ | /q/ | ق | /u/ | ـ |
| /r/ | ر | /k/ | ك | /i/ | ـ |
| /z/ | ز | /l/ | ل | | |

Note. Table adapted from Al Ghanem & Kearns (2015)

Given the discrepancies between spelling and sounds in Arabic, each sound is usually represented by one letter (Elbeheri & Everatt, 2007; Taibah & Haynes, 2011; Tibi & Kirby, 2018). In Arabic, the same letter represents only one sound; however, different diacritic marks change the pronunciation of the letter (Elbeheri & Everatt, 2007; Taibah & Haynes, 2011; Tibi & Kirby, 2018). For example, the letter /ت/ can be pronounced differently based on the diacritic mark (ت: /ta/, ت: /te/, ت: /tu/). Therefore, one word in Arabic can have different meanings and be pronounced differently based on its diacritic marks (Mahfoudhi et al., 2010; Saigh & Schmitt, 2012). For example, the word **عَدّ** has six different meanings, which is illustrated in Table 8.

Table 8

Meanings of the word “عقد”

| The word | Its meaning |
|----------|-------------|
| عقد | Knots |
| عقد | Complicate |
| عقد | Held |
| عقد | Contract |
| عقد | Decade |
| عقد | Necklace |

In Arabic, some words have letters that are pronounced but not written. For example, the word **ذلك** is pronounced /thalek/; if we are to write the word as pronounced, it will be **ذلك**. In addition, Arabic has vowel digraphs (e.g., oi in oil; ee in sheep), meaning two letters that spell or represent one sound (Al Ghanem & Kearns, 2015). In Arabic, one long vowel plus a diacritic mark make one sound (e.g., و) pronounced /wa/. Finally, diphthongs, sounds made by the combination of a vowel and glide (e.g., يوم /yawn/) (Elbeheri & Everatt, 2007; Taouk & Coltheart, 2004). It should be noted that Arabic has only two diphthongs (waw and yaa').

Arabic morphology. Arabic sentences can either include: subject-verb-object or verb-subject-object. The language is classified into nouns, verbs, and particles as well as adverbs, prepositions, and conjunctions. Number (singular, dual, plural) and gender (masculine, feminine) inflect both verbs and nouns. Arabic also have the affixes: prefixes and suffixes (Al Ghanem & Kearns, 2015; Ehri et al., 2001; Rastle, 2018) as well as infixes and circumfixes (two or more affixes). Finally, Arabic have subject-verb agreement; however, Arabic subject-verb agreement is extensively complex, which can be illustrated in the following example (see Table 9):

- The word **كتب** is written differently based on gender and number of people.

- For example, the first letter ي in the verb يكتب /he writes/ means it is a male, while the first letter ت in the verb تكتب /she writes/ means it is a female.
- Another example is: the letters ان in the word يكتبان means it is plural of *only* two people, while the letters ون in the word يكتبون means it is plural of more than two people.

Table 9

Example of an Arabic Word with its Different Forms

| Root (Initial word) | Words with added suffixes, prefixes, infixes, and circumfixes | Meaning |
|---------------------|---|--|
| كتب (Write) | يكتب | He writes |
| | تكتب | She writes |
| | أكتب | I write |
| | نكتب | We write |
| | تكتبان | They write (two people, second person) |
| | يكتبان | They write (two people, third person) |
| | تكتبون | They write (second person, three or more people) |
| | يكتبون | They write (third person, three or more people) |
| | مكتب | Desk |
| | مكتبة | Library |
| | كتاب | Book |

Implications on Reading Performance of Students with LD

Given the provided orthographic, phonological, and morphological characteristics of Arabic and English, students with LD in both languages can struggle with reading-related tasks in many ways, which are addressed in the following points.

First, Arabic speakers with LD struggle with recognizing letters and their sounds. Also, given that many Arabic letters and words are similar orthographically, students with LD may not be able to differentiate between these letters or words, which slows the reading process. In addition, Arabic letters have four orthographic forms or shapes depending on its position (first, center, last) of the word, which can hinder students with LD's ability to accurately read written words. Put simply, sound/symbol knowledge development of an individual can be hampered in a number of ways. Second, Arabic diacritic system decreases the phonological ambiguity, yet it can be challenging for beginning readers, who try to acquire the word-decoding skills needed to develop phonological route. Third, Arabic speakers with LD struggle with reading sight words, silently or orally. Reading in Arabic is complicated given its diglossic nature, meaning students study a language that they do not practically use in their daily lives. Therefore, Arabic students with LD's have to simultaneously acquire MSA phonological skills as well as reading skills (Al Ghanem & Kearns, 2015), which can decelerate their reading development, and ultimately reading performance. Fourth, given the discrepancies between spelling and sounds in Arabic language, Arabic readers with LD struggle with reading words accurately and fluently. Reading for Arabic adolescents with LD can be extremely challenging because they have to rely on their lexical orthographic skills while reading unvowelized words or texts (Saigh & Schmitt, 2012). Fifth, Arabic readers do not only need to acquire prefixes and suffixes knowledge, but they also have to gain infixes and circumfixes information in order to read accurately and fluently. Therefore, Arabic readers with LD may face greater reading challenges in: (1) applying their

root-related knowledge while reading, despite the fact that the roots are the center of the orthography and phonology, (2) identifying and recognizing disrupted roots, and (3) recognize consonantal roots and similar words (Al Ghanem & Kearns, 2015; Taouk & Coltheart, 2004).

Finally, Arabic readers with LD can encounter comprehension difficulties, which include: constructing meaning from written text, connecting meaning to words, making inferences, drawing conclusions, recalling and summarizing information, and actively monitoring their comprehension (Dexter & Hughes, 2011; Jitendra et al., 2000; Kaldenberg, Watt, & Therrien, 2015; Snider, 1989; Watson et al., 2012; Williams et al., 2005).

Reading Approaches and Arabic Curriculum in Saudi Arabia

Traditionally, there are two approaches to teaching reading: phonics-based approach and whole language approach. Phonics approach focuses on teaching words by individual letter sounds, *and then* associating those sounds with objects and ideas (Ehri et al., 2001). The whole language approach promotes students to learn whole words through identifying words as units and associating the written words with objects and ideas (Stahl & Miller, 1989). The main difference between these two approaches is the whole language approach uses a top-down method (words to letters), while the phonics-based approach utilizes a bottom-up method (letters to words). Also, the whole language approach takes out the concept of pronouncing words in the reading process. Most states, school districts, schools, and teachers in the United States have adopted a balanced approach, combining phonics and the whole language components depending on the age and skills of learners.

Arabic curriculum in Saudi Arabia utilizes the whole language approach to teach reading. In the Arabic curriculum in Saudi Arabia, reading is taught through texts and mainly pictures. In other words, whole words are used as examples to learn ideas and concepts. In first grade, for example, students are introduced to reading by identifying whole words and sentences. Then,

certain words are used to introduce individual letters, such as bike and book start with the letter b (see Figure 1).



Figure 1. The first exercise in the first grade Arabic curriculum

The whole language approach is supported by the Schema Theory, which indicates that new knowledge is acquired by associating it with prior knowledge. Simply, the whole language approach aims to associate written words with known concepts and ideas. As reading progresses, Schema Theory also supports students' use of prior knowledge to create meaning and aid

comprehension (Pearson & Gallagher, 1983). Schema theory initially is not a reading theory, but instead a theory about the human knowledge's structure that is represented in memory. Schemas in our memory are similar to containers, where we store specific trails of certain experiences and ideas drawn from these experiences (An, 2013). If we see school, for example, we store that visual experience in our "school schema".

Even though Saudi Arabic curriculum utilizes the whole language approach, teachers practically have to use the balanced approach (blend of whole language and phonics approaches) given the aforementioned orthographic characteristics of Arabic language. The need for the balanced approach is supported by the Connectionist Theory, which indicates that while reading, the brain simultaneously recognizes word units and letter units (Plaut, 2004). In other words, the brain uses whole word recognition and phonics simultaneously in order to comprehend written texts (Seidenberg, 1990; 1992; Seidenberg & McClelland, 1989). Therefore, aspects of both the whole language approach and the phonics approach are critical to the reading process. When applying the Connectionist Theory to teaching reading in Arabic, phonics instruction is only practical in the first three grades given the texts are explicitly vowelized. In fourth and fifth grade, the whole language approach is more practical because textbooks transition from using vowelized texts (with diacritic marks) to unvowelized texts (without diacritic marks). Without diacritic marks, Arabic written words are phonologically ambiguous. Starting from the fourth or fifth grade, therefore, students have to recognize the whole word and understand the context in order to comprehend texts accurately. This abrupt transition in text may create challenges for students who have not yet gained robust reading skills, including those with LD.

Reading Instruction Literature of Students with LD

Although students with LD in Saudi schools need academic support, especially when it comes to reading skills, there are not empirical studies conducted to examine the benefits of

reading interventions for Arabic speakers with LD in Saudi Arabia (This issue is addressed in teacher education section). For the purpose of this study, therefore, the researcher reviewed eight meta-analyses (Berkeley, Scruggs, & Mastropieri, 2010; Edmonds et al., 2009; Kaldenberg, Watt, & Therrien, 2015; Scammacca, Roberts, Vaughn, & Stuebing, 2015; Sencibaugh, 2007; Swanson, 1999; Swanson, Hairrell, Kent, Ciullo, Wanzek, & Vaughn, 2014; Therrien, Taylor, Hosp, Kaldenberg, & Gorsh, 2011) and six literature reviews (Ciullo, Lo, Wanzek, & Reed, 2016; Gajria, Jitendra, Sood, & Sacks, 2007; Kim, D. Bryant, B. Bryant, & Park, 2017; Kuder, 2017; Solis, Ciullo, Vaughn, Pyle, Hassaram, & Leroux, 2012; Stevens, Walker, & Vaughn, 2016) conducted between 1999-2017 of reading interventions in English for students with LD (see Table 10).

Table 10

Meta-analyses and Literature Reviews of Reading Instruction for Students with LD

| Authors and Year | Purpose | Grade | Effective Practices identified |
|--|--|-------|---|
| Swanson (1999) | Evaluating 92 studies (1963-1997) examined the effects of RC and WR interventions | K-12 | DI (e.g., teacher modeling, breaking tasks down) SI (e.g., GOs, questioning) Combined DI and SI (e.g., GOs plus modeling) |
| Gajria, Jitendra, Sood, & Sacks (2007) | Summarizing 29 studies (1978-2005) examined the effects of GO on reading comprehension | K-12 | Content enhancement (e.g., GOs; semantic mapping; mnemonic illustration; CAI/multimedia). Cognitive strategy instruction: (a) Single strategies (e.g., text structure; cognitive mapping; identifying main idea) (b) Multiple strategies (e.g., summarization, self-monitoring; paraphrasing, repeated readings) |
| Sencibaugh (2007) | Evaluating 15 studies (1985-2005) examined the effects of RC interventions | K-12 | Visually dependent strategies (e.g., illustrations, semantic organizers) Auditory-language dependent strategies (e.g., summarization self-questioning, paragraph restatements, CSR, and text-structure-based strategies) |
| Edmonds et al. (2009) | Synthesizing 29 studies (1994-2004) examined the effects of RI | 6-12 | Reciprocal teaching Previewing and text structure Strategy instruction and attribution training GOs PALS CAI |
| Berkeley, Scruggs, & Mastropieri (2010) | Evaluating 40 studies (1995-2006) examined the effects of RC instruction | K-12 | Question/strategy instruction (e.g., SQ, PALS) Text enhancement (e.g., GOs, technology) Fundamental reading skills training (e.g., the Behavioral Reading Therapy Program) |
| Therrien, Taylor, Hosp, Kaldenberg, & Gorsh (2011) | Evaluating 12 studies (1985-2006) examined the effects of science instruction on reading achievement | 4-12 | Structured inquiry (e.g., hands-on experiments, student collaboration) Supplemental mnemonic instruction Supplemental non-mnemonic instruction (e.g., PALS) |
| Solis, Ciullo, Vaughn, Pyle, Hassaram, & Leroux (2012) | Synthesizing 14 studies (1979-2006) examined the effects of RC interventions | 6-8 | Summarization-main idea (e.g., explicit modeling) Summarization-main idea and self-monitoring (e.g., question generation, interactive images) Multiple-strategy intervention (e.g., reciprocal teaching) |
| Swanson, Hairrell, Kent, Ciullo, (1982-2009) | Examining 16 studies (1982-2009) examined the | K-12 | Content enhancements (GOs, Mnemonics) Questioning |

| | | | |
|---|--|------|--|
| Wanzek, & Vaughn (2014) | effects of reading interventions | | Guided notes Multicomponent comprehension instruction (e.g., peer tutoring plus summarizing) |
| Scammacca, Roberts, Vaughn, & Stuebing (2015) | Analyzing 36 studies (1980-2011) examined the effects of reading interventions | 4-12 | Comprehension strategy Fluency instruction Word study instruction Vocabulary instruction Multiple components instruction |
| Kaldenberg, Watt, & Therrien (2015) | Evaluating 20 studies (1980-2012) examined the effects of RC interventions | 5-11 | Vocabulary instruction (e.g., DI, combined DI and CSI; GOs) Non-vocabulary instruction (e.g., elaboration, text structure) |
| Stevens, Walker, & Vaughn (2016) | Synthesizing 19 studies (2001-2014) examined the effects of RF interventions F and RC performance | K-5 | RR with a model RR without a model Assisted reading with audiobooks Word-supply Phonics-based feedback Multicomponent interventions |
| Ciullo, Lo, Wanzek, & Reed (2016) | Summarizing 18 studies (earliest studies-2013) examined the effects of informational text interventions on reading performance | K-5 | Content enhancement tools (e.g., GOs, semantic mapping) CSI (e.g., self-questioning) |
| Kim, D. Bryant, B. Bryant, & Park (2017) | Synthesizing 12 studies (2004-2014) examined the effects of RF interventions | K-5 | RR with a model RR without a model Video modeling-only Word/phrase practice |
| Kuder (2017) | Synthesizing 13 studies (2004-2015) examined the effects of VI on reading performance | 6-12 | Mnemonic instruction Learning strategies that utilize morphemic analysis DI Multimedia instruction Peer-mediated instruction RR |

Note. RC= Reading Comprehension, WR= Word Recognition, DI= Direct Instruction, SI= Strategy Instruction, GO= Graphic Organizers, CAI= Computer-Assisted Instruction, CRS= Collaborative Reading Instruction, PALS= Peer-Assisted Learning Strategies, RI= Reading Interventions, SQ= Self-Questioning, CSI= Cognitive Strategy Instruction, RR= Repeated Reading, RF= Reading Fluency, VI= Vocabulary Instruction

Note. The target population of these studies is students with LD.

Common findings. Across the literature reviews and meta-analyses conducted between 1999-2017, there are common findings addressed by multiple research teams (see Table 11). First, the majority of reviews and meta-analyses ($n = 10$) reported large effect sizes of reading interventions for students with LD (e.g., Ciullo et al., 2016; Edmonds et al., 2009; Gajria et al., 2007; Swanson, 1999). Second, eight meta-analyses and reviews (e.g., Berkeley et al., 2010; Sencibaugh, 2007; Therrien et al., 2011) indicated that the majority of studies included used researcher-developed reading measures. Third, almost all research teams (e.g., Kuder, 2017; Solis et al., 2012; Swanson, 1999) agreed that studies using researcher-developed reading measures yielded larger effect sizes than the ones used standardized measures. In other words, researcher-developed measures have been associated with large effect sizes. Solis et al. (2012), for example, reported that only one study out of 12 studies used a standardized reading measure. However, Scamacca et al. (2015), which is a more recent meta-analysis, reported that most studies used standardized measures, thus decreasing their effect sizes, which ultimately decreased in the total mean of effect sizes found in recent meta-analyses. Scamacca et al. (2015), for example, found that the overall mean effect size for studies conducted between 1980-2004 was large ($g = .91$), while the one for new studies was small ($g = .24$).

Fourth, many reviews and meta-analyses (e.g., Gajria et al., 2007; Kaldenberg et al., 2015; Solis et al., 2012) found that researchers were the primary intervention agents. However, only four meta-analyses and reviews (Berkeley et al., 2010; Edmonds et al., 2009; Kuder, 2017; Scamacca et al., 2015) found that teachers were the primary intervention agent in the majority of studies. Six reviews and meta-analyses (Berkeley et al., 2010; Edmonds et al., 2009; Gajria et al., 2007; Scamacca et al., 2015; Swanson, 1999) found that studies delivered by researchers had higher effect sizes than the ones delivered by teachers, while none of the reviews indicated that interventions had higher effect sizes when delivered by teachers. Only one review (Ciullo et

al., 2016) found no significant difference between reading interventions whether delivered by researchers or teachers.

Fifth, implementation fidelity was *marginalized* across many studies included in the reviews and meta-analyses. For example, of the 58 studies included in Swanson (1999) meta-analysis, only 37% ($n = 21$) reported some measure of fidelity. Edmonds et al. (2009), for example, found that nine (31%) of the 29 studies included reported treatment fidelity. Kaldenberg et al. (2015) also reported only three studies (25%) of the 12 studies reviewed reported fidelity of implementation. More recently, Ciullo et al. (2016) reported that of the 19 studies included in their review, only seven studies (39%) reported information related to fidelity of implementation, but only one study *adequately* reported fidelity of implementation. Sixth, multiple research teams (e.g., Edmonds et al., 2009; Kuder 2017; Sencibaugh 2007) suggested teaching students how apply and use reading interventions instead of utilizing these interventions to teach students. Finally, multicomponent strategies (e.g., peer tutoring) revealed more positive effects than single-strategies (e.g., repeated reading). Edmonds et al. (2009) found that multicomponent strategies had higher effect sizes than single strategies (see Ciullo et al., 2016).

Table 11

Common Findings and their Corresponding LR and MA

| Common Findings | Corresponding LR and MA |
|---------------------|--|
| Large ES | Ciullo et al. (2016); Edmonds et al. (2009); Gajria et al. (2007); Swanson (1999); Sencibaugh (2007); Kaldenberg et al. (2015); Kuder (2017); Solis et al. (2012); Swanson et al. (2014); Therrien et al. (2011) |
| RDM | Ciullo et al. (2016); Swanson (1999); Therrien et al. (2011); Berkeley et al. (2010); Sencibaugh (2007); Kaldenberg et al. (2015); Kuder (2017); Solis et al. (2012) |
| Large ES due to RDM | Swanson (1999); Therrien et al. (2011); Berkeley et al. (2010); Ciullo et al. (2016); Edmonds et al. (2009); Kaldenberg et al. (2015); Kuder (2017); Solis et al. (2012) |

| | |
|--|--|
| Researcher as the primary intervention agent | Gajria et al. (2007); Kaldenberg et al. (2015); Solis et al. (2012); Ciullo et al. (2016); Swanson (1999); Scamacca et al. (2015) |
| Interventions yielded high ES delivered by researchers | Berkeley et al. (2010); Edmonds et al. (2009); Gajria et al. (2007); Scamacca et al. (2015); Swanson, (1999) |
| Reporting fidelity of implementation inadequately | Swanson (1999); Edmonds et al. (2009); Kaldenberg et al. (2015); Ciullo et al. (2016); Gajria et al. (2007); Swanson et al. (2014) |
| Suggested teaching students how to use RS | Berkeley et al. (2010); Edmonds et al., 2009; Ciullo et al. (2016); Gajria et al. (2007); Kaldenberg et al. (2015); Kuder (2017); Sencibaugh (2007); Solis et al. (2012) |
| Higher ES for MCS than SS | Edmonds et al. (2009); Ciullo et al. (2016); Gajria et al. (2007); Kaldenberg et al. (2015); Scamacca et al. (2015); Stevens et al. (2016) |

Note. LR= Literature Review, MA= Meta-analysis, ES= Effect Size, RDM= Reading-developed Measure, RS= Reading Strategies, MCS= Multicomponent Strategies, SS= Single Strategies

Reading Practices for Students with LD

Across the meta-analyses and literature review, many reading practices are identified (see Table 3). For the purpose of this study, however, the researcher reviewed the Arabic language and Saudi schools' Arabic curriculum to determine whether to include or exclude some of these practices, given all of these practices have been conducted in English-speaking countries, specifically the United States. Many reading practices were identified and grouped into broader categories. Based on the aforementioned reviews, 17 reading practices were identified for students with LD, which are:

1. Explicit, direct comprehension instruction
2. Explicit, direct vocabulary instruction
3. Explicit, direct fluency instruction
4. Explicit, direct phonics instruction
5. Explicit, direct morphological instruction

6. Explicit, direct orthographic instruction
7. Repeated reading
8. Repeated feedback
9. Questioning
10. Collaborative learning (e.g., classwide peer tutoring)
11. Multicomponent strategies (e.g., Identifying main idea + self-questioning)
12. Content enhancement tools (e.g., graphic organizers)
13. Computer assisted instruction
14. Reinforcement
15. Motivation and self-directed learning
16. An extended time for reading
17. Summarizing/note taking

Teacher Education Special Education in Saudi Arabia

Educational progress in Saudi Arabia had been slow in the last century; however, in the last two decades, policymakers have tried to reform the education system through governmental projects, especially after learning about the students' low performance in Saudi schools. Therefore, The Saudi government has initiated two national projects in order to promote the educational reform in the country: *the King Abdullah bin Abdulaziz Public Education Development Project (Tatweer/development) and Saudi Vision 2030*. Tatweer project was established in 2014, and the Saudi government allocated 21 billion dollars for this project. The goal of this project is to improve schools' students outcomes and teacher quality through establishing research centers, providing more professional opportunities to teachers, establishing professional standards for the teaching profession, equipping schools with the needed resources, and improving special education services, especially the ones that promote inclusive education in

Saudi schools. The second major project in Saudi Arabia that targets teacher education is Vision 2030, which was released in 2016. This vision aims to develop the country economically, socially, and educationally (Al Surf & Mostafa, 2017) through restructuring Saudi Arabian educational system in order to improve the educational outcomes, which ultimately decrease the country's dependency on oil production. Several Saudi scholars (e.g., Al-Maimooni, 2016; Al-Zahrani & Rajab, 2017) stated that Vision 2030 will eventually develop the educational system in the country, thus improve students' literacy and outcomes.

Through both of these initiatives, teacher education will be evolving to reflect modern practices and robust professionalism. Inclusive education has been promoted and implemented in Saudi schools; therefore, students with disabilities, specifically those with LD, are being taught in general education classrooms, so they have to meet the expectations of the general education curriculum, specifically in reading. With the current state of special education teacher education, however, special education teachers are not adequately prepared to support students with disabilities in general education settings. The Vision 2030 and Tatweer will indirectly reform special education teacher education to reflect the inclusive education movement. Given the focus of this study is teachers of students with LD in Saudi Arabia, teacher education in Saudi Arabia for these teachers is addressed and reviewed in the following section.

Teacher preparation programs of teachers of students with LD. Before presenting the features of special education preparation programs in Saudi universities, it should be noted that most universities have roughly the same curriculum. Preservice special education teachers in Saudi universities usually finish their programs in four years (eight semesters). In their first year and half, preservice special education teachers take general courses plus general education courses. In their fourth semester, they have to choose a disability category as their specialization. In the case of preservice teachers of students with LD, they take special education introductory

courses during their fourth semester. From the fifth semester to the seventh semester, they take courses that mainly focus on LD plus other general courses. During the eighth semester, preservice teachers of students with LD have a student teaching experience that is supervised by their advisors in the department of special education. Therefore, the full program comprises of 136 hours (55 general education hours, 51 special education hours, 18 LD hours, and 12 student teaching hours).

When it comes to reading courses, preservice teachers of students with LD usually take 1-2 reading courses in general and 1-2 reading courses focused on LD. For the general reading courses, they focus on Arabic skills for students in general. For example, all students in the college of education must take Arabic language skills courses in their first semester. In their first semester, they may take courses that focus on teaching reading skills in order to delve into the depth of teaching Arabic language. Students usually have to take these courses during their first year of college. For the 1-2 reading courses focused on LD, students usually take these courses in their fifth or sixth semesters. Some students may take these courses during their seventh semester, depending on their plan of study. These courses focus mainly on teaching reading and writing skills to students with LD.

After preservice teachers graduate, they are required to pass two exams in order to get hired in public schools: the Teachers Exam and the Competency Exam developed by the Central Ministry of Education (National Center for Assessment, 2018). These exams were developed based on standards that were set through the Tatweer project (see Table 12). The Teachers Exam has two sections: general knowledge (75 questions) and content knowledge (75 questions). The Competency Exam assesses teachers' general ability in multiple subjects, which includes Arabic language, mathematics, English, etc. Achieving high percentages in these exams increases preservice teachers' chance to be hired. It should be mentioned that teachers who wish to be

hired in public schools have to apply through the Central Ministry of Education, which means they are competing with all preservice teachers in their field throughout the nation.

Table 12

The Framework of Teaching Standards

| Domains of teaching | Standards |
|-----------------------------|--|
| Professional knowledge | 1. Knowledge of students and how they learn 2. Mastering basic skills of literacy and numeracy 3. Understanding the central concepts, methods of inquiry, structures of the discipline, and pedagogy specific to the discipline 4. Knowledge of general pedagogy 5. Designing coherent learning programs |
| Promoting learning | 6. Creating opportunities for and advancing student learning 7. Assessing student learning and providing useful feedback |
| Supporting learning | 8. Establishing a respectful and supportive environment for learning 9. Establishing a culture of learning and high expectations for student achievement |
| Professional accountability | 10. Working productively with school committees and colleagues to improve teaching and learning 11. Continually improving professional knowledge and practice 12. Understanding of the professional duties of Saudi teachers |

Note. Table adapted from Al-Saud & Alsadaawi (2014)

Critical features of effective teacher preparation programs. Given teachers' major role in students' academic success, educators have been concerned about the effectiveness of teacher preparation programs. Students' learning depends on the quality of teacher preparation programs (Ball & Forzani, 2009). Therefore, several scholars (e.g., Bishop, Brownell, Klingner, Leko, & Galman, 2010; Brownell & Leko, 2014; Leko, Roberts, & Handy, 2017) have suggested that special education teachers who teach reading to students with LD would profit from better preparation on how to organize and implement reading instruction. In special education,

however, there are only a small number of studies focused on this topic (Brownell et al., 2009; Feng & Sass, 2009; Seo, Brownell, Bishop, & Dingle, 2008; Stough & Palmer, 2003). Given the lack of studies related to the effectiveness of special education preparation programs in Saudi Arabia, the following addresses the critical features of effective teacher preparation programs in the United States.

Leko et al. (2012) examined the last decade (2002-2012) of special education teacher education research. They indicated five features of effective special education preservice teacher education programs: (1) coursework that dynamically incorporates both content and pedagogical knowledge, (2) pedagogies that allow for active learning experiences, such as simulations, (3) high quality student teaching experiences with supported coursework, (4) collaboration opportunities between general and special education preservice teachers, and (5) prolonged and extensive opportunities for learning how to teach. Many studies have documented the benefits of the aforementioned features of effective special education preservice teacher education programs. They enable preservice teachers to transfer theoretical and practical knowledge into classroom practices, which results in higher-quality reading instruction (Leko et al., 2012). These features also promote the use of inclusive practices for students with disabilities in general education classrooms (VanLaarhoven et al., 2008). When it comes to reading specifically, empowering preservice special education teachers to apply what they learned during their preservice training should enable them to improve and effectively apply their reading instruction (Leko & Brownell, 2011). Moreover, extensive programs indicated positive effects on students' reading achievement (Leko et al., 2012).

Professional development. Professional development plays an essential role in teachers' classroom practices. It is considered to fill the gap between teacher preparation programs and national education standards (Desimone, Smith, & Ueno, 2006) and drives educational reform

(Almadani & Allafiajiy, 2014; Birman, Desimone, Porter, & Garet, 2000; Brownell et al., 2017; Desimone, Garet, Birman, Porter, & Yoo, 2003; Richard & Neil, 2011). Effective professional development is key to enhancing teachers' content and pedagogical knowledge, which in turn, aligns their teaching practices with new educational standards (Desimone et al., 2003; Desimone et al., 2006). The success of many education reforms relies on effective teacher preparation (Desimone, 2009); therefore, within education reform initiatives, professional development receives the largest portion of funding to ensure that teachers are adequately prepared to implement new content and pedagogy (Desimone et al., 2006).

Professional development is a training that targets current teachers and other school staff to increase their performance in their current or future placements within a school or district (Desimone, 2009; Little, 1987). Professional development can take different forms, such as workshops, conferences, professional learning communities, continuing education activities, etc. In the past, professional development was related to, but distant from learning environments; however, many scholars affirm the effectiveness of professional development when embedded in practice and supported by colleagues (Desimone, 2009). Furthermore, sustained and intentional professional development is shown to significantly increase students' academic outcomes (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Desimone, Smith, Hayes, & Frisvold, 2005). Unfortunately, many teachers are not engaged in ongoing collaborative professional development grounded in research-based instruction (Brownell et al., 2017; Wei, Darling-Hammond, & Adamson, 2010). This issue is more complex when it comes to the Saudi Arabian education context.

Professional development opportunities are usually created and implemented by district-level ministries of education throughout Saudi Arabia. Therefore, teachers in schools whose administrators do not require professional development receive little opportunities to participate

in professional development. Teachers also are not incentivized to seek professional development opportunities because it is not a requirement to maintain a teaching license. Furthermore, most professional development in Saudi Arabia is referred to as “one-shot” professional development because the most commonly used format is lecturing along with the lack of follow-up about the implementation of practices (Al-Seghayer, 2014).

Professional development in Saudi Arabia has recently become a major concern for educational reformers (Alshamrani, Aldahmash, Alqudah, & Alroshood, 2012). Governmental initiatives like the Tatweer project and the 2030 Vision stress on the importance of professional development in order to promote educational reform throughout the nation. Al-Sulaimani (2010), in agreement with Desimone (2009), stressed on the need for professional development activities that enhance teachers’ pedagogical competencies. Almadani and Allafiajiy (2014) also stated that the Ministry of Education has promoted teacher professional development in Saudi schools in order to enhance students’ outcomes. For example, the Tatweer project has officially partnered with the Centre for British Teachers to develop and offer professional development to support teachers’ mastery of content and pedagogical knowledge, specifically how to integrate technology into classrooms; however, and Almazroa, Aloraini, and Alshaye, (2015) argued that professional development does not meet the radical educational reform currently happening in Saudi Arabia; therefore, only minimal success has been reported in current Saudi Arabian-based professional development research. Given the recent stress on effective professional development, Saudi Arabian reformers need to understand and integrate the critical features of effective professional development, which are addressed by Desimone (2009).

Critical features of effective professional development. Desimone and her colleagues (e.g., Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001) conducted a series of studies on professional development. The purpose of these

studies was to identify critical features of professional development; they indicated that identifying critical features of professional development can help educators design professional development activities that enhance teachers' theoretical and practical knowledge, and ultimately students' outcomes. Based on these studies, Desimone (2009) presented the critical features of professional development, which are: (1) content focus, (2) active learning, (3) coherence, (4) duration, and (5) collective participation. These features are Desimone's (2009) framework for effective professional development, which is grounded in Situated Learning theory (Lave & Wenger, 1991). This theory indicates that learning is complex and embedded in authentic contexts. Based on this perspective, teachers learn effectively when professional development provides opportunities to implement new practices within the context of teaching.

Content focus. Content focus is considered the most critical feature of professional development (Desimone, 2009; Desimone et al., 2006). This feature indicates that professional development activities should focus on a certain subject content and the way students learn that content (Desimone, 2009; 2011; Desimone & Garet, 2015). Desimone (2009) stated there is a link between professional development activities that are centralized on a specified content and improvement in teachers' knowledge and practice, which ultimately enhances students' achievement (see Desimone et al., 2006). More recently, Brownell et al. (2017) found that recent studies (e.g., Desimone, Smith, & Phillips, 2013; Gersten, Dimino, Jayanthi, Kim, & Santoro, 2010; Heller, Daehler, Wong, Shinohara, & Miratrix, 2012) intended to improve teachers' knowledge of teaching content, such as science, reading, and mathematics, revealed significant outcomes in teachers theoretical and practical knowledge as well as positive students' outcomes. Furthermore, studies focused on examining the effects of content-focused professional development on teachers' knowledge and practice of teaching reading (e.g., Carlisle & Berebitsky, 2010; Gersten et al., 2010; Greenleaf et al., 2011; McCutchen, Green, Abbott, &

Sanders, 2009; Neuman & Cunningham, 2009) found positive results not only on teachers learning and instructional practices, but also on students' reading performance.

Active learning. This feature indicates that teachers should be provided with opportunities to be active participants in professional development through observing, receiving feedback, analyzing instructional practices and students' products, creating presentations, and discussing the implementation of strategies (Carlisle & Berebitsky, 2010; Desimone, 2009; 2011; Desimone & Garet, 2015; Garet et al., 2008; Gersten et al., 2010; McCutchen et al., 2009; Neuman & Cunningham, 2009). Desimone (2009) stated that when teachers are active learners in the learning process, professional development is more effective than when they are passive learners, such as listening to a lecture (see Desimone et al., 2006). Specifically for reading professional development, Brownell et al. (2017) indicated that active learning opportunities with sustained reading-focused professional development improved teachers' pedagogical and content knowledge, and ultimately students' reading outcome (see Gersten et al., 2010; McCutchen et al., 2009).

Cohherence. This feature refers to the alignment of professional development content, goals, and activities with students' needs, teachers' beliefs and knowledge, as well as curriculum and policies (Desimone, 2009; 2011; Desimone & Garet, 2015). Brownell et al. (2017) and Desimone (2009) indicated that professional development that is coherent with school, district, and state policies along with students' learning are more likely to be effectively implemented and sustained in the classroom. Brownell et al. (2017) added that studies that addressed coherency in professional development (e.g., Carlisle & Berebitsky, 2010; Gersten et al., 2010; Hindman & Wasick, 2012; McCutchen et al., 2009) enabled teachers to integrate research-based strategies into their classroom practices. Using Desimone's (2009) framework, Gersten et al. (2010) implemented professional development to enhance teachers' vocabulary instruction; they found

that addressing coherency in professional development improved vocabulary instruction as well as students reading acquisition.

Duration. This characteristic stresses on the importance of ongoing and sustained professional development. Duration encompasses the time actively spent on professional development activities along with the time span between activities (Desimone, 2009). Desimone (2009) suggested at least 20 hours of engagement in professional development activities over the course of six months in order to effectively incorporate knowledge from professional development into classroom practices (see Desimone, 2011; Desimone & Garet, 2015). In their report on teacher development, Darling-Hammond et al. (2009) reported that professional development studies that included 30-100 contact hours over a 6-12 month period revealed positive outcomes of teachers' learning and students' outcomes. Studies with lower hours of professional development (5-14) did not find significant effects on students' outcomes. For reading-based professional development, Brownell et al. (2017) indicated a link between the duration of professional development and students' reading achievement (see Biancarosa, Bryk, & Dexter, 2010).

Collective participation. This feature encourages teachers from the same grade, content area, or school to establish an interactive learning community to collectively engage in professional development activities (Desimone, 2009; 2011; Desimone & Garet, 2015). These arrangements (e.g., study groups) provide teachers with a supportive environment that empowers them to improve their content and pedagogical knowledge within the context of their instruction (Brownell et al., 2017; Desimone, 2009). Brownell et al., (2017) found studies that engaged teachers in collaborative opportunities (e.g., teacher networks, coaching) during professional development (e.g., Carlisle & Berebitsky, 2010; De La Paz, Malkus, Monte-Sano, & Montanaro, 2011; Gersten et al., 2010; McCutchen et al., 2009) revealed improvement in teachers' literacy

instruction and students' reading outcomes.

Implementation of Reading Instruction

While inclusive education has become the trend in Saudi Arabian schools, more students, especially students with LD, are being included in general education classrooms, so they need full support in order to succeed and meet the academic demands, specifically reading. Although governmental initiatives and the Ministry of Education have attempted to develop teacher education and special education in order to meet the needs of inclusive education, the state of teacher education seems to hinder the implementation of these initiatives (Al-Ahmadi, 2009). These issues are contextualized within the implementation of reading instruction through the following aspects (see Figure 2).

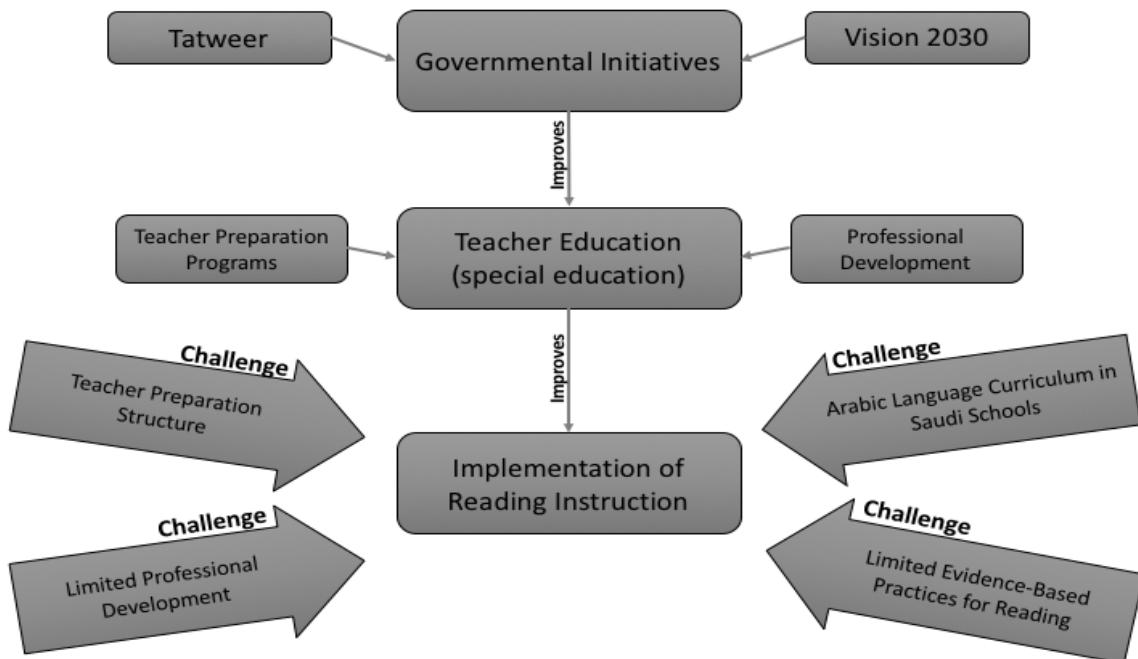


Figure 2. Factors related to reading instruction implementation of teachers of students with LD

First, special education preservice teacher education programs do not emphasize specialized content knowledge but provides general information in multiple content areas, although several Saudi scholars have emphasized on the criticality of high qualifies special education teachers. Second, teachers of students with LD cannot rely on general education teachers to implement effective reading instruction for students with LD because general education preservice teacher education programs do not address students with disabilities (including LD) and co-teaching is not a supported practice. Regardless of the emphasis on teacher collaboration between general and special education teachers, Al-Zoubi and Rahman (2016) argued that it barely exists in Saudi schools. Third, inservice teachers are not usually encouraged to participate in professional development activities. In addition, several scholars have argued that special education teachers have limited access to professional development activities, including reading-based professional development.

Fourth, it is not known whether Arabic curriculum in Saudi schools is designed based on empirical evidence. Fifth, there is a lack of evidence-based reading practices for students with LD. Altamimim, Lee, Sayed-Ahmed, and Kassem (2015), for example, synthesized the special education Saudi literature written in English and reported that only two quasi-experimental studies have been conducted in Saudi special education literature. This is due to the translation of English-based reading instruction research into Arabic, which is used to educate Saudi teachers. Research translation is popular in Saudi Arabia because the majority of Saudi scholars and researchers have received their doctorate degrees from English speaking countries, such as the United States, Britain, and Australia (Alamri, 2011; Smith & Abouammoh, 2013). In 2014, for example, over 100,000 Saudi students were actively enrolled in American universities (Taylor & Albasri, 2014). Since the effectiveness of these strategies are questionable when implemented in

a different language, it is unknown if the reading achievement of students with LD is positively affected with the use of these strategies

Based on the aforementioned factors related to the status of special education teacher education in Saudi Arabia, it is questioned whether teachers of students with LD are adequately prepared to implement reading instruction in their classrooms. Therefore, the purpose of this study is to examine reading-related preservice and inservice teacher education of teachers of students with LD and their current implementation of reading instruction. The procedures of this study were designed based on a study conducted by Leko, Alzahrani, and Handy (in press) to report a subset of findings from a larger study (Leko et al., 2017) that examined 577 secondary special education teachers' preparation and its relation to their reading practices. The survey included 43 items that asked teachers about their (a) demographics, (b) school characteristics, (c) teaching assignment, (d) undergraduate and graduate teacher preparation in reading, (e) professional development in reading, and (f) current reading practices.

Leko Alzahrani, et al. (in press) presented findings only on teachers who reported teaching reading to students with LD ($N = 392$). When teachers were asked about the implementation of their literacy practices, the most commonly utilized practice was direct, explicit vocabulary instruction ($n = 251, 68\%$), while the least implemented practice was interdisciplinary teacher teaming ($n = 66, 17.9\%$). In regards to undergraduate/graduate reading instruction courses, (a) 170 teachers (43%) reported taking 1-2 undergraduate/graduate reading instruction courses, and (b) 222 of them reported taking 1-2 courses included knowledge on reading practices for students with disabilities. In regards to professional development, 164 teachers (43%) reported participating in zero hours of district or school-based professional development in the last two years, while 80 teachers (21%) reported receiving 1-2 hours of professional development. When teachers asked about the professional development activities in

reading instruction, the majority of them ($n = 194$; 63.8%) reported district-based workshops, while 144 teachers (47.4%) indicated school-based workshops.

Conclusions

In this chapter, the history and context of LD in Saudi Arabia was reviewed. In addition, reading in Arabic language was discussed, Arabic language orthographic, phonological, and morphological characteristics, as well as the possible implications on Arabic readers with LD were presented. Arabic curriculum in Saudi schools was also briefly addressed. Furthermore, reading instruction literature for students with LD was reviewed, and the reading instruction practices were identified based on the reviewed literature. Moreover, the current status of teacher education and special education, including teacher preparation and professional development, in Saudi Arabia was discussed. Finally, the reading instruction implementation of teachers of students with LD and the related challenges were presented.

CHAPTER III

METHODOLOGY

Research Questions

1. What reading-related university training experiences do Saudi teachers of students with LD report having completed?
2. What reading-related professional development experiences beyond university training do Saudi teachers of students with LD report having completed?
3. To what extent are reading-related university training and professional development experiences related to the implementation of teachers' current classroom practices?

Design, Participants, and Setting

The purpose of this study was to examine teachers of students with LD's reading-related teacher education and its impact on the implementation of reading instruction in Saudi Arabian schools. This study utilized a survey research design, using quantitative approach to examine and answer the research questions. This study used a census sampling procedure, so participants were all male and female teachers of students with LD in Saudi elementary, middle, and high schools. Even though census data collection procedures are usually impractical (Daniel, 2011; Fricker, 2017), it is feasible and practical for this study because the Ministry of Education in Saudi Arabia is the central authority for all public and private schools, and it has a directory of all special education programs, including programs for students with LD. Therefore, the researcher obtained *indirect* access to all teachers of students with LD through the Ministry of Education. Specifically, the researcher sent a survey link via Qualtrics Software to the central Ministry of Education, that sent it to all special education programs supervisors in regional ministries. Then,

these supervisors disseminated the survey link via email to all teachers of students with LD in their region. Currently, there are 2077 programs and 2158 teachers for students with LD in Saudi schools (see Table 13). The response rate, which is the number of participants who completed the survey divided by the number of invitees (Fowler, 2014), was calculated after the data collection procedures.

Table 13

Demographics of Teachers of Students with LD in Saudi Arabia

| Gender | Central | North | South | East | West | Total |
|--------|-------------|-------------|-------------|-------------|-------------|------------|
| Female | 287 (30.3%) | 34 (23.6%) | 60 (23.4%) | 79 (28.1%) | 79 (14.9%) | 539 (25%) |
| Male | 660 (69.7%) | 110 (76.4%) | 196 (76.6%) | 202 (71.9%) | 451 (85.1%) | 1559 (75%) |
| Total | 947 | 144 | 256 | 281 | 530 | 2158 |

Power Analysis

The G*Power software was used to determine the minimum sample size for the multiple regression analysis with a total of two predictors. The power analysis was conducted with .05 level of significance, a power of .95, and a medium effect size (.15) (Faul, Erdfelder, Buchner, & Lang, 2009). The aforementioned analysis required a minimum sample size of 107 participants (see Figure 3).

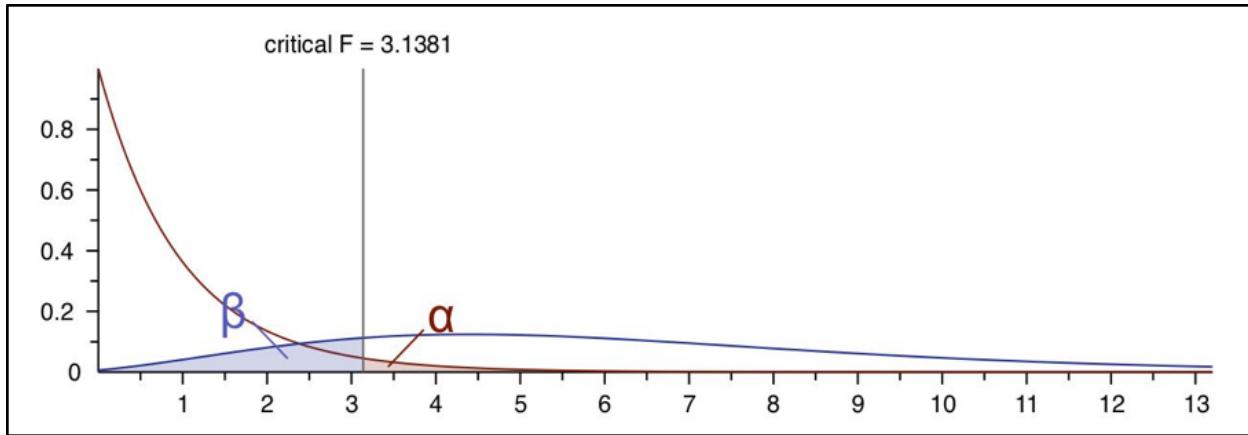


Figure 3. Power analysis from G*power

Consideration of Human Subjects' Approval

A request to conduct this study was submitted to The Human Subjects Committee. The Institutional Review Board (IRB) at the University of Kansas reviewed this request. Once approval was granted (Appendix A), the survey was distributed.

Research Field Study Approval

After receiving IRB approval, the researcher sent a request - to conduct the study- that included the required documents to Saudi Arabian Cultural Mission (SACM), which is located in Washington, D.C. After reviewing the request, SACM sent the documents along with the letter of definition (Appendix B) to the Ministry of Education in Saudi Arabia in order to conduct the study.

Instruments

The purpose of this study's questionnaire was to examine teachers of students with LD's teacher education, including their undergraduate/graduate courses and professional development opportunities related to reading instruction, and how they affect teachers' implementation of current reading practices. This survey was adapted from a survey used in a series of studies published by Leko and various colleagues (e.g., Leko, Chiu, & Roberts, 2017; Leko, Handy, & Roberts, 2017) (Appendix C). The original survey includes 43 items. The 43-item survey will

ask teachers to provide information about their: (a) demographics, (b) school context, (c) teaching assignment, (d) undergraduate and graduate teacher preparation in reading, (e) professional development in reading, and (f) current reading practices. The survey items include checklists, and 5-point Likert-type rating scales, and open-ended questions.

For the purpose of this study, the following steps were taken to ensure the applicability of the survey to teachers of students with LD in Saudi Arabia. First, a careful and extensive review was conducted to identify reading practices for students with LD and struggling readers, that were presented across 14 meta-analyses and literature reviews published between 1999-2017 (e.g., Berkeley, Scruggs, & Mastropieri, 2010; Ciullo & Reutebuch, 2013; Edmonds et al., 2009; Kaldenberg et al., 2015; Scammacca, Roberts, Vaughn, & Stuebing, 2015; Stevens, Park, & Vaughn, 2018; Swanson et al., 2012). Given Leko and her colleagues only identified reading practices for adolescents, the purpose of this step was to find reading practices for students with LD and struggling readers in K-12 grades. Second, the researcher conducted an extensive review of Arabic language to: (1) describe and present Arabic language characteristics and (2) compare the characteristics of both Arabic and English languages. Third, a careful and detailed review of Arabic curriculum in Saudi schools was conducted to learn about the books used and the reading skills taught to students. The purpose of conducting the second and third steps was to ensure the transparency and reciprocity of English and Arabic reading practices.

Based on the aforementioned steps, some items were deleted, added, or modified. For example, question 18 in the original survey, asks teachers to “select all that apply”; in this study, this question was changed to be a Likert-scale question. Therefore, the translated survey included 19 items that asked teachers to provide information about their: (a) demographics, (b) undergraduate and graduate teacher preparation in reading, (c) professional development in reading, and (d) the implementation of current reading practices. The survey items included

checklists, 5-point Likert-type rating scales (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always) and open-ended questions (Appendix D).

Procedures

Validity and reliability. Validity and reliability are critical procedures that were addressed in this survey study. Validity is “the extent to which the instrument measures what it is intended to measure” (Frey, 2006, p. 136). It is simply a term that describes the relationship between an answer and some measure of the true score, and answers correspond to what they are intended to measure (Fowler, 2014). Validity is conventionally inferred from the manner in which a scale was constructed, its ability to predict events, and its relationship to measures of other constructs (Messick, 1995).

In regards to reliability, it refers to “whether scores for items on an instrument are internally consistent, whether they are stable over time, and whether there is consistency in test administration and scoring” (Creswell, 2009, p. 233). It is simply providing consistent measure in comparable situations (Fowler, 2014). To ensure consistent data collection, experience for all respondents, researchers have to ensure that: (1) questions must be simple, understandable, well designed, and comprehensible (DeVellis, 2017). Both validity and reliability were addressed throughout the process of translating the survey from English into Arabic.

Translating the survey from Arabic into English. The survey used for this study was translated using the backward translation approach. Beaton, Bombardier, Guillemin, and Ferraz (2002) suggested a six-step procedure using the backward translation approach: translation, synthesis, back translation, expert committee review, pretesting, and submission and appraisal. The backward translation developed Beaton et al. (2002) effectively addresses content, cultural, and construct validity. The translation approach in this study did not include pretesting to extract reliability of question 18 because each item in this question is its own variable.

Translation. At this stage, the researcher invited two translators who speak and write both English and Arabic languages proficiently, have experience in Saudi Arabian cultural context, and have experience with translating texts from English to Arabic or vice versa. They *independently* translated the English version into Arabic.

Synthesis. A third bilingual person who has the same qualifications of the other two translators reconciled a discussion between the two translators in order to develop one Arabic version of the survey.

Back translation. Another independent person, who was blind to the original document, was invited to translate back the finalized Arabic version into the original language (English version). Then, she compared this English version to the original survey written in English.

Expert committee review. An expert committee, consisted of three experts, compared the final Arabic version and the original English version in terms of readability, accuracy, and comprehension of the Arabic version. These experts are special education faculty members at Saudi universities, experienced in teacher education and reading, speak and write both Arabic and English proficiently, and experienced about the Saudi Arabian cultural context. The committee met to consolidate the difference between the surveys in order to produce a final version of the survey. The expert committee review ensured content and cultural validity (DeVellis, 2016).

Focus group. Focus group is defined as conducting discussions with people from the study population. For the content validity of the final Arabic version, a focus group of 15 special education teachers acted as a sample that represents the population. They looked over the survey for 15-20 minutes in order to determine the question wording, clarity, and comprehension of some key words or terms (Fowler, 2014). To make the focus group more systematic, respondents filled out a rating form on each question; this rating form included: (1) easiness to read, (2)

clarity, (3) accuracy (Fowler, 1995), and (4) if there are any missing reading practices that need to be added to the survey. After they read the survey, they suggested: (1) adding the word “strategy” before every reading strategy in questions 12, 15, and 18, (2) adding “in general” to choice 10a, 12a, and 18a, (3) adding “practical activities” as an additional choice to question 11, (4) deleting the choice “tutoring students with specific learning disabilities” from question 11 given it does not exist in teacher education in Saudi Arabia, and (4) deleting “university courses related to teaching reading” from question 15 given this does not exist in teacher education in Saudi Arabia. All the suggested modification and comments of the focus group were addressed and applied to the survey (DeVellis, 2016; Fowler, 2014).

Submission and appraisal. The researcher documented and recorded all the previous steps taken in order to translate the document, including the translation forms, comments received from experts, and the decisions made by the review committee (Appendix E).

Data Collection

As explained previously, teachers were invited to participate *voluntarily* in the survey sent through the Saudi Ministry of Education. The survey was sent through Qualtrics Software and was available for one month. At the halfway point, a reminder was sent to teachers who did not complete the survey. The consent statement explained: (1) the purpose of the study in details, (2) the importance of participation, and (3) the related-confidentiality assurance related to teachers’ participation (Appendices F & G).

Data Analysis

Depending on the data type, different statistical methods (descriptive, regression, and qualitative) were used to analyze the research questions. The Statistical Package for Social Science (SPSS) software version 25 was used to analyze all data. All analyses were conducted using $p < .05$ as a level of statistical significance. Descriptive statistics were computed to: (1)

provide more information related to the research questions and (2) describe the sample on the basis of background information (e.g., gender, age, qualifications, years of teaching experience, etc.).

Research question 1. What reading-related university training experiences do Saudi teachers of students with LD report having completed? Descriptive statistics (e.g., mean, standard deviation, frequencies, percentages) were used to describe teachers of students with SLD's self-report related to the number, components, and emphasis of reading courses taken during their undergraduate/graduate training.

Research question 2. What reading-related professional development experiences beyond university training do Saudi teachers of students with LD report having completed? Descriptive statistics (e.g., mean, standard deviation, frequencies, percentages) were used to describe teachers of students with SLD's self-report related to number, types, and emphasis of professional development activities beyond university training.

Research question 3. To what extent are reading-related university training and professional development experiences related to the implementation of teachers' current classroom practices? To analyze this question, multiple regression analysis was used to examine the correlation between teachers' reading-related university training and professional development experience beyond university training (teacher preparation) and teachers' implementation of reading instruction (see Figure 4).

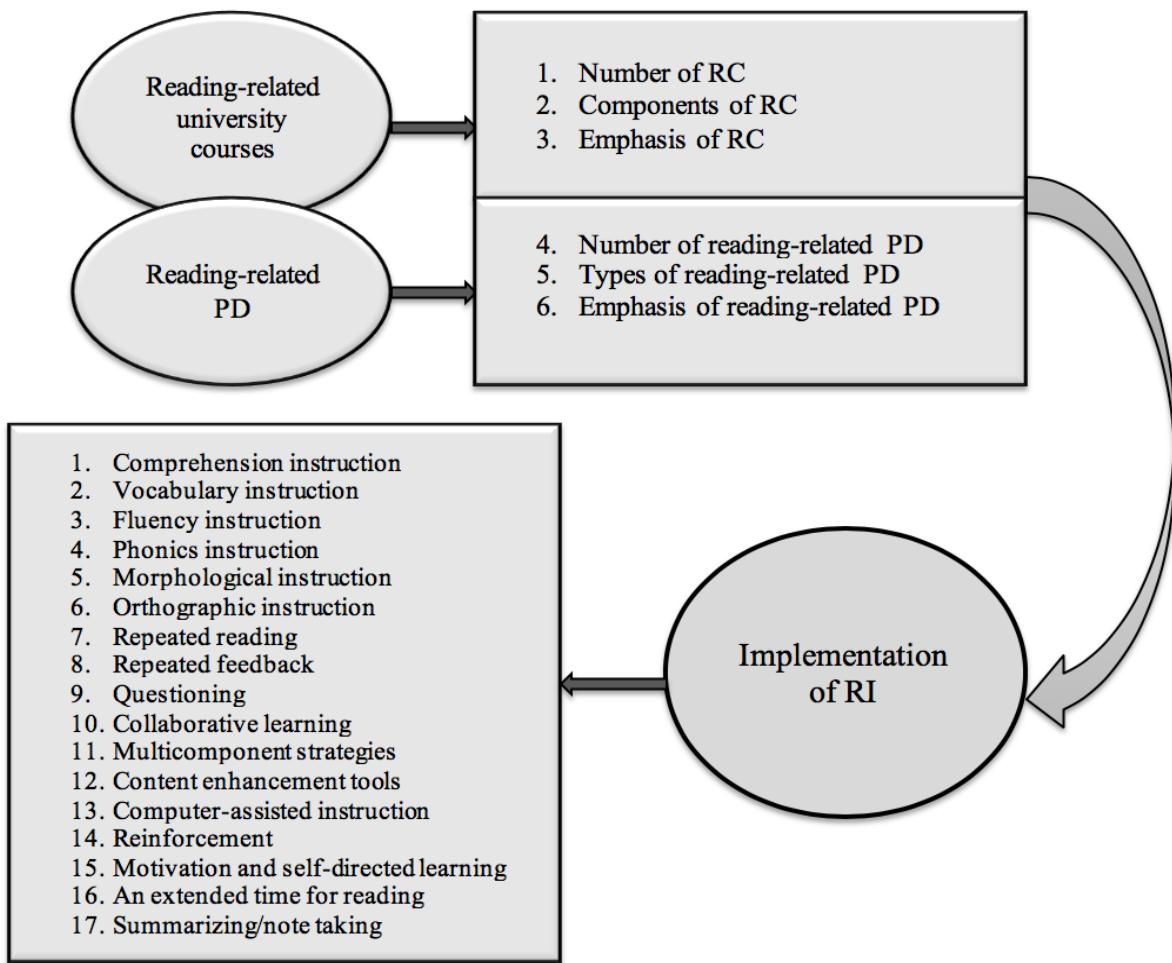


Figure 4. Illustration of data analysis procedures

Open-ended questions. The participants were asked an open-ended question. This question was a follow up question that asked teachers to list any reading instruction they use in their classrooms not listed in question 18, which asked teachers about the frequency of their use of certain reading instruction. The answers of the open-ended question were listed and summarized (Corbin, Strauss, & Strauss, 2014; J. Creswell & D. Creswell, 2017).

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to examine the perceived impact of reading related preservice and inservice preparation on the implementation of reading instruction of teachers on students with LD in Saudi Arabian schools. In this chapter, the descriptive statistics of teachers' demographic information, reading-related courses, reading-related professional development, and implementation of reading instruction are first presented and discussed. Then, using multiple regression analysis, the relationship between reading-related university training and professional development activities and teachers' implementation of reading instruction is also analyzed and presented.

Descriptive Statistics

Participants' demographics. As mentioned in the previous chapter, the survey was sent online to all teachers of students with LD in Saudi schools (2158 teachers). Of the 2158 teachers, 291(13.5%) teachers took the survey; of the 291 teachers, 129 (44.3%) completed the survey. Therefore, the other 162 (55.7%) questionnaires were excluded from the analysis (see Table 14).

Table 14

Valid and Excluded Cases

| Cases | N | Percent |
|--------------|------------|------------|
| Valid | 129 | 44.3 |
| Excluded | 162 | 55.7 |
| Total | 291 | 100 |

The number of participants who completed the survey was 129 teachers. The number of male teachers was 71 (55%), while the number of female teachers was 58 (45%). The majority of teachers ($n = 110$, 85.3%) held a bachelor's degree, 14 teachers (10.9%) held a master's degree, 4 teachers (3.1%) held an associate degree, while only one teacher (.8%) held a doctorate degree. Most teachers ($n = 112$, 86.8%) teach at elementary schools, while the rest ($n = 17$, 13.2%) teach at the secondary level (see Table 15).

Table 15

Participants' Demographics

| | Frequency | Percentage |
|---------------------------|-----------|------------|
| Gender | | |
| Male | 71 | 55 |
| Female | 58 | 45 |
| Level of Education | | |
| Associate | 4 | 3.1 |
| Bachelor | 110 | 85.3 |
| Master's | 14 | 10.9 |
| Doctorate | 1 | .8 |
| Class Level | | |
| Elementary School | 112 | 86.8 |
| Middle School | 13 | 10.1 |
| High School | 4 | 3.1 |

In this study, teachers were asked about the Saudi region where they are currently teaching. The purpose of this question was to determine the number of teachers in each region in order to compare impact of each region's reading-related teacher education individually, which will be examined in future studies. Of the 129 teachers who completed the survey, the majority

($n = 45$, 34.9%) reported the West region, 34 teachers (26%) reported the Central region, 21 teachers (16.3%) reported the East region, while the least reported regions were the South ($n = 19$, 14.7%) and North ($n = 10$, 7.8%). Teachers were also asked about the region of university where they obtained their degrees. The purpose of this question was to determine the number of teachers graduated from each region in order to compare any impact of each region's universities' teacher preparation programs, which will be examined in future studies. Forty-six teachers (35.7%) reported the West region, 40 (31%) reported the Central region, then the East region ($n = 19$, 14.7%), the South region ($n = 13$, 10.1%), and only 10 teachers (7.8%) reported obtaining their degrees from the North region (see Table 16).

Table 16

Participants' Current School Region and Region of Obtained Degree

| | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Current School Region | | |
| West | 45 | 34.9 |
| Central | 34 | 26.4 |
| East | 21 | 16.3 |
| South | 19 | 14.7 |
| North | 10 | 7.8 |
| Region of Obtained Degree | | |
| West | 46 | 35.7 |
| Central | 40 | 31 |
| East | 19 | 14.7 |
| South | 13 | 10.1 |
| North | 11 | 8.5 |

As part of the survey, teachers were asked about their age, years of teaching experience,

and number of students they serve. For these questions specifically, the participants were asked to write the exact numbers of age, teaching experience, and served students in order to enable the researcher to determine the accurate ranges and percentages. The results revealed that the participants' age ranged from 23 to 44 years old with a mean of 31 ($SD = 4.42$). Based on the derived data, the ages were coded into four groups. As shown in Table 17, the most common age group was 29-34 with 60 teachers (46.5%) in this group. The least common age group reported was 40-44 years old with only 8 teachers (6.2%).

The results also indicated that teachers' years of teaching experience ranged from 1 to 20 years with a mean of 6.8 ($SD = 4.8$). Based on the derived data, the teaching experience was coded into four groups. As per Table 17, the most prevalent years of teaching experience group was 1-5 with 59 teachers (45.7%), while the least prevalent years of teaching experience group was 16-20 with only 8 teachers (6.2%) (see Table 17). In addition, teachers on average serve 15 students ($SD = 3.00$), while the number of students served ranged from 1 to 20 students. This category was coded into groups based on the derived numbers. The most common group was 11-15 with 61 teachers (47.3%) followed by the group 16-20 ($n = 59$, 45.7%), while the least prevalent group was 1-5 with only 2 teachers (1.6%) (see Table 17).

Table 17

Participants' Age, Teaching Experience, and Number of Served Students

| | Frequency | Percent |
|----------------------------|-----------|---------|
| Age | | |
| 23-28 | 38 | 29.5 |
| 29-34 | 60 | 46.5 |
| 35-39 | 23 | 17.8 |
| 40-44 | 8 | 6.2 |
| Teaching Experience | | |

| | | |
|----------------------------------|----|------|
| 1-5 | 59 | 45.7 |
| 6-10 | 44 | 34.1 |
| 11-15 | 18 | 14 |
| 16-20 | 8 | 6.2 |
| Number of Served Students | | |
| 1-5 | 2 | 1.6 |
| 6-10 | 7 | 5.4 |
| 11-15 | 61 | 47.3 |
| 16-20 | 59 | 45.7 |

Research Question One: Reading-Related University Courses

Number of courses. Teachers were asked to report the number of courses that included information on (1) reading in general, (2) reading for students with disabilities, (3) reading for students with LD, and (4) reading curriculum. To analyze the research question, descriptive statistics were utilized to by calculating the mean of items, standard deviations, frequencies, and percentages. Based on the derived data, the aforementioned four categories were coded into groups (see Table 18). Teachers of students with LD on average had 4.5 courses ($SD = 2.1$) during their undergraduate/graduate training that included information on reading instruction.

Courses in general. Teachers on average had 1.3 courses ($SD = .91$) during their undergraduate/graduate training that included information on reading instruction in general. The majority of teachers ($n = 96, 74.4\%$) had 1-2 courses, 8 teachers (6.2%) had 3-4 courses, 1 teacher (.8%) had 5 or more courses, while 24 teachers (18.6%) did not have any reading-related courses.

Courses for students with disabilities. Teachers on average had 1.1 courses ($SD = .71$) during their undergraduate/graduate training that included information on reading instruction for

students with disabilities. The majority of teachers ($n = 107$, 82.9%) had 1-2 courses, 3 teachers (2.3%) had 3-4 courses, 1 teacher (.8%) had 5 or more courses, while 18 teachers (14%) did not have any courses included information on reading instruction for students with disabilities.

Courses for students with LD. Teachers on average had 1.3 courses ($SD = .58$) during their undergraduate/graduate training that included information on reading instruction for students with LD. The majority of teachers ($n = 121$, 93.8%) had 1-2 courses, 6 teachers (4.7%) had 3 or more courses, and the rest of teachers ($n = 2$, 1.6%) did not have any courses that included information on reading instruction for students with LD.

Courses on reading curriculum. Teachers on average had .7 courses ($SD = .86$) during their undergraduate/graduate training that included information on reading curriculum. Nearly two thirds of teachers ($n = 86$, 66.6%) had 1-2 courses, 2 teachers (1.6%) had 3 or more courses, while nearly one third of teachers ($n = 41$, 31.8%) had no courses that included information on reading curriculum (see Table 18).

Table 18

Number of Reading Courses

| | Frequency | Percent |
|---|-----------|---------|
| General Reading Courses | | |
| 0 | 24 | 18.6 |
| 1-2 | 96 | 74.4 |
| 3-4 | 8 | 6.2 |
| 5 or more | 1 | .8 |
| Reading Courses for Students with Disabilities | | |
| 0 | 18 | 14 |
| 1-2 | 107 | 82.9 |
| 3-4 | 3 | 2.3 |

| | | |
|---|-----|------|
| 5 or more | 1 | .8 |
| Reading Courses for Students with LD | | |
| 0 | 2 | 1.6 |
| 1-2 | 121 | 93.8 |
| 3 or more | 6 | 4.7 |
| Courses on Reading Curriculum | | |
| 0 | 41 | 31.8 |
| 1-2 | 86 | 66.6 |
| 3-4 | 1 | .8 |
| 5 or more | 1 | .8 |

The structure of courses. Teachers were asked about the structure of their undergraduate/graduate coursework in reading. They were allowed to select more than one choice. The majority of teachers ($n = 115$, 89.1%) reported lecture-based course with no practical experiences. Nearly one third of teachers ($n = 46$, 35.7%) reported completing a case study. Thirty-one teachers (24%) reported study groups while a similar percentage ($n = 29$, 22.5) reported practicing teaching reading in a classroom. Slightly fewer teachers ($n = 17$, 13.2%) indicated administrating student assessments in reading, and 14 teachers (10.9%) reported practical activities inside/outside classroom. Finally, none of the teachers ($N = 0$, 0%) reported having observation as one of the components of courses included information on reading instruction (see Table 19).

Table 19

The Structure of Reading Courses

| Course Component | Frequency | Percent |
|--|-----------|---------|
| Lecture-based course with no practical experiences | 115 | 89.1 |

| | | |
|--|----|------|
| Completing a case study | 46 | 35.7 |
| Study groups | 31 | 24 |
| Practicing teaching reading in a classroom | 29 | 22.5 |
| Administrating student assessment in reading | 17 | 13.2 |
| Practical activities inside/outside classroom | 14 | 10.9 |
| Observation of teaching practices in a classroom | 0 | 0 |
| Other | 0 | 0 |

The content of courses. Teachers were asked about the content of their undergraduate/graduate coursework in reading. They were allowed to select more than one answer. The majority of teachers ($n = 78$, 60.5%) reported reinforcement, followed by explicit, direct vocabulary instruction ($n = 70$, 54.3%), explicit, direct phonics instruction ($n = 67$, 51.9%), questioning ($n = 60$, 46.5%), and explicit, direct orthographic instruction ($n = 57$, 44.2%), and repeated feedback ($n = 56$, 43.4%). Lesser reported content was motivation and self-directed learning ($n = 18$, 14%), explicit, direct comprehension instruction ($n = 21$, 16.3%), multicomponent strategies ($n = 26$, 20.2%), content enhancement tools and computer-assisted instruction ($n = 31$, 24%), and explicit, direct fluency instruction ($n = 33$, 25.6%) (see Table 20).

Table 20

The Content of Reading Courses

| Reading Strategy | Frequency | Percent |
|---|-----------|---------|
| Reinforcement | 78 | 60.5 |
| Explicit, direct vocabulary instruction | 70 | 54.3 |
| Explicit, direct phonics instruction | 67 | 51.9 |
| Questioning | 60 | 46.5 |
| Explicit, direct orthographic instruction | 57 | 44.2 |

| | | |
|--|----|------|
| Repeated feedback | 56 | 43.4 |
| Repeated reading | 49 | 38 |
| Collaborative learning | 40 | 31 |
| Explicit, direct morphological instruction | 38 | 29.5 |
| Summarizing/note taking | 37 | 28.7 |
| An extended time for reading | 35 | 27.1 |
| Explicit, direct fluency instruction | 33 | 25.6 |
| Content enhancement tools | 31 | 24 |
| Computer assisted instruction | 31 | 24 |
| Multicomponent strategies | 26 | 20.2 |
| Explicit, direct comprehension instruction | 21 | 16.3 |
| Motivation and self-directed learning | 18 | 14 |
| Other | 0 | 0 |

Research Question Two: Reading-Related Professional Development

Number of professional development events. Teachers were asked to write the number of professional development events that included information on (1) reading in general, (2) reading for students with disabilities, (3) reading for students with LD, and (4) reading curriculum since they graduated. To analyze the research question, descriptive statistics were utilized to by calculating the mean of items, standard deviations, frequencies, and percentages. Based on the derived data, the aforementioned four categories were coded into groups (see Table 21). One hundred and three teachers (79.8%) had professional development that included information on reading instruction, while 26 teachers (20.2%) did not. Teachers of students with LD on average had 1.5 professional development ($SD = 1.1$) that included information on reading instruction.

Reading-related professional development in general. Teachers on average had .43

professional development activities ($SD = .77$) that included information on reading instruction in general. Of the 129 teachers, 88 teachers (68.2%) reported none, 39 teachers (30.2%) reported 1-2 professional development, while only two teachers (1.6%) reported 3 or more professional development activities on reading instruction in general.

Reading-related professional development for students with disabilities. Teachers on average had .76 professional development activities ($SD = .91$) that included information on reading instruction for students with disabilities. Nearly half of teachers ($n = 64$, 49.6%) reported having none professional development, 61 teachers (47.2%) had 1-2 professional development activities, while only 4 teachers (3.2%) had 3-4 professional development activities that included information on reading for students with disabilities.

Reading-related professional development for students with LD. Teachers on average had 2 professional development activities ($SD = 1.7$) that included information on reading instruction for students with LD. Twenty-eight teachers (21.7%) did not have any professional development, 56 teachers (43.4%) had 1-2 professional development activities, 38 teachers (29.4%) had 3-4 professional development activities, while only 7 teachers (5.5%) had 5 or more professional development activities that included information on reading instruction for students with LD.

Professional development on reading curriculum. Teachers on average had .29 professional development activities ($SD = .5$) that included information on reading curriculum. The majority of teachers ($n = 95$, 73.6%) did not have any professional development, while the rest of teachers ($n = 34$, 26.4%) had 1-2 professional development activities on reading curriculum (see Table 21).

Table 21

Number of Reading-Related Professional Development Activities

| | Frequency | Percent |
|---|-----------|---------|
| Professional Development on Reading Instruction | | |
| 0 | 88 | 68.2 |
| 1-2 | 39 | 30.2 |
| 3-4 | 1 | .8 |
| 5 or more | 1 | .8 |
| Professional Development on Reading Instruction for Students with Disabilities | | |
| 0 | 64 | 49.6 |
| 1-2 | 61 | 47.2 |
| 3-4 | 4 | 3.2 |
| Professional Development on Reading Instruction for Students with LD | | |
| 0 | 28 | 21.7 |
| 1-2 | 56 | 43.4 |
| 3-4 | 38 | 29.4 |
| 5 or more | 7 | 5.5 |
| Professional Development on Reading Curriculum | | |
| 0 | 95 | 73.6 |
| 1-2 | 34 | 26.4 |

Types of professional development activities. Teachers were asked about the type of reading-related professional development activities they have participated in since they graduated. They were allowed to select more than choice. The total number of selected professional development activities was 198, meaning they participated 1-2 types of workshops.

A considerable number of teachers ($n = 75$, 58%) reported teacher study groups or networks; similarly, 72 teachers (55.8%) reported workshops. Lesser reported professional development types were conferences ($n = 21$, 16.3%), followed by seminars ($n = 16$, 12.4%), and technology training ($n = 14$, 10.9%) (see Table 22).

Table 22

Types of Reading Related Professional Development

| Professional Development Type | Frequency | Percent |
|----------------------------------|-----------|---------|
| Teacher study groups or networks | 75 | 58.1 |
| Workshops | 72 | 55.8 |
| Conferences | 21 | 16.3 |
| Seminars | 16 | 12.4 |
| Technology training | 14 | 10.9 |
| Other | 0 | 0 |

The content of professional development activities. Teachers were asked about the content of their reading-related professional development activities. They were allowed to select more than one answer. With equal number and percentage, the majority of teacher ($n = 52$, 40.3%) reported both reinforcement and explicit, direct vocabulary instruction, followed by both repeated feedback and explicit, direct phonics instruction ($n = 45$, 34.9%), and repeated reading and explicit, direct fluency instruction ($n = 36$, 27.9%). Lesser numbers of teachers reported content was explicit, direct morphological instruction ($n = 23$, 17.8%), explicit, direct comprehension instruction ($n = 17$, 13.2%), computer-assisted instruction ($n = 16$, 12.4%), and multicomponent strategies ($n = 14$, 10.9%) (see Table 23).

Table 23

Emphasis of Professional Development Activities on Reading Strategies

| Reading Strategy | Frequency | Percent |
|--|------------------|----------------|
| Reinforcement | 52 | 40.3 |
| Explicit, direct vocabulary instruction | 52 | 40.3 |
| Repeated feedback | 45 | 34.9 |
| Explicit, direct phonics instruction | 45 | 34.9 |
| Repeated reading | 36 | 27.9 |
| Explicit, direct fluency instruction | 36 | 27.9 |
| Questioning | 35 | 27.1 |
| Collaborative learning | 32 | 24.8 |
| An extended time for reading | 30 | 23.3 |
| Content enhancement tools | 29 | 22.5 |
| Explicit, direct orthographic instruction | 26 | 20.2 |
| Motivation and self-directed learning | 26 | 20.2 |
| Summarizing/note taking | 25 | 19.4 |
| Explicit, direct morphological instruction | 23 | 17.8 |
| Explicit, direct comprehension instruction | 17 | 13.2 |
| Computer assisted instruction | 16 | 12.4 |
| Multicomponent strategies | 14 | 10.9 |
| Other | 0 | 0 |

Reading Minutes

Teachers were asked the number of daily minutes they spend teaching. Teachers' report of reading minutes ranged between 10-160 minutes with an average of 47.6 ($SD = 26.04$). Elementary school teachers' reported daily average of teaching reading was 49.7 minutes, while

secondary school teachers' reported daily average of teaching reading was 35.6 minutes. Nearly half of teachers ($n = 64$, 49.6%) reported teaching reading for 10-40 minutes daily. Forty-five teachers (34.9%) reported teaching reading for 41-70 minutes, 17 teachers (13.6%) reported 71-100 minutes, and only three teachers reported teaching reading for over 100 minutes daily. (see Table 24).

Table 24

Teachers' Daily Reading Minutes

| Minutes Range | Frequency | Percent |
|---------------|-----------|---------|
| 10-40 | 64 | 49.6 |
| 41-70 | 45 | 34.9 |
| 71-100 | 17 | 13.6 |
| 101-130 | 1 | .8 |
| 131-160 | 2 | 1.1 |

Teachers' Frequency of Implementing Reading Instruction

A five-point Likert scale (1= Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Always) was used to ask teachers about the frequency of using certain reading practices in their classrooms. As shown in Figure 5, the highest ranking strategy *Always* used was reinforcement, while the lowest ranking strategy *Never* used was motivation and self-directed learning.

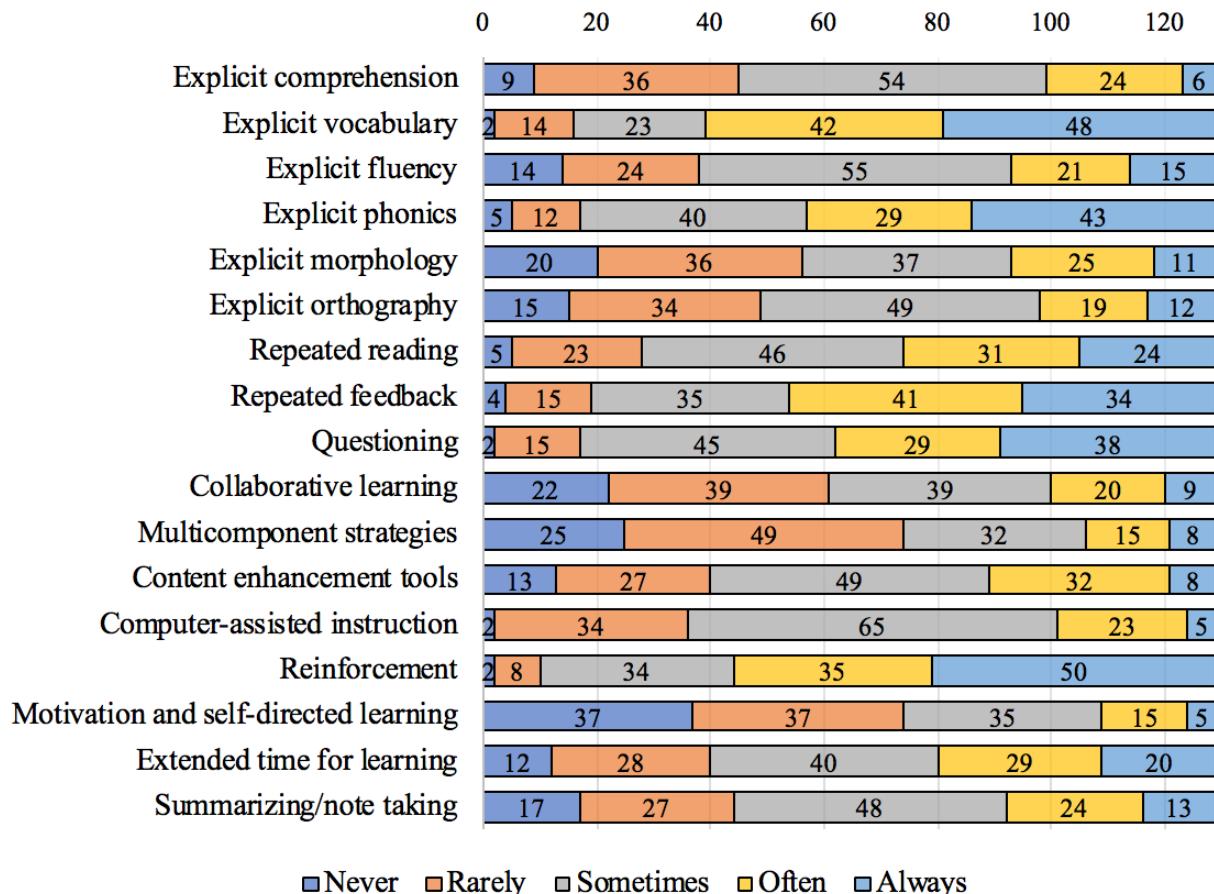


Figure 5. Implementation frequency of reading instruction

As shown in Table 25, the most frequently implemented reading practice was reinforcement ($M = 3.95, SD = 1.02$), followed by explicit, direct vocabulary instruction ($M = 3.93, SD = 1.1$), explicit, direct phonics instruction ($M = 3.72, SD = 1.14$), and with equal responses repeated feedback and questioning ($M = 3.67, SD = 1.1$). The least implemented reading practice was motivation and self-directed learning ($M = 2.33, SD = 1.13$), multicomponent strategies ($M = 2.47, SD = 1.13$), collaborative learning ($M = 2.65, SD = 1.14$), and explicit, direct morphological instruction ($M = 2.78, SD = 1.18$).

Table 25

Descriptive Statistics of the Implementation of Reading Instruction

| Reading Strategy | M | SD |
|--|----------|-----------|
| Reinforcement | 3.95 | 1.02 |
| Explicit, direct vocabulary instruction | 3.93 | 1.1 |
| Explicit, direct phonics instruction | 3.72 | 1.14 |
| Repeated feedback | 3.67 | 1.1 |
| Questioning | 3.67 | 1.1 |
| Repeated reading | 3.36 | 1.1 |
| An extended time for reading | 3.13 | 1.1 |
| Explicit, direct fluency instruction | 2.99 | 1.12 |
| Content enhancement tools | 2.96 | 1.06 |
| Computer assisted instruction | 2.96 | .81 |
| Summarizing/note taking | 2.91 | 1.15 |
| Explicit, direct comprehension instruction | 2.86 | .96 |
| Explicit, direct orthographic instruction | 2.84 | 1.11 |
| Explicit, direct morphological instruction | 2.78 | 1.18 |
| Collaborative learning | 2.65 | 1.14 |
| Multicomponent strategies | 2.47 | 1.12 |
| Motivation and self-directed learning | 2.33 | 1.13 |

Open-ended Question: Other Reading Practices

Teachers were asked an open-ended question, indicating if there are other reading practices they use in their classrooms and not listed within the aforementioned reading practices. Of the 219 teachers who completed the survey, only six teachers responded to this question. Teachers reported six additional reading strategies, which were representing texts with pictures,

brainstorming, identifying the main idea, reading stories instead of formal texts, writing on sand, and making words using clay.

Research Question Three: Reading Instruction Implementation and Teachers' Training

A standard multiple regression analysis was conducted to evaluate how well reading-related university courses and professional development beyond university training predict teachers' implementation of reading instruction. The analysis was performed using the Statistical Package for Social Science (SPSS) software version 25. The independent variables, which included (1) the number, (2) structure, and (3) content of reading-related courses and (4) the number, (5) type, and (6) content of reading-related professional development, were *simultaneously* entered as the independent (predictor) variables. The dependent variables, which included the implementation of (1) explicit, direct comprehension instruction, (2) explicit, direct vocabulary instruction, (3) explicit, direct fluency instruction, (4) explicit, direct phonics instruction, (5) explicit, direct morphological instruction, (6) explicit, direct orthographic instruction, (7) repeated reading, (8) repeated feedback, (9) questioning, (10) collaborative learning, (11) multicomponent strategies, (12) content enhancement tools, (13) computer assisted instruction, (14) reinforcement, (15) motivation and self-directed learning, (16) an extended time for reading, and (17) summarizing/note taking.

Before conducting the multiple regression analyses, a variance inflation factor (VIF) test was conducted to detect for multicollinearity. The purpose of this analysis was to ensure that the interdependent variables were not strongly intercorrelated, and they were distinguishable from each other. There is no multicollinearity among regressors if VIF is equal to 1, moderate multicollinearity if VIF is greater than 1, high if VIF is between 5-10 and may be problematic (Akinwande, Kikko, & Samson, 2015; García, García, López Martín, & Salmerón, 2015; O'Brien, 2007). As shown in Table 26, VIFs for all independent variables ranged from 1.123 to

3.015, which indicated that there was roughly no multicollinearity to moderate multicollinearity.

Table 26

Collinearity Test

| Variable | Tolerance | VIF |
|------------------|-----------|-------|
| Number of RRC | .891 | 1.123 |
| Structure of RRC | .769 | 1.301 |
| Content of RRC | .672 | 1.487 |
| Number of RRPD | .440 | 2.271 |
| Type of RRPD | .332 | 3.015 |
| Content of RRPD | .403 | 2.479 |

Note. RRC= Reading-related courses, RRPD= Reading-related professional development

Seventeen multiple regression analyses were conducted to evaluate how well reading-related university courses and professional development beyond university training predict teachers' implementation reading instruction. The 17 multiple regression analyses were performed because *the implementation of each strategy was separately entered as the dependent variable*. All analyses were conducted using $p < .05$ as a level of statistical significance. However, taking into account the adjustment for the significance level, which may reflect Type I Error, the significance $p < .05$ was divided by 17. Therefore, when significant results were found based on the significance level $p < .05$, the significance $p < .003$ was used to learn whether the results found were still significant based on the new significant criteria. The purpose of conducting and addressing this step was to adjust for the multiple statistical tests (17 tests). The overall results of the multiple regression analyses are presented in Table 27.

Table 27

Summary of the Multiple Regression Analyses

| Type of Reading Practice | B | SE | β |
|-------------------------------------|-------|------|---------|
| Comprehension instruction | 2.3 | .278 | 1.503 |
| Vocabulary instruction | 3.235 | .300 | 2.623* |
| Fluency instruction | 2.288 | .317 | 2.592* |
| Phonics instruction | 3.002 | .331 | 1.377 |
| Morphological instruction | 2.643 | .344 | 1.317 |
| Orthographic instruction | 2.80 | .328 | .721 |
| Repeated reading | 2.763 | .312 | 2.252* |
| Repeated feedback | 2.782 | .304 | 3.095* |
| Questioning | 2.610 | .292 | 4.329** |
| Collaborative learning | 2.463 | .323 | 2.622* |
| Multicomponent strategies | 2.253 | .317 | 2.491* |
| Content enhancement tools | 2.292 | .298 | 2.761* |
| Computer-assisted instruction | 2.817 | .236 | 1.489 |
| Reinforcement | 3.103 | .292 | 2.176 |
| Motivation & self-directed learning | 1.571 | .315 | 3.156* |
| Extended time for reading | 2.865 | .343 | 1.936 |
| Summarizing/note taking | 1.796 | .316 | 4.069** |

Note. * $p < .05$. ** $p < .003$.

The implementation of explicit, direct comprehension instruction. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct comprehension instruction, $F(6, 122) = 1.503, p = .183$. The multiple correlation coefficient was .262, indicating that approximately 2.3 percent of the variance of the implementation of explicit, direct comprehension instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond

university training (see Table 27).

Table 28

Reading-Related Training and Implementation of Explicit, Direct Comprehension Instruction

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 2.331 | .278 | 8.392 | .000 |
| Number of RRC | .100 | .042 | 2.380 | .019 |
| Structure of RRC | -.022 | .096 | -.231 | .818 |
| Content of RRC | -.010 | .037 | -.272 | .786 |
| Number of RRPD | .005 | .042 | .125 | .901 |
| Type of RRPD | -.023 | .136 | -.169 | .866 |
| Content of RRPD | .048 | .043 | 1.114 | .268 |

Note. Overall model: $F(6, 122) = 1.503, p = .183$, Adjusted R-squared = .023

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B= Unstandardized coefficient, SE= Standard error, t= The significance of individual regression coefficients

The implementation of explicit, direct vocabulary instruction. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of explicit, direct vocabulary instruction, $F(6, 122) = 2.623, p = .020$. The multiple correlation coefficient was .338, indicating that approximately 7.1 percent of the variance of the implementation of explicit, direct vocabulary instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct vocabulary instruction, $F(6, 122) = 2.623, p = .020$, given .020 is larger .003 (see Table 28).

Table 29

Reading-Related Training and Implementation of Explicit, Direct Vocabulary Instruction

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 3.235 | .300 | 10.775 | .000 |
| Number of RRC | .027 | .045 | .599 | .550 |
| Structure of RRC | -.026 | .104 | -.245 | .807 |
| Content of RRC | .027 | .040 | .682 | .496 |
| Number of RRPD | .012 | .045 | .275 | .784 |
| Type of RRPD | .084 | .147 | .572 | .568 |
| Content of RRPD | .070 | .046 | 1.502 | .131 |

Note. Overall model: $F(6, 122) = 2.623, p = .020$, *Adjusted R-squared* = .071

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, *B*= Unstandardized coefficient, *SE*= Standard error, *t*= The significance of individual regression coefficients

The implementation of explicit, direct fluency instruction. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of explicit, direct fluency instruction, $F(6, 122) = 2.592, p = .021$. The multiple correlation coefficient was .336, indicating that approximately 6.9 percent of the variance of the implementation of explicit, direct fluency instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct fluency instruction, $F(6, 122) = 2.592, p = .021$, given .021 is larger .003 (see Table 29).

Table 30

Reading-Related Training and Implementation of Explicit, Direct Fluency Instruction

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.288 | .317 | 7.211 | .000 |
| Number of RRC | .128 | .048 | 2.672 | .009 |
| Structure of RRC | -.113 | .110 | -1.028 | .306 |
| Content of RRC | .002 | .043 | .049 | .961 |
| Number of RRPD | .017 | .048 | .350 | .727 |
| Type of RRPD | .196 | .155 | 1.261 | .210 |
| Content of RRPD | -.005 | .049 | 0.103 | .918 |

Note. Overall model: $F(6, 122) = 2.592, p = .021, Adjusted R-squared = .069$

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of explicit, direct phonics instruction. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct phonics instruction, $F(6, 122) = 1.377, p = .229$. The multiple correlation coefficient was .252, indicating that approximately 1.7 percent of the variance of the implementation of explicit, direct phonics instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 30).

Table 31

Reading-Related Training and Implementation of Explicit, Direct Phonics Instruction

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 3.002 | .331 | 9.068 | .000 |
| Number of RRC | .121 | .050 | 2.419 | .017 |
| Structure of RRC | -.053 | .115 | -.463 | .644 |

| | | | | |
|-----------------|-------|------|-------|------|
| Content of RRC | .036 | .044 | .818 | .415 |
| Number of RRPD | -.006 | .050 | -.123 | .902 |
| Type of RRPD | -.090 | .162 | -.558 | .578 |
| Content of RRPD | .055 | .051 | 1.073 | .286 |

Note. Overall model: $F(6, 122) = 1.377, p = .229$, Adjusted $R^2 = .017$

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of explicit, direct morphological instruction. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct morphological instruction, $F(6, 122) = 1.317, p = .255$. The multiple correlation coefficient was .247, indicating that approximately 1.5 percent of the variance of the implementation of explicit, direct morphological instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 31).

Table 32

Reading-Related Training and Implementation of Explicit, Direct Morphological Instruction

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 2.643 | .344 | 7.689 | .000 |
| Number of RRC | -.006 | .052 | -.114 | .909 |
| Structure of RRC | -.034 | .119 | -.287 | .774 |
| Content of RRC | -.017 | .046 | -.371 | .711 |
| Number of RRPD | .111 | .052 | 2.153 | .033 |
| Type of RRPD | -.062 | .168 | -.370 | .712 |
| Content of RRPD | .009 | .053 | .166 | .869 |

Note. Overall model: $F(6, 122) = 1.317, p = .255$, Adjusted $R^2 = .015$

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B =

Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of explicit, direct orthographic instruction. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of explicit, direct orthographic instruction, $F(6, 122) = .721, p = .633$. The multiple correlation coefficient was .185, indicating that approximately 1.3 percent of the variance of the implementation of explicit, direct orthographic instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 32).

Table 33

Reading-Related Training and Implementation of Explicit, Direct Orthographic Instruction

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.80 | .328 | 8.549 | .000 |
| Number of RRC | .029 | .049 | .577 | .565 |
| Structure of RRC | -.087 | .114 | -.762 | .447 |
| Content of RRC | .032 | .044 | .733 | .465 |
| Number of RRPD | .069 | .049 | 1.395 | .165 |
| Type of RRPD | -.185 | .160 | -1.156 | .250 |
| Content of RRPD | -.015 | .050 | -.292 | .770 |

Note. Overall model: $F(6, 122) = .721, p = .633$, *Adjusted R-Squared* = -.013

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of repeated reading. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of repeated reading, $F(6, 122) = 2.252, p = .043$. The

multiple correlation coefficient was .316, indicating that approximately 5.5 percent of the variance of the implementation of repeated reading in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of repeated reading, $F(6, 122) = 2.252, p = .043$, given .043 is larger than .003 (see Table 33).

Table 34

Reading-Related Training and Implementation of Repeated Reading

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.763 | .312 | 8.85 | .000 |
| Number of RRC | .121 | .047 | 2.562 | .012 |
| Structure of RRC | -.142 | .108 | -1.31 | .193 |
| Content of RRC | .050 | .042 | 1.200 | .233 |
| Number of RRPD | .054 | .047 | 1.157 | .249 |
| Type of RRPD | -.192 | .153 | -1.258 | .211 |
| Content of RRPD | .034 | .048 | .712 | .478 |

Note. Overall model: $F(6, 122) = 2.252, p = .043$, Adjusted R-squared = .055

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B= Unstandardized coefficient, SE= Standard error, t= The significance of individual regression coefficients

The implementation of repeated feedback. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of repeated feedback, $F(6, 122) = 3.095, p = .007$. The multiple correlation coefficient was .363, indicating that approximately 8.9 percent of the variance of the implementation of repeated feedback in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond

university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of repeated feedback, $F(6, 122) = 3.095, p = .007$, given $.007$ is larger than $.003$ (see Table 34).

Table 35

Reading-Related Training and Implementation of Repeated Feedback

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.782 | .304 | 9.165 | .000 |
| Number of RRC | .120 | .046 | 2.627 | .010 |
| Structure of RRC | -.132 | .105 | -1.254 | .212 |
| Content of RRC | .071 | .041 | 1.745 | .083 |
| Number of RRPD | .046 | .046 | 1.006 | .317 |
| Type of RRPD | -.107 | .149 | -.719 | .473 |
| Content of RRPD | .047 | .047 | .999 | .320 |

Note. Overall model: $F(6, 122) = 3.095, p = .007$, Adjusted R-squared = .089

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B= Unstandardized coefficient, SE= Standard error, t= The significance of individual regression coefficients

The implementation of questioning. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of questioning, $F(6, 122) = 4.329, p = .001$. The multiple correlation coefficient was .419, indicating that approximately 13.5 percent of the variance of the implementation of questioning in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was

also significantly related to teachers' implementation of questioning, $F(6, 122) = 4.329, p = .001$, given $.001$ is smaller than $.003$ (see Table 35).

Table 36

Reading-Related Training and Implementation of Questioning

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 2.610 | .292 | 8.940 | .000 |
| Number of RRC | .036 | .044 | .822 | .413 |
| Structure of RRC | -.020 | .101 | -.197 | .844 |
| Content of RRC | .119 | .039 | 3.033 | .003 |
| Number of RRPD | -.004 | .044 | -.101 | .919 |
| Type of RRPD | -.092 | .143 | -.642 | .522 |
| Content of RRPD | .097 | .045 | 2.157 | .033 |

Note. Overall model: $F(6, 122) = 4.329, p = .001$, Adjusted R-squared = .135

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B= Unstandardized coefficient, SE= Standard error, t= The significance of individual regression coefficients

The implementation of collaborative learning. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of collaborative learning, $F(6, 122) = 2.622, p = .020$. The multiple correlation coefficient was .338, indicating that approximately 7.1 percent of the variance of the implementation of collaborative learning in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of collaborative learning, $F(6, 122) = 2.622, p = .020$, given $.020$ is larger than $.003$ (see Table 36).

Table 37

Reading-Related Training and Implementation of Collaborative Learning

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 2.463 | .323 | 7.621 | .000 |
| Number of RRC | .023 | .049 | .464 | .643 |
| Structure of RRC | -.004 | .112 | -.034 | .973 |
| Content of RRC | -.031 | .043 | .715 | .476 |
| Number of RRPD | .163 | .049 | 3.354 | .001 |
| Type of RRPD | -.069 | .158 | -.433 | .666 |
| Content of RRPD | -.044 | .050 | -.886 | .377 |

Note. Overall model: $F(6, 122) = 2.622, p = .020$, *Adjusted R-squared* = .071

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, *B*= Unstandardized coefficient, *SE*= Standard error, *t*= The significance of individual regression coefficients

The implementation of multicomponent strategies. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of multicomponent strategies, $F(6, 122) = 2.491, p = .026$. The multiple correlation coefficient was .33, indicating that approximately 6.5 percent of the variance of the implementation of multicomponent strategies in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of multicomponent strategies, $F(6, 122) = 2.491, p = .026$, given .026 is larger than .003 (see Table 37).

Table 38

Reading-Related Training and Implementation of Multicomponent Strategies

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.253 | .317 | 7.106 | .000 |
| Number of RRC | .049 | .048 | 1.021 | .309 |
| Structure of RRC | .047 | .110 | .427 | .670 |
| Content of RRC | -.057 | .043 | -1.348 | .180 |
| Number of RRPD | .121 | .048 | 2.551 | .012 |
| Type of RRPD | .100 | .155 | .643 | .521 |
| Content of RRPD | -.080 | .049 | -1.632 | .105 |

Note. Overall model: $F(6, 122) = 2.491, p = .026$, Adjusted R-squared = .065

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, *B*= Unstandardized coefficient, *SE*= Standard error, *t*= The significance of individual regression coefficients

The implementation of content enhancement tools. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of content enhancement tools, $F(6, 122) = 2.761, p = .015$. The multiple correlation coefficient was .346, indicating that approximately 7.6 percent of the variance of the implementation of content enhancement tools in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of content enhancement tools, $F(6, 122) = 2.761, p = .015$, given .015 is larger than .003 (see Table 38).

Table 39

Reading-Related Training and Implementation of Content Enhancement Tools

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 2.292 | .298 | 7.700 | .000 |
| Number of RRC | .040 | .045 | .885 | .378 |
| Structure of RRC | .056 | .103 | .545 | .587 |
| Content of RRC | -.013 | .040 | -.324 | .747 |
| Number of RRPD | .062 | .054 | 1.379 | .170 |
| Type of RRPD | -.044 | .146 | -.302 | .763 |
| Content of RRPD | .074 | .046 | 1.621 | .108 |

Note. Overall model: $F(6, 122) = 2.761, p = .015$, Adjusted R-squared = .076

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B= Unstandardized coefficient, SE= Standard error, t= The significance of individual regression coefficients

The implementation of computer-assisted instruction. The linear combination of reading-related university courses and professional development beyond university training was not significantly related to teachers' implementation of computer-assisted instruction, $F(6, 122) = 1.489, p = .187$. The multiple correlation coefficient was .261, indicating that approximately 2.2 percent of the variance of the implementation of computer-assisted instruction in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 39).

Table 40

Reading-Related Training and Implementation of Computer-Assisted Instruction

| | B | SE | t | Sig |
|---------------|-------|------|--------|------|
| Constant | 2.817 | .236 | 11.936 | .000 |
| Number of RRC | .042 | .036 | 1.165 | .246 |

| | | | | |
|------------------|-------|------|--------|------|
| Structure of RRC | -.124 | .082 | -1.512 | .133 |
| Content of RRC | -.014 | .032 | -.448 | .655 |
| Number of RRPD | .003 | .035 | .074 | .941 |
| Type of RRPD | .146 | .116 | 1.260 | .210 |
| Content of RRPD | .011 | .036 | .312 | .756 |

Note. Overall model: $F(6, 122) = 1.489, p = .187$, Adjusted R -squared = .022

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of reinforcement. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of reinforcement, $F(6, 122) = 2.176, p = .05$. The multiple correlation coefficient was .311, indicating that approximately 5.2 percent of the variance of the implementation of reinforcement in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 40).

Table 41

Reading-Related Training and Implementation of Reinforcement

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 3.103 | .292 | 10.634 | .000 |
| Number of RRC | .092 | .044 | 2.087 | .039 |
| Structure of RRC | -.088 | .101 | -.866 | .388 |
| Content of RRC | .098 | .039 | 2.493 | .014 |
| Number of RRPD | -.028 | .044 | -.639 | .524 |
| Type of RRPD | .002 | .143 | .015 | .988 |
| Content of RRPD | .033 | .045 | .737 | .463 |

Note. Overall model: $F(6, 122) = 2.176, p = .05$, Adjusted R -squared = .052

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of motivation and self-directed learning. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of motivation and self-directed learning, $F(6, 122) = 3.156, p = .007$. The multiple correlation coefficient was .367, indicating that approximately 9.2 percent of the variance of the implementation of motivation and self-directed learning in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of motivation and self-directed learning, $F(6, 122) = 3.156, p = .007$, given .007 is larger than .003 (see Table 41).

Table 42

Reading-Related Training and Implementation of Motivation and Self-Directed Learning

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 1.571 | .315 | 4.985 | .000 |
| Number of RRC | .130 | .048 | 2.729 | .007 |
| Structure of RRC | -.005 | .109 | -.044 | .965 |
| Content of RRC | .005 | .042 | .116 | .908 |
| Number of RRPD | .098 | .047 | 2.075 | .040 |
| Type of RRPD | -.241 | .154 | -1.561 | .121 |
| Content of RRPD | .045 | .049 | .934 | .352 |

Note. Overall model: $F(6, 122) = 3.156, p = .007$, Adjusted R-squared = .092

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression

coefficients

The implementation of extended time for reading. The linear combination of reading-related university courses and professional development beyond university training was *not* significantly related to teachers' implementation of extended time for reading, $F(6, 122) = 1.936$, $p = .08$. The multiple correlation coefficient was .295, indicating that approximately 4.2 percent of the variance of the implementation of extended time for reading in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training (see Table 42).

Table 43

Reading-Related Training and Implementation of Extended Time for Reading

| | B | SE | t | Sig |
|------------------|-------|------|--------|------|
| Constant | 2.865 | .343 | 8.353 | .000 |
| Number of RRC | .115 | .052 | 2.229 | .028 |
| Structure of RRC | -.188 | .119 | -1.583 | .116 |
| Content of RRC | .002 | .046 | .046 | .963 |
| Number of RRPD | .063 | .051 | 1.216 | .226 |
| Type of RRPD | .021 | .168 | .126 | .900 |
| Content of RRPD | -.035 | .053 | -.672 | .503 |

Note. Overall model: $F(6, 122) = 1.936$, $p = .08$, *Adjusted R-squared* = .042

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

The implementation of summarizing/note taking. The linear combination of reading-related university courses and professional development beyond university training was significantly related to teachers' implementation of summarizing/note taking, $F(6, 122) = 4.069$, $p = .001$. The multiple correlation coefficient was .408, indicating that approximately 12.6

percent of the variance of the implementation of summarizing/note taking in the sample can be accounted for by the linear combination of reading-related university courses and professional development beyond university training. When the adjusted significance ($p < .003$) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *also* significantly related to teachers' implementation of summarizing/note taking, $F(6, 122) = 4.069, p = .001$, given $.001$ is smaller than $.003$ (see Table 43).

Table 44

Reading-Related Training and Implementation of Summarizing/Note Taking

| | B | SE | t | Sig |
|------------------|-------|------|-------|------|
| Constant | 1.796 | .316 | 5.684 | .000 |
| Number of RRC | .175 | .048 | 3.662 | .000 |
| Structure of RRC | -.089 | .110 | -.811 | .419 |
| Content of RRC | .026 | .042 | .612 | .542 |
| Number of RRPD | .012 | .047 | .248 | .805 |
| Type of RRPD | .100 | .155 | .645 | .520 |
| Content of RRPD | .039 | .049 | .794 | .429 |

Note. Overall model: $F(6, 122) = 4.069, p = .001$, Adjusted $R^2 = .126$

Note. RRC= Reading-related courses, RRPD= Reading-related professional development, B = Unstandardized coefficient, SE = Standard error, t = The significance of individual regression coefficients

Summary

The purpose of this study was to examine the relationship between teachers of students with LD's reading-related preservice and inservice training and their implementation of reading instruction in Saudi schools. This chapter presents the analysis of data collected through survey from 129 teachers. The chapter includes (1) descriptive statistics of teachers' demographic information, reading-related courses, reading-related professional development, reading minutes,

and teachers' frequency of implementing reading instruction; (2) research questions; (3) an open-ended question; and (4) the relationship between teachers' reading-related training and implementation of reading instruction. The next chapter discusses the results presented in this chapter. It covers discussion of major findings, their relationship to previous studies, limitations, and recommendations for future research.

CHAPTER V

DISCUSSION

Introduction

The purpose of this study was to investigate the relationship between reading-related training (courses and professional development activities) and the implementation of reading instruction of teachers of students with LD's in Saudi schools. An online survey, which was open for a month, was sent to teachers asking them about their demographic information, reading-related courses, reading-related professional development activities, and their implementation of reading instruction in their classroom. The results indicated that teachers' reading-related preservice and inservice trainings were not significantly related to their implementation of the following seven reading practices: explicit, direct comprehension instruction; explicit, direct phonics instruction; explicit, direct morphological instruction; explicit, direct orthographic instruction; computer-assisted instruction; reinforcement; and extended time for reading. Teachers' reading-related preservice and inservice trainings were significantly related to their implementation of the remaining instructional practices, which include explicit, direct vocabulary instruction; explicit, direct fluency instruction; repeated reading; repeated feedback; questioning; collaborative learning; multicomponent strategies; content enhancement tools; motivation and self-directed learning; and summarizing/note taking. This chapter discusses the major findings, their relationship to previous studies, limitations, and implications and recommendations for future research.

Major Findings and Relationship to Previous Research

Demographic information. Three demographic characteristics stood out among the rest

of the demographic information. First, the number of female teachers of students with LD in Saudi Arabia ($n = 539$, 25%) was roughly one fourth of the total number of teachers. Therefore, many female schools in Saudi Arabia do not have teachers of students with LD, meaning many female students with LD have neither been identified nor supported within the education system. The Ministry of Education may consider establishing more programs for students with LD in female schools, so more female students with LD can access LD-related services.

In addition, the majority of teachers who completed the survey ($n = 112$, 86.8%) were elementary school teachers. This is a reflection of the low number of secondary LD teachers in Saudi Arabia. The Ministry of Education lists 1900 programs that serve elementary students with LD, while there are only 100 secondary programs (Ministry of Education, 2018). In other words, many secondary schools do not have teachers of students with LD, meaning a considerable number of students with LD within the Saudi education system have neither been identified nor supported by a special education/LD teacher at the secondary level. This issue of underserved secondary students with LD does not only exist in Saudi Arabia but also in the U.S. (Leko, Alzahrani, et al., 2017; Leko, Chiu, et al., 2017). If students with LD go through secondary school without adequate academic support, they will not be prepared to transition to the workforce or higher education systems (Gothberg, Peterson, Peak, & Sedaghat, 2015).

Reading-related university courses. Reading does not only enable students to learn how to learn, but it also empowers them to build a background for future acquisition of knowledge. Given that reading is a critical skill set for all young students to develop, teachers have to be prepared to teach reading skills to students of varying abilities. In this study, the majority of teachers ($n = 96$, 74.4%) report taking 1-2 reading courses across pre- and in-service training. Leko, Alzahrani, et al. (in press) found that approximately less than half of the teachers ($N = 170$, 43%) in a Midwest state report taking 1-2 reading courses during their undergraduate/graduate

training. These numbers indicate that teachers of students with LD in Saudi school receive roughly the same amount of reading-related coursework as teachers of students with LD in the U.S. However, Leko, Alzahrani, et al. (in press) recommended that more reading-related courses should be integrated into preservice teacher education special education programs because there is a correlation between reading-related teaching experiences at the preservice level and the implementation of reading practices.

Analyzing teachers' reading-related courses revealed interesting results. Teachers on average had roughly *one course* during their undergraduate/graduate training that included information in reading instruction *in general* ($M = 1.3$, $SD = .91$), *for students with disabilities* ($M = 1.1$, $SD = .71$), or *students with LD* ($M = 1.3$, $SD = .58$). In addition, teachers on average had *less than one course* during their undergraduate/graduate training that included information on reading curriculum ($M = .7$, $SD = .86$). These numbers suggest that teachers of students with LD may not receive sufficient reading-related training that equips them to effectively teach and implement reading instruction in their classrooms. This ultimately can affect students' reading performance, which hinders them from learning and understanding class materials and meet the curriculum requirements.

Analyzing the structure of reading-related courses reveals few interesting results. Of the 129 teachers who completed the survey, 115 of them (89.1%) that reported participating in a lecture-based course with no practical experiences as the main method used to deliver content and course materials. This indicates that a considerable number of faculty members at special education departments use lecturing as their main method to deliver reading-related courses. In addition, none of the teachers reported observing reading instruction in a classroom outside of their student teaching experience as part of teacher preparation experience. This further complicates the learning process given teachers of students with LD did not observe how reading

strategies or practices are practically implemented and used in classrooms.

Through analyzing the reading instruction within reading-related university courses (content), the most commonly taught strategies were reinforcement ($n = 78$, 60.5%), explicit, direct vocabulary instruction ($n = 70$, 54.3%), and explicit, direct phonics instruction ($n = 67$, 51.9%). The least commonly taught strategies included motivation and self-directed learning ($n = 18$, 14%) and explicit, direct comprehension instruction ($n = 21$, 16.3%). Based on these results, it seems that reading-related university courses focus on teaching word-level strategies, such as teaching students new words and how to pronounce these words along with reinforcing students' correct answers. These results indicate that reading-related university courses do not focus on teaching higher level reading strategies, such as comprehension and motivation and self-learning. These results may be due to the high number of elementary teacher respondents whose programs would have focused more on teaching the fundamentals of reading versus secondary teachers whose programs more likely focus on higher level reading strategies and skills. Overall, the reading-related preservice courses only prepare teachers of students with LD to teach lower level reading skills but not higher level reading skills.

Reading-related professional development activities. Professional development is a critical part of inservice teachers' continuous learning given it can improve teachers' theoretical and practical knowledge. In other words, teachers' quality of implementing reading instruction depends on participating in professional development activities that keep them updated with evidence-based reading practices (Brownell et al., 2017; Leko, Brownell, Sindelar, & Kiely, 2015; Leko, Chiu, et al., 2017). Based on the study results, one hundred and three teachers (79.8%) have had at least one professional development that included information on reading instruction, while 26 teachers (20.2%) did not. Teachers on average had 1.5 professional development experience ($SD = 1.1$) that included information on reading instruction. When

reflecting on such results, it is important to think about teachers' average length of teaching experience, which was 6.8 years ($SD = 4.8$). This means teachers, on average, participate in one to two professional development activities that included information on reading instruction every six-seven years. Given the aforementioned results, it can be concluded that teachers of students with LD in Saudi schools have had limited access to professional development activities that included information on reading instruction. Previous studies on professional development for special education teachers in Saudi Arabia (Aldabas, 2015; Alquraini, 2010; Alquraini & Rao, 2018; Alsalem, 2015) have also indicated limited access to professional development activities.

Analyzing the type of reading-related professional development revealed interesting results. Most teachers selected teacher study groups or networks ($n = 72, 58\%$) and workshops ($n = 72, 55.8\%$), while a small number of teachers reported participating in conferences ($n = 21, 16.3\%$), seminars ($n = 16, 12.4\%$), or technology training ($n = 14, 10.9\%$). It was encouraging to learn that more than half of teachers have participated in workshops and study groups or networks. It should be noted that teacher study groups are not commonly affiliated with official organizations although they can be supportive and beneficial for teachers' theoretical and practical knowledge development. However, teachers' limited participation in conferences and seminars indicates that there is a disconnect between K-12 education and higher education (Mansour et al., 2014; Qablan, Mansour, Alshamrani, Aldahmash, Sabbah, 2015). In other words, it seems that teachers are not encouraged or advised to participate in conferences or seminars (Alquraini, 2010; Qablan et al., 2015), which hinders their continuing development, specifically the most current reading-related research and practices. This ultimately can affect students' reading performance negatively.

In regards to the content of the reading-related professional development activities, fifty-two teachers (40.3%) reported the inclusion of both reinforcement and explicit, direct vocabulary

instruction, followed by both explicit, direct phonics instruction and repeated reading ($n = 45$, 34.9%). The least commonly addressed strategies were explicit, direct morphological instruction ($n = 23$, 17.8%), followed by explicit, direct comprehension instruction ($n = 17$, 13.2%), computer-assisted instruction ($n = 16$, 12.4%), and multicomponent strategies ($n = 14$, 10.9%). It still seems that reading-related professional development activities focus on teaching word-level strategies, such as introducing new words and providing positive comments (reinforcement) for the correct answers. These results also indicate that reading-related professional development activities do not focus on teaching higher level reading strategies, such as morphology, comprehension, and technological applications. Overall, teachers are prepared to teach students the fundamental skills, such as learning new words and how to pronounce them, yet they are not adequately prepared to teach students how comprehend a text, or how words are formed and written.

Implementation of reading instruction for students with LD. Teachers report of the frequency of implementing reading instruction yielded several critical findings. First, the highest ranking strategies *Always* used include reinforcement, explicit, direct vocabulary instruction, explicit, direct phonics instruction, repeated feedback, and questioning. However, the lowest ranking strategies *Never* used include motivation and self-directed learning, multicomponent strategies, collaborative learning, and explicit, direct morphological instruction. It is encouraging that teachers frequently ask their students questions, teach them new words and how to pronounce them, reinforce them, and provide them with repeated feedback. It is concerning, nonetheless, that teachers less frequently allow their students to learn independently, use multiple reading strategies at the same time, encourage students to learn collaboratively, teach them the formulation of words, or even how to comprehend texts. When linking these findings to Leko, Alzahrani, et al. (in press), direct, explicit vocabulary instruction was the most commonly

implemented strategy, which was also highly ranked in the current study. Similarly, Klingner, Urbach, Golos, Brownell, and Menon (2010) observed 41 special education teachers teaching reading to third through fifth grade students with LD to determine whether they promoted students' reading comprehension. Klingner et al. (2010) indicated that they did not observe reading comprehension instruction and added that teachers mostly asked students questions about factual information.

Correlation between reading practices implementation and teachers' training.

Seventeen multiple regression analyses were conducted to examine the correlation between teachers' reading-related training (courses and professional development) and their implementation of seventeen reading practices for students with LD. Teachers' reading-related training was not significantly related to their implementation of the following seven reading practices: explicit, direct comprehension instruction, explicit, direct phonics instruction, explicit, direct morphological instruction, explicit, direct orthographic instruction, computer-assisted instruction, reinforcement, and extended time for reading. Teachers' reading-related training was significantly related to their implementation of the remaining 10 instructional practices.

Examining the correlation between the individual independent variables and dependent variables revealed interesting results. Number of reading-related courses, for example, was significantly related to nine dependent variables (identified reading-related instructional strategies): explicit, direct comprehension, fluency, phonics instruction, repeated reading, reinforcement, repeated feedback, motivation and self-directed learning, extended time for reading, and summarizing/note taking. The number of reading-related professional development events was significantly related to four dependent variables (identified reading-related instructional strategies): explicit, direct morphological instruction, collaborative learning, multicomponent strategies, and motivation and self-directed learning. Content of reading-related

courses was significantly related to questioning and reinforcement, while content of reading-related professional development was significantly related to only questioning. Based on these results, it seems that the number of reading-related reading courses variable can significantly predict teachers' implementation of reading instruction more than the rest of the independent variables.

Study Limitations

This study has limitations that may have affected its findings. First, this study depended on self-reported information. Self-report surveys can be biased towards what reports believe to be ideal or true. For example, teachers in this study might not report the accurate frequency of implementing their reading instruction in their classrooms. Thus, this limitation might have affected the accuracy of the study's findings.

Second, although this study utilized a census sampling procedure, targeting all male and female teachers of students with LD in Saudi schools, participants were chosen based on their willingness to participate and take the survey. Thus, the sample was not selected randomly. In addition, the attrition rate was very high due to two main factors: lack of consent and missing data. Despite the survey was sent to all teachers, only 291 teachers (13.5%) consented to take the survey, making the attrition rate 86.5%. However, the lack of survey completion resulted in the exclusion of 162 surveys, which led to overall attrition rate of 94%. The sample-related limitations, thus, might have affected the findings of this study.

Third, of the 129 teachers, 110 teachers (85.3%) held a bachelor degree, while only 14 teachers (10.4%) held a master degree. This seems to indicate that many Saudi teachers of students with LD do not hold graduate degrees; however, the inclusion criteria of participants required that teachers earned their graduate degrees from a Saudi university. Therefore, teachers holding graduate degrees from other countries might have been excluded from this study, which

might have decreased the number of participants included in the analyses.

The fourth limitation of this study is teachers' understanding of the survey items.

Although the researcher translated the survey following Beaton et al. (2002)'s rigorous translation procedures, some items might not be clear for some teachers. For example, some teachers might not be able to differentiate between instruction and strategy, which might have influenced their answers while taking the survey. The translation-related issues, thus, might have affected the findings of this study. It is not known, however, if any of the aforementioned limitations have impacted the results of this study, yet future studies should take these limitations into consideration.

Implications for Future Studies

The purpose of this study was to examine the relationship between teachers of students with LD's reading-related teacher education and their current implementation of reading practices in their classrooms. The results of this study are critical given they should enable future researchers to take a step back and think about factors other than teacher preparation and professional development (e.g., school environment, teachers' background) that may affect teachers' implementation of reading practices. The results of this study also revealed several implications for further studies of Arabic-specific reading practices, special education preservice teacher education, reading-related special education professional development opportunities, and the implementation of current teaching practices.

Based on the current body of research, we have come to understanding Arabic characteristics and their potential implications on Arabic readers with LD. However, it is not fully clear how these characteristics affect Arabic readers, especially those with LD. In addition, Arabic is a complex language, further understanding of Arabic language and how its features impact reading performance of students with LD is needed. This understanding should ultimately

inform researcher conducting studies on Arabic reading strategies, teacher preparation programs' curriculum, and inservice teachers. Most importantly, this understanding should inform the Ministry of Education in Saudi Arabia, so they can provide professional development opportunities that enable teachers to teach Arabic skills more effectively.

The low number of secondary teachers of students with LD participated in this study ($n = 17$; 13.2%) was *not* surprising. The number of programs of students with LD in Saudi schools does not exceed 100 programs, which is out of roughly 2000 programs for students with LD in all Saudi schools (Ministry of Education, 2018). This number is inadequate to accurately portray secondary special education teachers' reading-related experiences. Therefore, two steps are needed in order to address this issue. First, further research on this group is needed in order to understand the relationship between reading-related teacher preparation and teachers of students with LD's implementation of reading practices. Second, researchers should explore such issues in order to further call for more secondary programs for students with LD.

The results of this study revealed the majority of special education teachers of students with LD in Saudi Arabia do not receive sufficient reading-related preparation experiences that enable them to teach reading skills effectively. Thus, preservice teacher education programs may need to revisit their practices and curriculum and include more reading-related experiences and courses at the preservice level (Aldabas, 2015; Alquraini, 2010). It should be noted, however, that this study was an initial attempt to examine the relationship between teachers' reading-related teacher preparation and their implementation of reading practices. Therefore, further research needs to provide in-depth examination of other factors related to reading-related courses, such as content and delivery, and their relationship to teachers' implementation of reading practices.

The results of this study also indicated that inservice special education teachers of

students with LD in Saudi Arabia have limited access to professional development opportunities (Alsalem, 2015). Given professional development opportunities are a critical aspect of teachers' continuing development, future studies on professional development for teachers of students with LD in Saudi Arabia need to focus on providing teachers with more high-quality reading-related professional development for these teachers. Further investigations also need to provide sustainable outlets of reading-related professional development opportunities for teachers of students with LD. Again, it should be noted, however, that this study was an initial attempt to examine the relationship between teachers' reading-related teacher preparation and their implementation of reading practices. Therefore, future studies should complete an in-depth examination of other factors related to reading-related professional development, such as content and delivery, and their relationship to teachers' implementation of reading practices.

The results of this study indicated that reading-related teacher education was significantly related to teachers' implementation of only two reading practices. This may be due to an incomplete examination of other reading-related teacher education factors. Given the criticality of teachers' implementation of reading practices, hence, further studies need to consider refining this study's conceptual framework. Revising and polishing this conceptual framework can empower future researchers to accurately: (1) understand Arabic features and their relation to reading performance of Arabic readers with LD, (2) examine the relationship between reading-related teacher education, including teacher preparation and professional development, and teachers implementation of reading practices, (3) identify other significant factors that may affect teachers' implementation of reading practices, (4) construct teacher education programs that address reading skills, and (5) create provide teachers with high-quality reading-reading professional development activities that improve and inform their practices.

Recommendations

This study examined the relationship between various reading-related teacher education variables and teachers of students with LD's implementation of reading practices in Saudi Arabian schools. Based on the study's results, the following recommendations for future research, policy makers, and practitioners are offered.

Recommendations for future research. Future research may consider the following recommendations. First, given the limited literature related to the Arabic language characteristics and their relation to reading performance, future studies may examine the effects of Arabic language features on reading performance of students with LD. Second, since this study is an initial attempt, future studies need to in-depth examine the correlation between reading-related teacher training and teachers' implementation of reading practices not only through surveying but also through interviewing and observing teachers of students with LD. Third, future studies should further examine special teacher education preparation programs curriculum and whether they adequately prepare special education teacher to teach reading skills, and interview the stakeholders of special teacher education preparation programs, including students and instructors. Fourth, given the impact of school environment on teachers' productivity, future studies may consider investigating how the school's environment can affect teachers' implementation of reading practices. Fifth, professional development is a critical aspect of teachers' effective implementation of practices, so future studies should in-depth investigate the relationship between reading-related professional development in multiple Saudi districts/regions and determining whether they adequately inform teachers' practices. Finally, future studies may consider building a line of inquiry that informs Arabic literature with evidence-based reading practices for students with LD.

Recommendations for policy. Policymakers may consider the following recommendations. First, policymakers in the special education field need to develop a policy to

encourage teacher participate in more professional development opportunities. Second, given the criticality of literacy for students, policymakers should consider establishing a policy that requires special education teachers to take certain literacy-related courses before graduating. Third, the Ministry of Education in Saudi Arabi may need to consider establishing more programs that serve students with LD at the secondary level. Finally, the Ministry of Education in Saudi Arabia should establish more programs for students with LD in female schools, so more female students with LD can access the LD-related services.

Recommendations for practitioners. Practitioners may consider the following recommendations. Practitioners need to provide preservice teachers of students with LD with high quality reading-related courses coupled with more practical experiences. This should empower preservice teachers to gain both the theoretical and practical knowledge of how to implement reading practices effectively. Practitioners should also engage in more reading-related professional development opportunities in order to ultimately enhance their students' reading skills.

Summary

The purpose of this study was to examine the relationship between reading-related training (courses and professional development activities) and the implementation of reading instruction of teachers of students with LD's in Saudi schools. A survey was sent to both male and female teachers of students with LD ($N = 2158$) in Saudi schools, asking them about their demographic information, reading-related courses, reading-related professional development activities, and their implementation of reading instruction in their classroom. The results indicated that teachers' reading-related training was not significantly related to their implementation of seven reading practices but was significantly related to their implementation of the remaining instruction (10 reading practices). However, when the adjusted significance (p

< .003) was used as the criteria, the linear combination of reading-related university courses and professional development beyond university training was *only* significantly related to teachers' implementation of questioning and summarizing/note taking.

REFERENCES

- Abu Nayyan, I. (2015, January 5). Does the idea of mainstreaming students with learning disabilities have succeeded? *Alriyadh Newspaper*. Retrieved from <http://www.alriyadh.com/10103>.
- Afeafe, M. Y. (2000). Special education in Saudi Arabia. Retrieved from <http://www.khayma.com/education-technology/PrvEducation3.htm>
- Akinwande, M. O., Dikko, H. G., & Samson, A. (2015). Variance inflation factor: As a condition for the inclusion of suppressor variable (s) in regression analysis. *Open Journal of Statistics*, 5(7), 754-767.
- Al-Ahmadi, N. A. (2009). *Teachers' perspectives and attitudes towards integrating students with learning disabilities in regular Saudi public schools* (Unpublished doctoral dissertation). Ohio University, Athens, Ohio.
- Al-Ajmi, N. S. (2006). *The Kingdom of Saudi Arabia: Administrators' and special education teachers' perceptions regarding the use of functional behavior assessments for students with mental retardation* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. AAT 3222888)
- Alamri, M. (2011). Higher education in Saudi Arabia. *Journal of Higher Education Theory and Practice*, 11(4), 88-91.
- Aldabas, R. A. (2015). Special education in Saudi Arabia: History and areas for reform. *Creative Education*, 6(11), 1158- 1167. <https://doi.org/10.4236/ce.2015.611114>
- Aldiab, A., Chowdhury, H., Kootsookos, A., & Alam, F. (2017). Prospect of eLearning in higher education sectors of Saudi Arabia: A review. *Energy Procedia*, 110, 574-580. <https://doi.org/10.1016/j.egypro.2017.03.187>

- Al Ghanem, R., & Kearns, D. M. (2015). Orthographic, phonological, and morphological skills and children's word reading in Arabic: A literature review. *Reading Research Quarterly*, 50(1), 83-109. <https://doi.org/10.1002/rrq.84>
- Al-hano, I. A. (2006). *Representation of learning disabilities in Saudi Arabian elementary schools: A grounded theory study* (Unpublished doctoral dissertation). University of Wisconsin-Madison, Madison, Wisconsin.
- Aljohani, S., & Alzarea, N. (2014). The barriers of using educational aids to teach reading of students with learning disabilities. *International Interdisciplinary Journal of Education*, 10 (3), 98-122.
- Al-Khateeb, A. (2013). *Case study in special education*. Irbid, Jordan: Modern Books.
- Al Khateeb, J., & Hadidi, M. (2009). Teachers' and mothers' satisfaction with resource room programs in Jordan. *The Journal of the International Association of Special Education*, 10(1), 56-59.
- Alkhazim, M. A. (2003). Higher education in Saudi Arabia: Challenges, solutions, and opportunities missed. *Higher Education Policy*, 16(4), 479-486.
<https://doi.org/10.1057/palgrave.hep.8300035>
- Al-Kheraigi, F. S. (1989). *Special education development in the Kingdom of Saudi Arabia from 1958 to 1987* (Unpublished doctoral dissertation). Syracuse University, New York.
- Al-Madani, F. M., & Allaafiajiy, I. A. (2014). Teachers' professional development on ICT use: A Saudi sustainable development model. *Journal of Modern Education Review*, 4(6), 448-456. [https://doi.org/10.15341/jmer\(2155-7993\)/06.04.2014/006](https://doi.org/10.15341/jmer(2155-7993)/06.04.2014/006)
- Al-Maimooni, M. (2016). A one trillion riyal non-oil revenue approaching: Deputy crown Prince reveals 13 national initiatives for Kingdom's future vision 2030. *Al-Yaum Newspaper*. Retrieved from <http://www.alyaum.com/article/4133366>

Almazroa, H., Aloraini, A., & Alshaye, F. (2015, April). *Science and math teachers' perceptions of professional development within the new science curriculum implementation*. Paper presented at the annual conference of the National Association for Research in Science Teaching (NARST), Chicago, IL, USA.

Al-Mousa, N. A. (1999). *Special education in the Ministry of Education on the occasion of the centennial anniversary for founding the Kingdom of Saudi Arabia*. Riyadh, Saudi Arabia: Ministry of Education.

Al-Mousa, N. (2010). *The experience of the Kingdom of Saudi Arabia in mainstreaming Students with special educational needs in public schools*. Saudi Arabia, Riyadh: The Arab Bureau of Education for the Gulf States.

Almuaqel, I. A. (2008). The life skills for students with intellectual disability and its applications in middle and high school. *Journal of Studies and Research Center*. University of Cairo, Cairo, Egypt.

Alnahdi, G. H. (2014). Educational change in Saudi Arabia. *Journal of International Education Research*, 10(1), 1-6. <https://doi.org/10.19030/jier.v10i1.8342>

Alqahtani, F. (2016). *School-related stress and coping process of primary school girls with learning disabilities in Saudi Arabia*. (Unpublished doctoral dissertation). Queensland University of Technology, Brisbane City, Australia.

Alquraini, T. (2010). Special education in Saudi Arabia: Challenges, perspectives, future possibilities. *International Journal of Special Education*, 25(3), 139-147.

Alquraini, T. A., & Rao, S. M. (2018). Assessing teachers' knowledge, readiness, and needs to implement universal design for learning in classrooms in Saudi Arabia. *International Journal of Inclusive Education*, 1-12. doi:10.1080/13603116.2018.1452298

Alsalem, M. (2015). *Considering and supporting the implementation of universal design for*

learning among teachers of students who are deaf and hard of hearing in Saudi Arabia

(Doctoral dissertation). University of Kansas, Kansas, Lawrence.

Al-Saud, F. A., & Al-Sadaawi, A. S. (2014). *Raising the quality of education: Developing professional standards for Saudi teachers*. Paper presented at the Annual Conference of the International Association for Educational Assessment, Singapore.

Al-Seghayer, K. S. (2014). The actuality, inefficiency, and needs of EFL teacher-preparation programs in Saudi Arabia. *International Journal of Applied Linguistics and English Literature*, 3(1), 143-151. <https://doi.org/10.7575/aiac.ijalel.v.3n.1p.143>

Alshamrani, S., Aldahmash, A., Alqudah, B., & Alroshood, J. (2012). The current situation for science teacher professional development in Saudi Arabia. *The Letter of Arabic Gulf*, 126, 215–261.

Al-Sulaimani A. A. (2010). *The importance of teachers in integrating ICT into science teaching in intermediate schools in Saudi Arabia: A mixed methods study*. (Unpublished doctoral dissertation). RMIT University, Melbourne, Australia

Al Surf, M. S., & Mostafa, L. A. (2017). Will the Saudi's 2030 Vision raise the public awareness of sustainable practices?. *Procedia Environmental Sciences*, 37, 514-527.
<https://doi.org/10.1016/j.proenv.2017.03.026>

Altamimi, A. A., Lee, L. W., Sayed-Ahmed, A. S. A., & Kassem, M. M. (2015). Special education in Saudi Arabia: A synthesis of literature written in English. *International Journal of Special Education*, 30(3), 98-117.

Alyami, R. H. (2014). Educational reform in the Kingdom of Saudi Arabia: Tatweer schools as a unit of development. *Literacy Information and Computer Education Journal*, 5(2), 1424-1433. <https://doi.org/10.20533/lcej.2040.2589.2014.0202>

Al-Zahrani, N. O. A., & Rajab, H. (2017). Attitudes and perceptions of Saudi EFL teachers in

- implementing Kingdom of Saudi Arabia's Vision 2030. *International Journal of English Language Education*, 5(1), 83-99. <https://doi.org/10.5296/ijele.v5i1.10733>
- Al-Zoubi, S. M., & Rahman, M. S. B. A. (2016). Mainstreaming in Kingdom of Saudi Arabia: Obstacles facing learning disabilities resource room. *Journal of Studies in Education*, 6(1), 37-55. <https://doi.org/10.5296/jse.v6i1.8800>
- An, S. (2013). Schema theory in reading. *Theory & Practice in Language Studies*, 3(1), 130-134. <https://doi.org/10.4304/tpls.3.1.130-134>
- Ball, D. L., & Forzani, F. M. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education*, 60, 497-511. <https://doi.org/10.1177/0022487109348479>
- Battal, Z. M. B. (2016). Special education in Saudi Arabia. *International Journal of Technology and Inclusive Education*, 5(2), 880-886. <https://doi.org/10.20533/wcsne.2015.0041>
- Beaton, D., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2002). Recommendations for the cross-cultural adaptation of health status measures. *New York: American Academy of Orthopaedic Surgeons*, 1-9.
- Berkeley, S., Scruggs, T. E., & Mastropieri, M. A. (2010). Reading comprehension instruction for students with learning disabilities, 1995-2006: A meta-analysis. *Remedial and Special Education*, 31(6), 423-436. <https://doi.org/10.1177/0741932509355988>
- Biancarosa, G., Bryk, A. S., & Dexter, E. R. (2010). Assessing the value-added effects of literacy collaborative professional development on student learning. *The Elementary School Journal*, 111, 7–34. <https://doi.org/10.1086/653468>
- Birman, B. F., Desimone, L., Porter, A. C., & Garet, M. S. (2000). Designing professional development that works. *Educational Leadership*, 57(8), 28-33.
- Bishop, A. G., Brownell, M. T., Klingner, J. K., Leko, M. M., & Galman, S. A. (2010).

Differences in beginning special education teachers: The influence of personal attributes, preparation, and school environment on classroom reading practices. *Learning Disability Quarterly*, 33(2), 75-92. <https://doi.org/10.1177/073194871003300202>

Borko, H., & Putnam, R. (1995). Expanding a teachers' knowledge base: A cognitive psychological perspective on professional development. In T. Guskey & M. Huberman (Eds.), *Professional development in education: New paradigms and practices* (pp. 35-66). New York, NY: Teachers College Press.

Brownell, M. T., Bishop, A. B., Gersten, R., Klingner, J., Dimino, J., Haager, D., . . . Sindelar, P. T. (2009). Examining the dimensions of teacher quality for beginning special education teachers: The role of domain expertise. *Exceptional Children*, 75, 391-411. <https://doi.org/10.1177/001440290907500401>

Brownell, M., Kiely, M. T., Haager, D., Boardman, A., Corbett, N., Algina, J., . . . Urbach, J. (2017). Literacy learning cohorts: Content-focused approach to improving special education teachers' reading instruction. *Exceptional Children*, 83(2), 143-164.

Brownell, M., & Leko, M. M. (2014). Preparing special educators to teach literacy. In P. Sindelar, E. McCray, M. T., Brownell, and B. Lignugaris-Kraft (Eds.), *Handbook of Research on Special Education Teacher Preparation*. New York, NY: Routledge.

Bruce, C. (2004) Information literacy as a catalyst for educational change: A background paper. In P. Danaher (Ed.) *Proceedings "Lifelong learning: Whose responsibility and what is your contribution?"*, the 3rd International Lifelong Learning Conference, pp. 8-19, Yeppoon, Queensland.

Carlisle, J. F., & Berebitsky, D. (2010). Literacy coaching as a component of professional development. *Reading and Writing*, 24, 773-800. <https://doi.org/10.1007/s11145-009-9224-4>

- Carretti, B., Borella, E., Cornoldi, C., & De Beni, R. (2009). Role of working memory in explaining the performance of individuals with specific reading comprehension difficulties: A meta-analysis. *Learning and Individual Differences*, 19(2), 246-251. <https://doi.org/10.1016/j.lindif.2008.10.002>
- Catts, H., Adlof, S., & Ellis-Weismer, S. (2006). Language deficits in poor comprehenders: A case for the simple view of reading. *Journal of Speech, Language, and Hearing Research*, 49, 278-293. [https://doi.org/10.1044/1092-4388\(2006/023\)](https://doi.org/10.1044/1092-4388(2006/023))
- Ciullo, S., Lo, Y. L. S., Wanzek, J., & Reed, D. K. (2016). A synthesis of research on informational text reading interventions for elementary students with learning disabilities. *Journal of Learning Disabilities*, 49(3), 257-271. <https://doi.org/10.1177/0022219414539566>
- Ciullo, S., & Reutebuch, C. (2013). Computer-based graphic organizers for students with LD: A systematic review of literature. *Learning Disabilities Research & Practice*, 28(4), 196-210. <https://doi.org/10.1111/ladr.12017>
- Corbin, J., Strauss, A., & Strauss, A. L. (2014). *Basics of qualitative research*. Thousand Oaks, CA: Sage.
- Corcoran, T. B., Shields, P. M., & Zucker, A. A. (1998). *Evaluation of NSF's statewide systemic initiatives (SSI) program: The SSIs and professional development for teachers*. Menlo Park, CA: SRI International.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles, CA: Sage Publications.
- Creswell, J. W., & Clark, V. L. (2011). *Designing and conducting mixed methods research*. (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed*

methods approaches. (5th ed.). Los Angeles, CA: Sage Publications.

Daniel, J. (2011). *Sampling essentials: Practical guidelines for making sampling choices*. Thousand Oaks, CA: Sage.

Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession. *Washington, DC: National Staff Development Council, 12*.

Darling-Hammond, L., & Youngs, P. (2002). Defining “highly qualified teachers”: What does “scientifically-based research” actually tell us? *Educational Researcher, 31*(9), 13-25.
<https://doi.org/10.3102/0013189x031009013>

De La Paz, S., Malkus, N., Monte-Sano, C., & Montanaro, E. (2011). Evaluating American history teachers’ professional development: Effects on student learning. *Theory and Research in Social Education, 39*, 494-540.

<https://doi.org/10.1080/00933104.2011.10473465>

Desimone, L. M. (2011). A primer on effective professional development. *Phi Delta Kappan, 92*(6), 68-71. <https://doi.org/10.1177/003172171109200616>

Desimone, L. M. (2009). Improving impact studies of teachers’ professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181-199.
<https://doi.org/10.3102/0013189x08331140>

Desimone, L. M., & Garet, M. S. (2015). Best practices in teachers’ professional development in the United States. *Psychology, Society, & Education, 7*(3), 252-263.
<https://doi.org/10.25115/psye.v7i3.515>

Desimone, L., Garet, M. S., Birman, B. F., Porter, A., & Yoon, K. S. (2003). Improving teachers' in-service professional development in mathematics and science: The role of postsecondary institutions. *Educational Policy, 17*(5), 613-649.

<https://doi.org/10.1177/0895904803256791>

Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81-112.

<https://doi.org/10.3102/01623737024002081>

Desimone, L. M., Smith, T. M., & Phillips, K. J. R. (2013). Linking student achievement growth to professional development participation and changes in instruction: A longitudinal study of elementary students and teachers in Title I Schools. *Teachers College Record*, 115(5), 1-46.

Desimone, L. M., Smith, T. M., & Ueno, K. (2006). Are teachers who need sustained, content-focused professional development getting it? An administrator's dilemma. *Educational Administration Quarterly*, 42(2), 179-215. <https://doi.org/10.1177/0013161x04273848>

DeVellis, R.F. (2016). *Scale development: Theory and applications*. (4th ed.). Thousand Oaks, CA: Sage Publications.

Dexter, D. D., & Hughes, C. A. (2011). Graphic organizers and students with learning disabilities: A meta-analysis. *Learning Disability Quarterly*, 34(1), 51-72.

<https://doi.org/10.1177/073194871103400104>

DiCecco, V. M., & Gleason, M. M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities*, 35, 306–320.
<https://doi.org/10.1177/00222194020350040201>.

Edmonds, M. S., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Tackett, K. K., & Schnakenberg, J. W. (2009). A synthesis of reading interventions and effects on reading comprehension outcomes for older struggling readers. *Review of Educational Research*, 79(1), 262-300. <https://doi.org/10.3102/0034654308325998>

Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research*, 71(3), 393-447.

<https://doi.org/10.3102/00346543071003393>

Eisenchlas, S. A., Schalley, A. C., & Guillemin, D. (2013). The importance of literacy in the home language: The view from Australia. *Sage Open*, 3(4), 1-14.

<https://doi.org/10.1177/2158244013507270>

Elbeheri, G., & Everatt, J. (2007). Literacy ability and phonological processing skills amongst dyslexic and non-dyslexic speakers of Arabic. *Reading and Writing*, 20(3), 273-294.

<https://doi.org/10.1007/s11145-006-9031-0>

Elleman, A. M., Lindo, E. J., Morphy, P., & Compton, D. L. (2009). The impact of vocabulary instruction on passage-level comprehension of school-age children: A meta-analysis. *Journal of Research on Educational Effectiveness*, 2(1), 1-44.

<https://doi.org/10.1080/19345740802539200>

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <https://doi.org/10.3758/brm.41.4.1149>

Feng, L., & Sass, T. R., (2009). *Special education teacher quality and student achievement*. Unpublished manuscript.

Fowler, F. J. (1995). *Improving survey questions*. Thousand Oaks, CA: Sage Publications.

Fowler, F. J., Jr. (2014). *Survey research methods*. (5th ed.). Thousand Oaks, CA: Sage Publications.

Frey, B. (2006). *Statistics hacks: Tips & tools for measuring the world and beating the odds* (1st ed.). Sebastopol, CA: O'Reilly.

- Fricker, R. D. (2017). Sampling methods for web and e-mail surveys. In N. G. Fielding, R. M. Lee, & G. Blank (Eds.), *The Sage handbook of online research methods* (pp. 196-215). London, UK: Sage.
- Friend, M., Cook, L., Hurley-Chamberlain, D., & Shamberger, C. (2010). Co-teaching: An illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20(1), 9-27.
<https://doi.org/10.1080/10474410903535380>
- Fuchs, D., Fuchs, L. S., Mathes, P. G., & Simmons, D. C. (1997). Peer-assisted learning strategies: Making classrooms more responsive to diversity. *American Educational Research Journal*, 34(1), 174-206. <https://doi.org/10.2307/1163346>
- Gajria, M., Jitendra, A. K., Sood, S., & Sacks, G. (2007). Improving comprehension of expository text in students with LD: A research synthesis. *Journal of Learning Disabilities*, 40(3), 210-225. <https://doi.org/10.1177/00222194070400030301>
- Gajria, M., & Salvia, J. (1992). The effects of summarization instruction on text comprehension of students with learning disabilities. *Exceptional Children*, 58, 508–516.
<https://doi.org/10.1177/001440299205800605>
- García, C. B., García, J., López Martín, M. M., & Salmerón, R. (2015). Collinearity: Revisiting the variance inflation factor in ridge regression. *Journal of Applied Statistics*, 42(3), 648-661.
- Garet, M. S., Cronen, S., Eaton, M., Kurki, A., Ludwig, M., Jones, W., et al. (2008). *The impact of two professional development interventions on early reading instruction and achievement* (NCEE 2008-4030). Report prepared for the Institute of Education Sciences. Washington, DC: Institute of Education Sciences.
- Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes

professional development effective? Results from a national sample of teachers.

American Educational Research Journal, 38(4), 915-945.

<https://doi.org/10.3102/00028312038004915>

Gee, J. P. (1989). Literacy, discourse, and linguistics: Introduction. *The Journal of Education*, 171(1), 5-176. <https://doi.org/10.1177/002205748917100101>

Gersten, R., Dimino, J., Jayanthi, M., Kim, J. S., & Santoro, L. E. (2010). Teacher study group: Impact of the professional development model on reading instruction and student outcomes in first grade classrooms. *American Educational Research Journal*, 47, 694–739. <https://doi.org/10.3102/0002831209361208>

Gillon, G. T. (2004). *Phonological awareness: From research to practice*. New York, NY: Guilford Press.

Goody, J., & Watt, I. (1963). The consequences of literacy. *Comparative Studies in Society and History*, 5(3), 304-345.

Gothberg, J. E., Peterson, L. Y., Peak, M., & Sedaghat, J. M. (2015). Successful transition of students with disabilities to 21st-century college and careers: Using triangulation and gap analysis to address nonacademic skills. *Teaching Exceptional Children*, 47(6), 344-351.

Graves, A. W., & Levin, J. R. (1989). Comparison of monitoring and mnemonic text-processing strategies in learning disabled students. *Learning Disability Quarterly*, 12, 232–236.
<https://doi.org/10.2307/1510693>

Greenleaf, C., Litman, C., Hanson, T. L., Rosen, R., Boscardin, C. K., Herman, J., . . . Jones, B. (2011). Integrating literacy and science in Biology: Teaching and learning impacts of reading apprenticeship professional development. *American Educational Research Journal*, 48, 647–717. <https://doi.org/10.3102/0002831210384839>

Hallahan, D., Kauffman, J., & Pullen, P. (2012). *Exceptional learners: An introduction to special*

education. Cranbury, NJ: Pearson Education.

Heller, J. I., Daehler, K. R., Wong, N., Shinohara, M., & Miratrix, L. W. (2012). Differential effects of three professional development models on teacher knowledge and student achievement in elementary science. *Journal of Research in Science Teaching*, 49, 333–362. <https://doi.org/10.1002/tea.21004>

Hirsch, E. D. (2003). Reading comprehension requires knowledge—of words and the world. *American Educator*, 27(1), 10-13.

Hindman, A. H., & Wasik, B. A. (2012). Unpacking an effective language and literacy coaching intervention in Head Start: Is two years of training better than one? *The Elementary School Journal*, 113, 131–154. <https://doi.org/10.1086/666389>

Jitendra, A., Kay Hopps, M., & Xin, Y. P. (2000). Enhancing main idea comprehension for students with learning problems: The role of a summarization strategy and self-monitoring instruction. *The Journal of Special Education*, 34(3), 127-139.
<https://doi.org/10.1177/002246690003400302>

Kaestle, C. F. (1985). Chapter 1: The history of literacy and the history of readers. *Review of Research in Education*, 12(1), 11-53. <https://doi.org/10.3102/0091732x012001011>

Kaldenberg, E. R., Watt, S. J., & Therrien, W. J. (2015). Reading instruction in science for students with learning disabilities: A meta-analysis. *Learning Disability Quarterly*, 38(3), 160-173. <https://doi.org/10.1177/0731948714550204>

Keller, C., Al-Hendawi, M., & Abuelhassan, H. (2016). Special education teacher preparation in the Gulf Cooperation Council countries. *Teacher Education and Special Education*, 39(3), 194-208. <https://doi.org/10.1177/0888406416640853>

Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., ... Dunlop Velez, E. (2015). *The condition of education 2015* (NCES 2015-144). U.S. Department of

Education, National Center for Education Statistics. Washington, DC. Retrieved [05.14.18] from <http://nces.ed.gov/pubsearch>.

Kim, M. K., Bryant, D. P., Bryant, B. R., & Park, Y. (2017). A synthesis of interventions for improving oral reading fluency of elementary students with learning disabilities. *Preventing School Failure: Alternative Education for Children and Youth*, 61(2), 116-125. <https://doi.org/10.1080/1045988x.2016.1212321>

Klingner, J. K., Urbach, J., Golos, D., Brownell, M., & Menon, S. (2010). Teaching reading in the 21st century: A glimpse at how special education teachers promote reading comprehension. *Learning Disability Quarterly*, 33(2), 59-74.

Klingner, J. K., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. *The Elementary School Journal*, 96, 275–293. <https://doi.org/10.1086/461828>

Kudo, M. F., Lussier, C. M., & Swanson, H. L. (2015). Reading disabilities in children: A selective meta-analysis of the cognitive literature. *Research in Developmental Disabilities*, 40, 51-62. <https://doi.org/10.1016/j.ridd.2015.01.002>

Kuder, S. J. (2017). Vocabulary instruction for secondary students with reading disabilities: An updated research review. *Learning Disability Quarterly*, 40(3), 155-164. <https://doi.org/10.1177/0731948717690113>

Kurth, J. A., & Gross, M. (2014). *The inclusion toolbox: Strategies and techniques for all teachers*. Thousand Oaks, CA: Corwin Press.

Lan, Y. C., Lo, Y. L., & Hsu, Y. S. (2014). The effects of meta-cognitive instruction on students' reading comprehension in computerized reading contexts: A quantitative meta-analysis. *Educational Technology & Society*, 17(4), 186-202.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*.

Cambridge, UK: Cambridge University Press.

Leko, M. M., Alzahrani, T., & Handy, T. (Under review). Literacy instruction for adolescents with learning disabilities: Examining teacher practice and preparation. *Learning Disability Quarterly*.

Leko, M. M., & Brownell, M. T. (2011). Special education preservice teachers' appropriation of pedagogical tools for teaching reading. *Exceptional Children*, 77, 229-251.

<https://doi.org/10.1177/001440291107700205>

Leko, M. M., Brownell, M. T., Sindelar, P. T., & Kiely, M. T. (2015). Envisioning the future of special education personnel preparation in a standards-based era. *Exceptional Children*, 82(1), 25-43.

Leko, M. M., Brownell, M. T., Sindelar, P. T., & Murphy, K. (2012). Promoting special education preservice teacher expertise. *Focus on Exceptional Children*, 44(7), 1-16.

<https://doi.org/10.17161/fec.v44i7.6684>

Leko, M. M., Chiu, M. M., & Roberts, C. A. (2017). Individual and contextual factors related to secondary special education teachers' reading instructional practices. *The Journal of Special Education*, 1-15. <https://doi.org/10.1177/0022466917727514>

Leko, M. M., Handy, T., & Roberts, C. A. (2017). Examining secondary special education teachers' literacy instructional practices. *Exceptionality*, 25(1), 26-39.

<https://doi.org/10.1080/09362835.2016.1196442>

Little, J. W. (1987). Teachers as colleagues. In V. Richardson-Koehler (Eds.), *Educators' handbook: A research perspective* (pp. 491–518). New York, NY: Longman.

Lumpe, A., Haney, J., & Czemiak, C. (2000). Assessing teachers' beliefs about their science teaching context: The state of the scene. *Journal of Research in Science Teaching*, 37, 275-292. [https://doi.org/10.1002/\(sici\)1098-2736\(200003\)37:3%3C275::aid-jrs.13](https://doi.org/10.1002/(sici)1098-2736(200003)37:3%3C275::aid-jrs.13)

tea4%3E3.0.co;2-2

- Mahfoudhi, A., Elbeheri, G., Al-Rashidi, M., & Everatt, J. (2010). The role of morphological awareness in reading comprehension among typical and learning disabled native Arabic speakers. *Journal of Learning Disabilities*, 43(6), 500-514.
<https://doi.org/10.1177/0022219409355478>
- Mansour, N., El-Deghaidi, H., Alshamrani, S., & Aldahmash, A. (2014). Rethinking the theory and practice of continuing professional development: Science teachers' perspectives. *Research in Science Education*, 44(6), 949-973. <https://doi.org/10.1007/s11165-014-9409-y>
- McCutchen, D., Green, L., Abbott, R. D., & Sanders, E. A. (2009). Further evidence for teacher knowledge: Supporting struggling readers in grades three through five. *Reading and Writing*, 22, 401-423. <https://doi.org/10.1007/s11145-009-9163-0>
- Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist*, 50(9), 741-749. <https://doi.org/10.1037//0003-066x.50.9.741>
- Miller, J. W., & Ellsworth, R. (1985). The evaluation of a two-year program to improve teacher effectiveness in teaching instruction. *Elementary School Journal*, 85, 485-495.
<https://doi.org/10.1086/461416>
- Ministry of Education (2006). *Foundation and genesis of ministry of education*. Retrieved from <http://www.moe.gov.sa/Pages/EstablishmentoftheMinistryofEducation.aspx>.
- Ministry of Education (2018). *Learning disabilities institute*. Retrieved from <https://departments.moe.gov.sa/EducationAgency/RelatedDepartments/boysSpecialEducation/The%20departments/Learning%20Disability%20Management/Pages/default.aspx>
- Ministry of Education (2012). *Saudi Arabia education policy*. Retrieved from

<http://www.moe.gov.sa/Pages/educationPolicy.aspx>.

Mohamed, W., Elbert, T., & Landerl, K. (2011). The development of reading and spelling abilities in the first 3 years of learning Arabic. *Reading and Writing*, 24(9), 1043-1060.

<https://doi.org/10.1007/s11145-010-9249-8>

Mohammed, A., & Ahmad, A. (2013). Job description for resource room teacher. *Journal of Special Education and Rehabilitation*, 1(1), 1-12.

Mullis, I. V., Martin, M. O., Foy, P., & Drucker, K. T. (2012). *PIRLS 2011 international results in reading*. Amsterdam, Netherlands: International Association for the Evaluation of Educational Achievement.

Nagy, W. E., Carlisle, J. F., & Goodwin, A. P. (2014). Morphological knowledge and literacy acquisition. *Journal of Learning Disabilities*, 47(1), 3-12.

<https://doi.org/10.1177/0022219413509967>

National Center for Assessment (Qiyas). (2018). Saudi teachers assessments. Retrieved from <http://qiyas.sa/ar/Exams/profession/teachers/Pages/default.aspx>

Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal*, 46, 532–566. <https://doi.org/10.3102/0002831208328088>

Oakes, W. P., Lane, K. L., Jenkins, A., & Booker, B. B. (2013). Three-tiered models of prevention: Teacher efficacy and burnout. *Education and Treatment of Children*, 36(4), 95-126.

O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & quantity*, 41(5), 673-690.

Okolo, C. M., & Ferretti, R. P. (1996). Knowledge acquisition and technology-supported projects in the social studies for students with learning disabilities. *Journal of Special Education*

Technology, 13, 91-103. <https://doi.org/10.1177/016264349601300204>

Penuel, W. E., Fishman, B. J., Yamaguchi, R., & Gallagher, L. (2007). What makes professional development effective? Strategies that foster curriculum implementation. *American Educational Research Journal, 44*, 921-958. <https://doi.org/10.3102/0002831207308221>

Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension.

Contemporary Educational Psychology, 8(3), 317-344.

Plaut, D. C. (2005). Connectionist approaches to reading. In M. Snowling, C. Hulme, and M. Seidenberg (Eds.), *The science of reading: A handbook* (pp. 24-38). Oxford, UK: Wiley-Blackwell.

Qablan, A., Mansour, N., Alshamrani, S., Aldahmash, A., & Sabbah, S. (2015). Ensuring effective impact of continuing professional development: Saudi science teachers' perspective. *EURASIA Journal of Mathematics, Science & Technology Education, 11*(3), 619-631.

Rastle, K. (2018). The place of morphology in learning to read in English. *Cortex, 1-10*.
<https://doi.org/10.1016/j.cortex.2018.02.008>

Richard, K., & Neil, T. (2011). An international perspective on science curriculum development and implementation. In B. J. Fraser, K. Tobin, & C. McCrobbie (Eds.), *Second international handbook of science education*. New York, NY: Springer.

Saigh, K., & Schmitt, N. (2012). Difficulties with vocabulary word form: The case of Arabic ESL learners. *System, 40*(1), 24-36. <https://doi.org/10.1016/j.system.2012.01.005>

Scammacca, N. K., Roberts, G., Vaughn, S., & Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in grades 4-12: 1980-2011. *Journal of Learning Disabilities, 48*(4), 369-390. <https://doi.org/10.1177/0022219413504995>

Scribner, S. (1984). Literacy in three metaphors. *American Journal of Education, 93*(1), 6-21.

<https://doi.org/10.1086/443783>

Seidenberg, M. S. (1990). *Lexical access: Another theoretical soapstone?* Hillsdale: Lawrence Erlbaum Associates.

Seidenberg, M. S. (1992). *Beyond orthographic depth in reading: Equitable division of labor.* Amsterdam, Netherland: Elsevier.

Seidenberg, M. S., & McClelland, J. L. (1989). A distributed, developmental model of word recognition and naming. *Psychological Review*, 96(4), 523–568.

<https://doi.org/10.1037/0033-295x.96.4.523>

Seifert, K., & Espin, C. (2012). Improving reading of science text for secondary students with learning disabilities: Effects of text reading, vocabulary learning, and combined approaches to instruction. *Learning Disability Quarterly*, 35(4), 236–247.

<https://doi.org/10.1177/0731948712444275>

Sencibaugh, J. M. (2007). Meta-analysis of reading comprehension interventions for students with learning disabilities: Strategies and implications. *Reading Improvement*, 44(1), 6-22.

Seo, S., Brownell, M. T., Bishop, A. G., & Dingle, M. (2008). Beginning special education teachers' classroom reading instruction: Practices that engage elementary students with learning disabilities. *Exceptional Children* 75(1), 97-122.

<https://doi.org/10.1177/001440290807500105>

Smith, L., & Abouammoh, A. (2013). *Higher education in Saudi Arabia*. London, UK: Springer.

Snell, T. P. (2008). First-generation students, social class, and literacy. *Academe*, 94(4), 28-31.

Snider, V. E. (1989). Reading comprehension performance of adolescents with learning disabilities. *Learning Disability Quarterly*, 12, 87-96. <https://doi.org/10.2307/1510724>

Solis, M., Ciullo, S., Vaughn, S., Pyle, N., Hassaram, B., & Leroux, A. (2012). Reading comprehension interventions for middle school students with learning disabilities: A

synthesis of 30 years of research. *Journal of learning disabilities*, 45(4), 327-340.

<https://doi.org/10.1177/0022219411402691>

Stahl, S. A. (1998). Understanding shifts in reading and its instruction. *Peabody Journal of Education*, 73(3-4), 31-67. https://doi.org/10.1207/s15327930pje7303&4_3

Stahl, S. A., Duffy-Hester, A. M., & Stahl, K. A. D. (1998). Everything you wanted to know about phonics (but were afraid to ask). *Reading Research Quarterly*, 33(3), 338-355. <https://doi.org/10.1598/rrq.33.3.5>

Stahl, S. A., & Miller, P. D. (1989). Whole language and language experience approaches for beginning reading: A quantitative research synthesis. *Review of Educational Research*, 59(1), 87-116. <https://doi.org/10.2307/1170448>

Stanovich, K. E., & Cunningham, A. E. (1992). Studying the consequences of literacy within a literate society: The cognitive correlates of print exposure. *Memory & Cognition*, 20(1), 51-68. <https://doi.org/10.3758/bf03208254>

Stanovich, K. E., & West, R. F. (1989). Exposure to print and orthographic processing. *Reading Research Quarterly*, 24(4), 402–433. <https://doi.org/10.2307/747605>

Steer, L., Ghanem, H., & Jalbout, M. (2014). Arab youth: Missing educational foundations for a productive life. *The Center for Education at the Brookings Institution, Washington, DC*. Retrieved from https://www.brookings.edu/wp-content/uploads/2014/02/arabworld_learningbarometer_en.pdf

Stevens, E. A., Park, S., & Vaughn, S. (2018). A review of summarizing and main idea interventions for struggling readers in grades 3 through 12: 1978-2016. *Remedial and Special Education*, 1-19. <https://doi.org/10.1177/0741932517749940>

Stevens, E. A., Walker, M. A., & Vaughn, S. (2016). The effects of reading fluency interventions on the reading fluency and reading comprehension performance of elementary students

- with learning disabilities: A synthesis of the research from 2001 to 2014. *Journal of learning disabilities*, 50(5), 576-590. <https://doi.org/10.1177/0022219416638028>
- Stough, L. M., & Palmer, D. J. (2003). Special thinking in special settings: A qualitative study of expert special educators. *The Journal of Special Education*, 36, 206-222.
<https://doi.org/10.1177/002246690303600402>
- Swanson, H. L. (1999). Reading research for students with LD: A meta-analysis of intervention outcomes. *Journal of Learning Disabilities*, 32(6), 504-532.
<https://doi.org/10.1177/002221949903200605>
- Swanson, E., Hairrell, A., Kent, S., Ciullo, S., Wanzek, J. A., & Vaughn, S. (2014). A synthesis and meta-analysis of reading interventions using social studies content for students with learning disabilities. *Journal of Learning Disabilities*, 47(2), 178-195.
<https://doi.org/10.1177/0022219412451131>
- Swanson, H. L., Zheng, X., & Jerman, O. (2009). Working memory, short-term memory, and reading disabilities. *Journal of Learning Disabilities*, 42(3), 260-287.
- Taibah, N. J., & Haynes, C. W. (2011). Contributions of phonological processing skills to reading skills in Arabic speaking children. *Reading and Writing*, 24(9), 1019-1042.
<https://doi.org/10.1007/s11145-010-9273-8>
- Talbert, J. E., & McLaughlin, M. W. (1993). Understanding teaching in context. In D. Cohen, M. McLaughlin, & J. Talbert (Eds.), *Teaching for understanding: Challenges for policy and practice* (pp. 167–206). San Francisco, CA: Jossey-Bass.
- Taouka, M., & Coltheart, M. (2004). The cognitive processes involved in learning to read in Arabic. *Reading and Writing*, 17(1-2), 27-57.
<https://doi.org/10.1023/b:read.0000013831.91795.ec>
- Tatweer, King Abdullah Bin Abdul Aziz Public Education Development Project (2015).

Retrieved from <http://www.tatweer.edu.sa/TatweerProjects>

Taylor, C., & Albasri, W. (2014). The impact of Saudi Arabia King Abdullah's scholarship program in the US. *Open Journal of Social Sciences*, 2(10), 109.

<https://doi.org/10.4236/jss.2014.210013>

Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated reading: A meta-analysis. *Remedial and Special Education*, 25(4), 252-261.

<https://doi.org/10.1177/07419325040250040801>

Therrien, W. J., Taylor, J. C., Hosp, J. L., Kaldenberg, E. R., & Gorsh, J. (2011). Science instruction for students with learning disabilities: A meta-analysis. *Learning Disabilities Research & Practice*, 26(4), 188-203. <https://doi.org/10.1111/j.1540-5826.2011.00340.x>

Tibi, S., & Kirby, J. R. (2018). Investigating phonological awareness and naming speed as predictors of reading in Arabic. *Scientific Studies of Reading*, 22(1), 70-84.

<https://doi.org/10.1080/10888438.2017.1340948>

Torgesen, J. K., Houston, D. D., Rissman, L. M., Decker, S. M., Roberts, G., Vaughn, S., ... Lesaux, N. (2007). *Academic literacy instruction for adolescents: A guidance document from the Center on Instruction*. Portsmouth, NH: RMC Research Corporation, Center on Instruction.

Turnbull, R., Stowe, M. J., & Huerta, N. E. (2007). *Free appropriate public education: The law and children with disabilities*. (7th ed.). Denver, CO: Love Publishing Co.

Van Laarhoven, T., Munk, D. D., Zurita, L. M., Lynch, K., Zurita, B., Smith, T., & Chandler, L. (2008). The effectiveness of video tutorials for teaching preservice educators to use assistive technologies. *Journal of Special Education Technology*, 23, 31-45.

<https://doi.org/10.1177/016264340802300403>

Vellutino, F.R., Scanlon, D.M., & Tanzman, M.S. (1994). Components of reading ability: Issues

and problems in operationalizing word identification, phonological coding, and orthographic coding. In G. Lyon (Ed.), *Frames of reference for the assessment of learning disabilities: New views on measurement issues* (pp. 279–332). Baltimore, MD: Paul H. Brookes.

Venezky, R. L. (1999). *The American way of spelling: The structure and origins of American English orthography*. New York, NY: Guilford Press.

Wagner, R.K., Torgesen, J.K., Rashotte, C.A., Hecht, S.A., Barker, T.A., Burgess, S.R., ...

Garon, T. (1997). Changing relations between phonological processing abilities and word-level reading as children develop from beginning to skilled readers: A 5-year longitudinal study. *Developmental Psychology, 33*(3), 468-479.

<https://doi.org/10.1037//0012-1649.33.3.468>

Watson, S. M., Gable, R. A., Gear, S. B., & Hughes, K. C. (2012). Evidence-based strategies for improving the reading comprehension of secondary students: Implications for students with learning disabilities. *Learning Disabilities Research & Practice, 27*(2), 79-89.

<https://doi.org/10.1111/j.1540-5826.2012.00353.x>

Williams, J. P., Hall, K. M., Lauer, K. D., Stafford, K. B., DeSisto, L. A., & de Cani, J. S. (2005). Expository text comprehension in the primary grade classroom. *Journal of Educational Psychology, 97*, 538-550. <https://doi.org/10.1037/0022-0663.97.4.538>

Wilson, S. M., & Iacoboni, M. (2006). Neural responses to non-native phonemes varying in producibility: Evidence for the sensorimotor nature of speech perception. *Neuroimage, 33*(1), 316-325. <https://doi.org/10.1016/j.neuroimage.2006.05.032>

APPENDICES

Appendix A: Human Subjects Committee Approval



Date: June 12, 2018

TO: Turkey Alzahrani, (turkey.alzahrani@ku.edu)
FROM: Jocelyn Isley, MS, CIP, IRB Administrator (785-864-7385, irb@ku.edu)
RE: **Approval of Initial Study**

The IRB reviewed the submission referenced below on 6/12/2018. The IRB approved the protocol, effective 6/12/2018.

| IRB Action: APPROVED | | Effective date: 6/12/2018 | Expiration Date : NA |
|-----------------------------|--|----------------------------------|-----------------------------|
| STUDY DETAILS | | | |
| Investigator: | Turkey Alzahrani | | |
| IRB ID: | STUDY00142602 | | |
| Title of Study: | Examining Reading-Related Teacher Education among Teachers of Students with Specific Learning Disabilities in Saudi Arabia | | |
| Funding ID: | None | | |
| REVIEW INFORMATION | | | |
| Review Type: | Initial Study | | |
| Review Date: | 6/12/2018 | | |
| Documents Reviewed: | • CITI Certificate Biomedical Research, • CITI Certificate Social and Behavioral Research, • Consent Statement, • Human Research Protocol , • Individual investigator agreement, • Recruitment Email, • Survey | | |
| Exemption Determination: | • (2) Tests, surveys, interviews, or observation | | |

KEY PROCEDURES AND GUIDELINES. Consult our website for additional information.

1. **Approved Consent Form:** You must use the final, watermarked version of the consent form, available under the “Documents” tab, “Final” column, in eCompliance. Participants must be given a copy of the form.
2. **Continuing Review and Study Closure:** Continuing Review is not required for this study. Please [close your study](#) at completion.
3. **Modifications:** Modifications to the study may affect Exempt status and must be submitted for review and approval before implementing changes. For more information on the types of modifications that require IRB review and approval, [visit our website](#).
4. **Add Study Team Member:** [Complete a study team modification](#) if you need to add investigators not named in original application. Note that new investigators must take [the online tutorial](#) prior to being approved to work on the project.
5. **Data Security:** [University data security and handling requirements](#) apply to your project.
6. **Submit a Report of New Information (RNI):** If a subject is injured in the course of the research procedure or there is a breach of participant information, an RNI must be submitted immediately. Potential non-compliance may also be reported through the RNI process.
7. **Consent Records:** When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.
8. **Study Records** must be kept a minimum of three years after the completion of the research. Funding agencies may have retention requirements that exceed three years.

Appendix B: Letter of Definition from Saudi Arabian Cultural Mission



Academic Affairs

Official Letter

The Saudi Arabian Cultural Mission at the United States of America certifies that the student TURKEY KHALAF AHMED ALZahrani civil id [REDACTED] is a scholarship student whom is sponsored by the Ministry of Higher Education for a(n) (Doctorate - PHD) degree since 15/05/2011, the student named above is still on the scholarship until 19/08/2019.

This letter was given to the student to present to (- Whom It May Concern) for certification purposes without any obligation and/or liability on our office.

Assistant Cultural Attaché For Academic Affairs

Dr. Ali Mohammed H Alferaehey

Appendix C: The Original Reading Survey (Created by Dr. Melinda Leko)

State Reading Survey

Section I- About you and your school community

→ Check here if you have not taught reading at anytime since the 2009-2010 school year.
(return the blank survey in the enclosed self-addressed stamped envelope. Do not write your name or contact information on the survey or envelope.)

1. What is your gender?

Male Female

2. In what year were you born? (Please write on line below)

3. Which of the following choice(s) best describe your race?

White Black/African American (Not Hispanic) Asian
 Hispanic Native Hawaiian or Pacific Islander Bi-racial
 American Indian or Alaska Native Other (specify) _____

4. About how large is your community? (Select only one)

Less than 2,500 2,500-9,999 10,000-24,999 25,000-99,999
 100,000 or more

5. What type of teaching certification do you hold? (Please select all that apply)

Cross-categorical (CC) LD (#811) EBD (#830)
 Reading teacher (#316) Reading specialist (#317)
 Other (please specify) _____

6. What is the highest degree you have obtained?

Bachelors Masters Doctorate
 Other (Please specify) _____

7. Counting this year, how many years in total have you been teaching?

8. Counting this year, how many years in total have you been teaching special education?

9. Counting this year, how many years in total have you been teaching **middle or high school students?**

10. Approximately how many students are on your caseload? (Select only one)

- 1-10 students 11-20 students 21-30 students 31-40 students
 41-50 students 51 or more students
 I don't have a specified caseload. (Please briefly explain below and continue the survey): _____
-

11. Which of the following disability categories are **currently** represented on your caseload (Or, if you don't have a caseload, describe the students with whom you work most closely). (Select all that apply)

- Cognitive disability Autism Deaf-blindness
 Emotional disturbance Learning disability Hearing impairment
 Multiple disabilities Orthopedic impairment Other health impairment
 Traumatic brain injury Visual impairment Speech/language impairment

Section II- Undergraduate/Graduate Experiences

1. During your undergraduate/graduate program, how many courses included information on **reading instruction?**

- None 1-2 3-4 5-6 7 or more

2. During your undergraduate/graduate program, how many courses included information on **reading instruction for students with disabilities?**

- None 1-2 3-4 5-6 7 or more

3. During your undergraduate/graduate program, how many courses included information on **reading instruction for middle and high school students with disabilities?**

- None 1-2 3-4 5-6 7 or more

If you selected “None” for questions 1, 2, and 3, you may skip to Section III.

4. What were the components of the courses that included reading instruction at the undergraduate/graduate level? (Select all that apply)

- Lecture-based course with no practical experiences
- Practice teaching reading in a classroom
- Observation of teaching practices in a classroom
- Student study groups
- Tutoring students
- Administering student assessments in reading
- Completing a case study
- Other. Please explain: _____

5. In total, the undergraduate/graduate courses I have taken have adequately prepared me to teach reading in the classroom.

- Strongly disagree Disagree Neutral Agree Strongly agree

6. Did any of your undergraduate/graduate courses have content related to teaching reading to adolescents with disabilities or adolescent struggling readers?

- Yes No

7. Did your undergraduate/graduate courses that focused on reading emphasize any of the following aspects of adolescent literacy programs? (Select all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Direct, explicit phonics instruction | <input type="checkbox"/> Direct, explicit fluency instruction |
| <input type="checkbox"/> Direct, explicit vocabulary instruction | <input type="checkbox"/> Motivation and self-directed learning |
| <input type="checkbox"/> Text based collaborative learning | <input type="checkbox"/> Strategic tutoring |
| <input type="checkbox"/> Diverse texts | <input type="checkbox"/> Intensive writing |
| <input type="checkbox"/> A technology component | <input type="checkbox"/> An extended time for literacy |
| <input type="checkbox"/> Interdisciplinary teacher teams | <input type="checkbox"/> An ongoing formative assessment of students |
| <input type="checkbox"/> Direct, explicit comprehension instruction | <input type="checkbox"/> Instructional principles embedded in content |
| <input type="checkbox"/> An ongoing, summative assessment of students and programs | |

Section III- Professional Development

1. In the last 2 years, how many hours of district or school-based professional development on teaching reading to **adolescents with disabilities or adolescent struggling readers** have you had?

- 0 hours 1-2 hours 3-5 hours 6-10 hours 11-16 hours
 17-20 hours 21 or more hours

2. In the last 2 years, how many hours of district or school-based professional development on teaching reading have you had?

- 0 hours 1-2 hours 3-5 hours 6-10 hours
 11-16 hours 17-20 hours 21 or more hours

If you put “0 hours” for questions 1 and 2, you may skip to Section IV.

3. Which of the following professional development activities in reading instruction have you participated in the last 2 years? (Select all that apply)

- District-based workshops Conference(s)
 School-based workshops Teacher study groups or networks
 Seminars on teaching reading Technology training to support reading instruction
 University course(s) related to teaching (including online courses)
 Other (Please specify): _____

4. Was your professional development or continuing educational experience appropriately targeted to the student population that you teach?

- Yes No

5. In total, the professional development or continuing education experiences I have participated in have adequately prepared me to teach reading in the classroom.

- Strongly disagree Disagree Neutral Agree Strongly agree

6. Did any of the professional development or continuing education experiences you have participated in emphasize any of the following aspects of adolescent literacy programs? (Select all that apply)

- Direct, explicit phonics instruction Direct, explicit fluency instruction
 Direct, explicit vocabulary instruction Motivation and self-directed learning
 Text based collaborative learning Strategic tutoring
 Diverse texts Intensive writing
 A technology component An extended time for literacy
 Interdisciplinary teacher teams An ongoing formative assessment of students
 Direct, explicit comprehension instruction Instructional principles embedded in content
 An ongoing, summative assessment of students and programs

Section IV- Your current teaching experiences

1. In which grades are the students you currently teach reading? (Select all that apply)

- Kindergarten 1st 2nd 3rd 4th 5th
 6th 7th 8th 9th 10th 11th
 12th Postsecondary

2. On average, how many classes, groups, or class periods of reading do you teach each day?

0
 5

1
 6

2
 7

3
 8 or more

4

3. Which of the following best describes the service delivery model in which you teach reading? (Select all that apply)

- Self-contained classroom Resource classroom Hospital/Homebound
 Alternative setting/school Co-teaching in the general education classroom
 Other. Please specify: _____

4. In general, I feel that I have the freedom to plan my own reading lessons and curriculum for my class(es).

- Strongly disagree Disagree Neutral Agree Strongly agree

5. If you selected strongly disagree, disagree, or neutral for question 4, **who dictates your lesson plans and curriculum? (Select all that apply)**. If you selected agree or strongly agree for question 4, you may skip this question.

- The school district The principle
 The department chair The grade level team leader/ lead teacher
 The general education teacher Other. Please explain: _____
 The special education team leader/lead teacher
 A group of teachers all agree on the curriculum and lesson plans

6. Please describe what your reading instruction looks like.

7. Which of the following do you use in the classroom? (Select all that apply)

- Direct, explicit phonics instruction Direct, explicit fluency instruction
 Direct, explicit vocabulary instruction Motivation and self-directed learning
 Text based collaborative learning Strategic tutoring
 Diverse texts Intensive writing
 A technology component An extended time for literacy
 Interdisciplinary teacher teams An ongoing formative assessment of students
 Direct, explicit comprehension instruction Instructional principles embedded in content
 An ongoing, summative assessment of students and programs

8. Since the 2009-2010 school year I have been able to incorporate information from my undergraduate/graduate reading courses into my reading instruction.

- Strongly disagree Disagree Neutral Agree Strongly agree

9. If you selected agree or strongly agree for question 8, **what information from your undergraduate/graduate reading courses have you been able to incorporate into your reading instruction?** If you selected strongly disagree, disagree, or neutral for question 8, you may skip this question.

10. If you selected agree or strongly agree for question 8, **what information from your undergraduate/graduate reading courses has been most helpful to you?** If you selected strongly disagree, disagree, or neutral for question 8, you may skip this question.

11. If you selected strongly disagree, disagree, or neutral for question 8, **what has prevented you from incorporating information from your undergraduate/graduate reading courses into your reading instruction? (Select all that apply)** If you selected strongly agree or agree for question 8, you may skip this question.

- Lack of funding Lack of appropriate resources
 Lack of time
 Techniques I learned in my undergraduate/graduate courses are too dated
 Techniques I learned in my undergraduate/graduate courses do not match my current teaching needs
 I don't like the techniques I learned in my undergraduate/graduate courses
 My current teaching context is not structured to support the techniques I learned in my undergraduate/graduate courses
 Other. Please explain: _____

12. Since the 2009-2010 school year I have been able to incorporate information from my professional development/continuing education experiences into my reading instruction.

- Strongly disagree Disagree Neutral Agree Strongly agree

13. If you selected strongly agree or agree for question 12, **what information from your professional development/continuing education experiences have you been able to incorporate into your reading instruction?** If you selected strongly disagree, disagree, or neutral for question 12, you may skip this question.

14. If you selected strongly agree or agree for question 12, **what information from your professional development/continuing education experiences has been most helpful to you?** If you selected strongly disagree, disagree, or neutral for question 12, you may skip this question.

15. If you selected strongly disagree, disagree, or neutral for question 12, **what has prevented you from incorporating information from your professional development/continuing education experiences into your reading instruction? (Select all that apply).**

- Lack of funding Lack of appropriate resources
 Lack of time
 Techniques I learned in my undergraduate/graduate courses are too dated
 Techniques I learned in my undergraduate/graduate courses do not match my current teaching needs
 I don't like the techniques I learned in my undergraduate/graduate courses
 My current teaching context is not structured to support the techniques I learned in professional development
 Other. Please explain: _____

15. In general, I feel that I have received adequate preparation to teach reading to **students with disabilities**.

- Strongly disagree Disagree Neutral Agree Strongly agree

16. In general, I feel that I have received adequate preparation to teach reading to **adolescents with disabilities or adolescent struggling readers**.

- Strongly disagree Disagree Neutral Agree Strongly agree

17. Since the 2009-2010 school year what aspects of your preparation have been most useful to you in planning and teaching reading? (Select all that apply)

- Undergraduate or graduate coursework Workshops
 Teacher study groups or networks Conference(s)
 University course(s) related to teaching (including online courses)
 Technology training to support reading instruction
 Other (please specify): _____

18. In what areas would you like to have more professional development? (Select all that apply)

- Reading instruction in general
 Providing instruction to students with disabilities or struggling readers
 Reading instruction for adolescents with disabilities or adolescent struggling readers
 I do not want more professional development in any field at this time
 Other. Please explain: _____

<End of Survey>
Thank you for your participation!

Appendix D: English Version of the Modified Survey

Reading Instruction Survey

Section I: Background Information

1. Gender?

- Male
- Female

2. How old are you?

3. What region do you teach in?

- North
- South
- Central
- East
- West

4. What is the highest degree obtained?

- Associate
- Bachelors
- Masters
- Doctorate

5. Did you obtain your degree from a Saudi University?

- Yes
- No

6. In what region was the university you obtained your undergraduate degree from?

- North
- South
- Central
- East
- West

7. Counting this year, how many years have you been teaching?

8. At which school level are you currently teaching?

- Elementary school
- Middle school
- High school

9. What is the total number of students do you serve? (It is Ok to estimate)

Section II: Undergraduate/Graduate Courses

10. During your undergraduate/graduate program, about how many courses included information on: (It is Ok to estimate)

- Reading instruction: _____
- Reading instruction for students with any or all disabilities: _____
- Reading instruction for students with specific learning disabilities: _____
- Reading curriculum: _____

11. What were the components of the courses that included information on reading instruction at the undergraduate/graduate level? (Select all that apply)

- Lecture-based course with no practical experiences
- Practicing teaching reading in a classroom
- Observation of teaching practices in a classroom
- Study groups
- Administrating student assessment in reading
- Completing a case study
- Other. Please explain: _____

12. Did your undergraduate/graduate courses focused on reading emphasize the following aspects of reading instruction? (Select all that apply)

- Explicit, direct comprehension instruction (providing students with directions, guidance, orders, and strategies to enhance their comprehension performance)
- Explicit, direct vocabulary instruction (providing students with directions, guidance, orders, and strategies to enhance their vocabulary knowledge)
- Explicit, direct fluency instruction (providing students with directions, guidance, orders, and strategies to enhance their fluency performance)
- Explicit, direct phonics instruction (providing students with directions, guidance, orders, and strategies to enhance their phonemic knowledge)
- Explicit, direct morphological instruction (providing students with directions, guidance, orders, and strategies to enhance their understanding of words structure and formation)
- Explicit, direct orthographic instruction (providing students with directions, guidance, orders, and strategies to enhance their knowledge of the language's spelling system)
- Repeated reading (students read texts more than once to improve their oral reading fluency)
- Repeated feedback (students receiving ongoing feedback about on their reading performance)
- Questioning (e.g., students' self-questioning or teacher asking students questions)
- Collaborative learning (e.g., classwide peer tutoring, reciprocal teaching)
- Multicomponent strategies (using two strategies at the same time) (e.g., identifying main idea + self-questioning)
- Content enhancement tools (e.g., graphic organizers)
- Computer assisted instruction (any strategy, instruction, or content presented via and delivered through computer) (e.g., videos, images, electronic texts)
- Reinforcement (providing students with verbal or written positive feedback)
- Motivation and self-directed learning (students, with teachers' guidance, decide what and how they will learn)

- An extended time for reading (providing students with extra time to complete their reading-related tasks)
- Summarizing/note taking (synthesizing information and distill it into a concise form)
- Other. Please explain: _____

Section III: Professional Development

13. Since you graduated, have you attended any professional development that included information on reading instruction?

- Yes
- No

14. Since you graduated, what is the number of district or school-based professional development you have had on teaching: (It is Ok to estimate)

- Reading instruction: _____
- Reading instruction for students with any or all disabilities: _____
- Reading instruction for students with specific learning disabilities: _____
- Reading curriculum: _____

15. Which of the following professional development activities have you participated in since you graduated? (Select all that apply)

- Workshops
- Conferences
- Seminars
- Teacher study groups or networks [SEP]
- Technology training
- Other. Please specify: _____ [SEP]

16. Did any of the professional development or continuing education experiences you have participated in emphasize any of the following aspects of reading instruction? (Select all that apply)

- Explicit, direct comprehension instruction (providing students with directions, guidance, orders, and strategies to enhance their comprehension performance)
- Explicit, direct vocabulary instruction (providing students with directions, guidance, orders, and strategies to enhance their vocabulary knowledge)
- Explicit, direct fluency instruction (providing students with directions, guidance, orders, and strategies to enhance their fluency performance)
- Explicit, direct phonics instruction (providing students with directions, guidance, orders, and strategies to enhance their phonemic knowledge)
- Explicit, direct morphological instruction (providing students with directions, guidance, orders, and strategies to enhance their understanding of words structure and formation)
- Explicit, direct orthographic instruction (providing students with directions, guidance, orders, and strategies to enhance their knowledge of the language's spelling system)
- Repeated reading (students read texts more than once to improve their oral reading fluency)
- Repeated feedback (students receiving ongoing feedback about on their reading performance)

- Questioning (e.g., students' self-questioning or teacher asking students questions)
- Collaborative learning (e.g., classwide peer tutoring, reciprocal teaching)
- Multicomponent strategies (using two strategies at the same time) (e.g., identifying main idea + self-questioning)
- Content enhancement tools (e.g., graphic organizers)
- Computer assisted instruction (any strategy, instruction, or content presented via and delivered through computer) (e.g., videos, images, electronic texts)
- Reinforcement (providing students with verbal or written positive feedback)
- Motivation and self-directed learning (students, with teachers' guidance, decide what and how they will learn)
- An extended time for reading (providing students with extra time to complete their reading-related tasks)
- Summarizing/note taking (synthesizing information and distill it into a concise form)
- Other. Please explain: _____

Section IV: Your Current Teaching Experiences

17. On average, how many minutes a day do you teach reading? (It is Ok to estimate)

18. How often do you use the following reading instruction in the classroom?

| Type of Reading Instruction | Never | Rarely | Sometimes | Often | Nearly always |
|--|-------|--------|-----------|-------|---------------|
| Explicit, direct comprehension instruction (providing students with directions, guidance, orders, and strategies to enhance their comprehension performance) | | | | | |
| Explicit, direct vocabulary instruction (providing students with directions, guidance, orders, and strategies to enhance their vocabulary knowledge) | | | | | |
| Explicit, direct fluency instruction (providing students with directions, guidance, orders, and strategies to enhance their fluency performance) | | | | | |
| Explicit, direct phonics instruction (providing students with directions, guidance, orders, and strategies to enhance their phonemic knowledge) | | | | | |

| | | | | |
|---|--|--|--|--|
| Explicit, direct morphological instruction (providing students with directions, guidance, orders, and strategies to enhance their understanding of words structure and formation) | | | | |
| Explicit, direct orthographic instruction (providing students with directions, guidance, orders, and strategies to enhance their knowledge of the language's spelling system) | | | | |
| Repeated reading (students read texts more than once to improve their oral reading fluency) | | | | |
| Repeated feedback (students receiving ongoing feedback about on their reading performance) | | | | |
| Questioning (e.g., students' self-questioning or teacher asking students questions) | | | | |
| Collaborative learning (e.g., classwide peer tutoring, reciprocal teaching) | | | | |
| Multicomponent strategies (using two strategies at the same time) (e.g., Identifying main idea + self-questioning) | | | | |
| Content enhancement tools (e.g., graphic organizers) | | | | |
| Computer assisted instruction (any strategy, instruction, or content presented via and delivered through computer) (e.g., videos, images, electronic texts) | | | | |
| Reinforcement (providing students with verbal or written positive feedback) | | | | |
| Motivation and self-directed learning (students, with teachers' guidance, decide what and how they will learn) | | | | |

| | | | | | |
|---|--|--|--|--|--|
| An extended time for reading (providing students with extra time to complete their reading-related tasks) | | | | | |
| Summarizing/note taking (synthesizing information and distill it into a concise form) | | | | | |

19. Are there any reading instruction you use not listed above?

- 1.
- 2.
- 3.

Appendix E: The Final Arabic Version of the Modified English Survey

استبانة القراءة لمعلمي صعوبات التعلم

القسم الأول: معلومات أساسية

١. الجنس؟

- ذكر
- أنثى

٢. العمر؟

٣. المنطقة التي تعمل بها؟

- الشمالية
- الجنوبية
- الوسطى
- الشرقية
- الغربية

٤. الدرجة العلمية؟

- دبلوم عالي
- بكالوريوس
- ماجستير
- دكتوراه

٥. هل حصلت على شهادات البكالوريوس/الماجستير من جامعة سعودية؟

- نعم
- لا

٦. في أي منطقة تقع الجامعة التي حصلت على درجة البكالوريوس منها؟

- الشمالية
- الجنوبية
- الوسطى
- الشرقية
- الغربية

٧. عدد سنوات الخبرة التعليمية؟

٨. المرحلة التي تدرس بها؟

- ابتدائية
- متوسطة
- ثانوية

القسم الثاني: المقررات الجامعية المتعلقة بالقراءة

١٠. كم عدد المواد التي درستها أثناء دراستك الجامعية وشتملت على معلومات تتعلق بـ:

- (١٠) استراتيجيات القراءة بوجه عام: _____
- (١٠) استراتيجيات القراءة لذوي الاحتياجات الخاصة: _____
- (١٠) استراتييجيات القراءة لذوي صعوبات التعلم: _____
- (١٠) مناهج القراءة: _____

١١. ماهي الاستراتيجيات التي استخدمها أعضاء التدريس لتدريس المواد التي اشتملت على معلومات تتعلق باستراتيجيات القراءة أثناء دراستك الجامعية؟ (يمكنك اختيار أكثر من إجابة)

- الإلقاء المباشر
- أساليب عملية متنوعة لتدريس القراءة في داخل الفصل الدراسي
- زيارة المدارس وملحوظة المعلمين أثناء التدريس
- أسلوب العمل الجماعي
- الأنشطة العملية (سواء داخل أو خارج الفصل)
- إدارة واستخدام اختبارات القراءة
- إجراء دراسة حالة
- أخرى. اذكرها: _____

١٢. أي من الاستراتيجيات القرائية التالية سبق لك دراستها أثناء دراستك الجامعية (يمكنك اختيار أكثر من إجابة)

- تدريس الاستيعاب/الفهم القرائي (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الاستيعاب والفهم القرائي لدى الطالب)
- تدريس الكلمات والمفردات (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لإثراء مخزون المفردات اللغوية لدى الطالب)
- تدريس الطلاقة القرائية (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الطلاقة القرائية لدى الطالب)
- تدريس أصوات الحروف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب كيفية نطق أصوات الحروف)
- تدريس النحو والصرف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب قواعد النحو والصرف)
- تدريس قواعد الإملاء والهجاء (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين معرفة الطلاب بقواعد الإملاء والهجاء)
- استراتيجية تكرار القراءة (قراءة الكلمة أو القطعة أكثر من مرة لتحسين مستوى القراءة الشفوية لدى الطالب)
- استراتيجية تكرار التغذية الراجعة (تقديم التغذية الراجعة للطلاب بشكل متكرر)
- استراتيجية طرح الأسئلة (مثال: التساؤل والاستجواب الذاتي / أسئلة المعلم)
- استراتيجية التعلم التعاوني (تدريس الأقران لبعضهم البعض)
- استخدام أكثر من استراتيجية في نفس الوقت (مثال: التلخيص + تكرار القراءة)
- أدوات إيضاح المحتوى (مثال: خرائط المفاهيم، الرسوم البيانية)
- استخدام التكنولوجيا (عرض الاستراتيجيات، التعليمات، أو المحتوى بواسطة الكمبيوتر. مثال: الفيديوهات، الصور، الكتب الإلكترونية)
- استراتيجية التعزيز الإيجابي (تقديم التعزيز الإيجابي للطلاب سواء كان كتابياً أو لفظياً)
- استراتيجية التعلم الذاتي (أن يقرر الطالب ما يريد تعلمه بمساعدة وإشراف المعلم)
- إعطاء الطالب وقت إضافي للقراءة (إعطاء الطالب وقت إضافي كي يكملون المهام القرائية)
- استراتيجية التلخيص/تدوين الملاحظات (كتابة المعلومات بشكل مختصر)
- أخرى. اذكرها: _____

القسم الثالث: التطوير المهني المتعلقة بالقراءة

١٣. هل سبق لك حضور نشاط تطوير مهني متعلق بالقراءة منذ تخرجك؟

- نعم
- لا

١٤. كم عدد نشاطات التطوير المهني التي حضرتها منذ تخرجك من الجامعة والتي لها علاقة بـ:

- (١٠) استراتيجيات القراءة بوجه عام: _____
- (١٠) استراتيغيات القراءة لذوي الاحتياجات الخاصة: _____
- (١٠) استراتيغيات القراءة لذوي صعوبات التعلم: _____
- (١٠) مناهج القراءة: _____

١٥. أي من أنواع نشاطات التطوير المهني التالية المتعلقة بالقراءة سبق لك حضورها منذ تخرجك؟ (يمكنك اختيار أكثر من إجابة)

- ورش عمل
- مؤتمرات
- ندوات
- مجموعات المعلمين
- التدريب على استخدام التكنولوجيا
- أخرى. اذكرها: _____

١٦. ما هي استراتيجيات القراءة التي تعلمتها أو تم التركيز عليها خلال نشاطات التطوير المهني التي حضرتها؟ (يمكنك اختيار أكثر من إجابة)

- تدريس الاستيعاب/الفهم القرائي (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الاستيعاب والفهم القرائي لدى الطلاب)
- تدريس الكلمات والمفردات (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لإثراء مخزون المفردات اللغوية لدى الطلاب)
- تدريس الطلاقة القرائية (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الطلاقة القرائية لدى الطلاب)
- تدريس أصوات الحروف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب كيفية نطق أصوات الحروف)
- تدريس النحو والصرف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب قواعد النحو والصرف)
- تدريس قواعد الإملاء والهجاء (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين معرفة الطلاب بقواعد الإملاء والهجاء)
- تكرار القراءة (قراءة الكلمة أو القطعة أكثر من مرة لتحسين مستوى القراءة الشفوية لدى الطلاب)
- تكرار التغذية الراجعة (تقديم التغذية الراجعة للطلاب بشكل متكرر)
- طرح الأسئلة (مثال: التساؤل والاستجواب الذاتي/ أسئلة المعلم)
- التعلم التعاوني (تدريس الأقران لبعضهم البعض)
- استخدام أكثر من استراتيجية في نفس الوقت (مثال: التلخيص + تكرار القراءة)
- أدوات إيضاح المحتوى (مثال: خرائط المفاهيم، الرسوم البيانية)
- استخدام التكنولوجيا (عرض الاستراتيجيات، التعليمات، أو المحتوى بواسطة الكمبيوتر. مثال: الفيديوهات، الصور، الكتب الإلكترونية)
- التعزيز الإيجابي (تقديم التعزيز الإيجابي للطلاب سواء كان كتابياً أو لفظياً)
- التعلم الذاتي (أن يقرر الطالب ما يريد تعلمه بمساعدة وإشراف المعلم)
- إعطاء الطالب وقت إضافي للقراءة (إعطاء الطالب وقت إضافي كي يكملون المهام القرائية)
- التلخيص/تدوين الملاحظات (كتابة المعلومات بشكل مختصر)
- أخرى. اذكرها: _____

القسم الرابع: استخدام استراتيجيات القراءة

١٧. كم عدد الدقائق التي تستغرقها يومياً لتدريس القراءة؟

١٨. إلى أي مدى تستخدم استراتيجيات القراءة التالية في فصلك الدراسي؟

| نوع استراتيجية القراءة | دائماً | غالباً | أحياناً | نادراً | أبداً |
|---|--------|--------|---------|--------|-------|
| (١٨) تدريس الاستيعاب/الفهم القرائي (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الاستيعاب والفهم القرائي لدى الطالب) | | | | | |
| (١٨) تدريس الكلمات والمفردات (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لإثراء مخزون المفردات اللغوية لدى الطالب) | | | | | |
| (١٨) تدريس الطلاقة القرائية (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين مستوى الطلاقة القرائية لدى الطالب) | | | | | |
| (١٨) تدريس أصوات الحروف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب كيفية نطق أصوات الحروف) | | | | | |
| (١٨) تدريس النحو والصرف (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتعليم الطلاب قواعد النحو والصرف) | | | | | |
| (١٨) تدريس قواعد الإملاء والهجاء (تقديم تعليمات، وتوجيهات، وأوامر، واستراتيجيات لتحسين معرفة الطلاب بقواعد الإملاء والهجاء) | | | | | |
| (١٨) تكرار القراءة (قراءة الكلمة أو القطعة أكثر من مرة لتحسين مستوى القراءة الشفوية لدى الطالب) | | | | | |
| (١٨) تكرار التغذية الراجعة (تقديم التغذية الراجعة للطلاب بشكل متكرر) | | | | | |
| (١٨) طرح الأسئلة (مثال: التساؤل والاستجواب الذاتي/أسئلة المعلم) | | | | | |
| (١٨) التعلم التعاوني (تدريس الأقران لبعضهم البعض) | | | | | |
| (١٨) استخدام أكثر من استراتيجية في نفس الوقت (مثال: التلخيص + تكرار القراءة) | | | | | |
| (١٨) أدوات إيضاح المحتوى (مثال: خرائط المفاهيم، الرسوم البيانية) | | | | | |
| (١٨) استخدام التكنولوجيا (عرض الاستراتيجيات، التعليمات، أو المحتوى بواسطة الكمبيوتر. مثال: الفيديوهات، الصور، الكتب الإلكترونية) | | | | | |
| (١٨) التعزيز الإيجابي (تقديم التعزيز الإيجابي للطالب سواء كان كتابياً أو لفظياً) | | | | | |
| (١٨) التعلم الذاتي (أن يقرر الطالب ما يريد تعلمه بمساعدة وإشراف المعلم) | | | | | |
| (١٨) إعطاء الطالب وقت إضافي للقراءة (إعطاء الطالب وقت إضافي كي يكملون المهام القرائية) | | | | | |
| (١٨) التلخيص/تدوين الملاحظات (كتابة المعلومات بشكل مختصر) | | | | | |

١٩. هل هناك استراتيجيات أخرى غير المذكورة أعلاه تستخدمها في فصلك الدراسي؟

- ١.
- ٢.
- ٣.

Appendix F: Consent Form (English Version)

Consent Statement

Examining Reading-Related Teacher Education among Teachers of Students with Specific Learning Disabilities in Saudi Arabia

Dear Teachers,

The Department of Special Education at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided to you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

The purpose of this survey is to examine teachers of students with specific learning disabilities reading-related teacher education and its impact on the implementation of reading instruction in Saudi Arabian schools. We hope the results of this survey will empower universities, educators, and policymakers to learn about the current status of reading-related teacher education and teachers' implementation of reading instruction in their classrooms. Your participation is completely *voluntary*, and it should take 10-15 minutes to complete the survey. This survey is completely *confidential*. It is possible, however, with Internet communications, that through intent or accident someone other than the intended recipient may see your response.

If you would like additional information or have questions concerning this study, please feel free to contact the principal investigator or the faculty supervisors. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Research Protection Program (HRPP), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

Completion of the survey indicates your willingness to take part in this study and that you are at least 18 years old. Thank in advance for participating and completing the survey!

Sincerely,

Turkey Alzahrani, M.A.
Principal Investigator
Special Education Dept.
College of Education
University of Kansas
turkey.alzahrani@ku.edu

Suzanne Robinson, Ph.D.
Faculty Supervisor
Special Education Dept.
College of Education
University of Kansas
smrobins@ku.edu

Jennifer Kurth, Ph.D.
Faculty Supervisor
Special Education Dept.
College of Education
University of Kansas
jkurth@ku.edu

Appendix F: Consent Form (Arabic Version)

بسم الله الرحمن الرحيم
الموافقة على المشاركة في الدراسة

سعادة الأستاذة سلمه الله

السلام عليكم ورحمة الله وبركاته وبعد

تهدف هذه الدراسة إلى فحص واقع التعليم الجامعي والتطوير المهني لمدرسي صعوبات التعلم الذي يتعلّق بإستراتيجيات القراءة ومدى تطبيقهم أو استخدامهم لهذه الإستراتيجيات. هذه الدراسة سوف تمكن الجامعات، التربويين، وأصحاب القرار من معرفة واقع التعليم الجامعي والتطوير المهني لمدرسي صعوبات التعلم والمتعلّق بإستراتيجيات القراءة. هذه الاستبانة تحتوي على أربعة أجزاء: معلومات أساسية، المقررات الجامعية المتعلقة بالقراءة، نشاطات التطوير المهني المتعلقة بالقراءة، واستخدامك لإستراتيجيات القراءة في فصلك الدراسي.

لذا أمل التكرم بتبنيه هذا الاستبيان بشكل دقيق بما يساعد الباحث لفهم الوضع الحالي واقع التعليم الجامعي والتطوير المهني لمدرسي صعوبات التعلم الذي يتعلّق بإستراتيجيات القراءة ومدى تطبيقهم أو استخدامهم لهذه الإستراتيجيات. مشاركتك في هذا الاستبيان تطوعية، والوقت المتوقع لإكمال الاستبيان ١٥ دقيقة. كما أحب أن أنه بأن جميع المعلومات سوف يتم التعامل معها بسرية تامة ولن تستخدم إلا لأغراض البحث العلمي فقط.

... أشكرك جزيل الشكر على وقتك الثمين للمشاركة في هذا الاستبيان

المشرفة على البحث: د. جينيفير كيرث
قسم التربية الخاصة
كلية التربية
جامعة كانساس
jkurth@ku.edu

المشرفة على البحث: د. سوزان روبنسون
قسم التربية الخاصة
كلية التربية
جامعة كانساس
smrobins@ku.edu

الباحث: تركي خلف الزهراني
قسم التربية الخاصة
كلية التربية
جامعة كانساس
turkey.alzahrani@ku.edu