

Debunking the Myths of Dyslexia

Christine Thorwarth
Xavier University

Abstract

Dyslexia is a specific learning disability, which affects reading in as many as one in five people. Many children go without proper interventions because of ineffective teaching strategies, and common myths associated with this disability. The purpose of this study was to test how deeply ingrained some myths might be, and decipher where educators are receiving information. The information was used to show any weaknesses in the knowledge base of the educators and decide on proper professional development opportunities. It is up to educators to become knowledgeable to debunk the myths of dyslexia.

Keywords: dyslexia, reading, myths, disability, intervention

Introduction

Dyslexia is defined as a specific learning disability that affects language processing in an individual. Individuals with dyslexia can have anywhere from low average to above average intelligence (Shaywitz & Shaywitz, 2004). Even though, intelligence is not affected by this disability, it hinders the ability of learning to read accurately and fluently in one in five children. These children can learn to read, but many myths about the condition have persisted throughout the years causing proper assessment and teaching methods to be delayed in many (Wadlington & Wadlington, 2005). Educators need to be aware of the signs of dyslexia and receive support to help children with dyslexia learn to read.

There are many misconceptions about dyslexia even though it has been researched at length for many years now (Shaywitz & Shaywitz, 2004). Some popular myths include children with dyslexia see letters and numbers backwards, it is a visual problem, they will always be poor readers, and it is because of home environment (Wadlington & Wadlington, 2005). Educators also hold many of the myths to be true, and many children will go through their school careers without receiving proper instruction. All of these misconceptions about dyslexia can be remedied with ongoing support, professional development, and training for educators and those entering the teaching field (Carvalhais & Silva, 2010).

The prevalence of these misconceptions has caused undue stress to children and adults with dyslexia. Many have social and emotional issues that stem from school experiences. They are frustrated with their perceived lack of ability. Some become depressed and have issues with low self-esteem (Wadlington, Elliot, & Kirylo, 2008). This issue has been exposed within children's books, which are successfully being used in some classrooms to help all students become aware and gain compassion for those who struggle (Altieri, 2006). The emotional side effects that can come with dyslexia can be

contained with proper guidance, assessments and interventions with best practices from knowledgeable educators.

People who struggle with dyslexia have many talents and gifts, because they had to learn how to survive the school system using creative outlets (Wadlington & Wadlington, 2005). There are many highly skilled people diagnosed with dyslexia who struggled through school. They were told by educators that they would not be as successful as they are today. Some people who proved those educators wrong are Henry Winkler, who went on to act in the sitcom of the 1970s, *Happy Days*. He also writes popular children's books. The characters have learning issues to help others who are struggling have something they can relate to ("Dyslexia workarounds: Creativity without a lot of reading" 2013). John Irving, who has also been diagnosed with dyslexia, is a best-selling author (*The Cider House Rules*) and award winning screenwriter. Charles Schwab is now a wonderfully successful financier, and he has documented his struggles with dyslexia. Dr. Delos M. Cosgrove interviewed that he received Ds in foreign languages, and struggled with taking tests. He is chairman of thoracic and cardiovascular surgery at the Cleveland Clinic. Ben Foss, who is the founder of Headstrong Nation and inventor of the Intel Reader, has been featured on many media outlets for his work in the field of improving the lives of those with dyslexia (Foss, 2013). There are many more examples of people with dyslexia going to great lengths to become successful in their chosen fields. All of them struggled with reading and writing and had to find ways to work around their disability (Shaywitz, 2003).

The myths of dyslexia need to be debunked as a whole in order to educate these children properly. They have many gifts to offer society, and are struggling to find their voice in the school system. Educators need to have opportunities to learn about this disability that effects between 17% and 20% of the population in order to harness those talents and put them to good use within their communities (Shaywitz & Shaywitz, 2004). The purpose of this study is to test how deeply ingrained some of these myths might still be, and decipher where educators are receiving information about dyslexia. This will help decide how better to serve this population and the best means of communicating with educators on best practices. Participants will be tested on their knowledge of this disability, and surveyed as to where they have received training, if any, on best practices. This disability should not be a lifelong sentence for these students. It is up to educators to become knowledgeable to debunk the myths of dyslexia.

Literature Review

Dyslexia is defined as an unexpected delay in reading in an otherwise healthy child/ adult who has received a proper education. It affects many children with estimated percentages ranging from 5% to 17%, depending on what study is referenced (Shaywitz & Shaywitz, 2004). This is the most common disorder, which is diagnosed in those children who are struggling to read, to account for about 80% of learning disabilities (Shaywitz & Shaywitz, 2004). This disorder is found to be genetic in nature, and runs strongly in families. One does not grow out of dyslexia; it is a life-long struggle for many. It affects males and females equally; with no regard for race, economic status, motivation, intellectual ability, spoken language or culture. Like many other disorders, dyslexia appears on a continuum from very mild to profound, manifesting itself

differently in individuals. Because of this, diagnosing dyslexia has become unclear to many professionals and can seem like an arbitrary task. Even though, many studies have been done throughout the years, there seems to be many misconceptions about dyslexia that still exist among educators (Wadlington & Wadlington, 2005).

There are some common themes in reading issues among children and adults with dyslexia. It affects the phonological processes in a person, where they do not process the sounds of language efficiently and accurately. Reading is typically slow and laborious. Many types of reading errors persist such as not using the rules of phonics to sound out unknown words, guessing at words, and substituting or omitting letters and sounds. They may also substitute words that may mean the same, such as saying, “pony” instead of “horse.” Omitting small function words; such as *and*, *the*, or *have*; is commonplace. People with dyslexia comprehend text read orally to them better than reading it themselves because of these issues (Shaywitz & Shaywitz, 2004).

Dyslexia has many signs and symptoms and contributes to many other difficulties other than reading. Many children with dyslexia struggled with delayed speech, and continue to have immature speech patterns well into elementary school. These irregular speech patterns are typically sound substitutions, omissions, and reversals. They might have trouble with word retrieval, and can never seem to find the right word. Most children will also have difficulty with handwriting, and spelling as well. The process is slow, laborious, inefficient, and sometimes illegible. Children will have letter and number reversals in their writing well past seven or eight years of age. Dyslexia may also affect math abilities, such as automatic retrieval of addition or multiplication facts. They will continue to rely on their fingers or some other method, no matter how much practice is needed with the facts. Many also have attention difficulties, poor memory skills, poor social skills and are disorganized (Shaywitz & Shaywitz, 2004).

Even though, there is a body of concepts in which dyslexia can hinder, there are also many strengths people with dyslexia possess (Wadlington, & Wadlington, 2005). Many have high success in areas such as architecture, engineering, the arts, medicine, entrepreneurship and law. Dyslexia seems to give people the ability to understand higher concepts even if the elementary ones give them difficulty.

Because of the fact that many of these children seem capable of learning to read with ease, the reason behind their difficulties escapes detection for most professionals. All too often, educators do not recognize the signs of dyslexia, and are inadequately prepared to teach these students (Wadlington & Wadlington, 2005). Assessments and interventions are not put in place in a timely fashion when dealing these issues. Professionals hesitate to put a label on the difficulties and put into effect a “wait and see” approach. For children with dyslexia, this approach takes valuable time away from interventions that would be effective. These students fall further behind their peers (Wadlington & Wadlington, 2005).

Educators, themselves, may not be totally at fault for this phenomenon. Many studies have been done to show that incoming teachers are not prepared to teach reading after receiving licensure (Washburn, Joshi, & Cantrell, 2011). Teachers need to have explicit training in assessing and instructing the areas of phonemic awareness, phonics, fluency, comprehension, and vocabulary. These areas have been identified by the National Reading Panel as the domains needed in order to become a proficient reader (Cunningham, Perry, Stanovich, & Stanovich, 2004). Reading interventions can start as

early as when the child enters school, if teachers are able to establish a lack of knowledge in the areas of phonemic awareness, alphabetic knowledge and vocabulary (Arrow & McLachlan, 2011). Because of the fact that teachers are not being trained in teaching reading to any learner, it has been suggested that teacher preparation courses do an even poorer job with informing incoming teachers of the signs and proper interventions needed for struggling readers (Washburn, Joshi, & Cantrell, 2011).

Some issues that may prohibit proper instruction received from teacher training programs are that state standards and curriculum for educating teachers is broad and sometimes not very specific. Much is left up to the interpretation of the universities and other professionals (Cheesman, Hougen, & Smartt, 2010). The universities are charged with designing their own programs around vague standards. The licensure exams themselves do not test the same subject matter, and most are not aligned with research-based content. The National Assessment of Educational Progress, continually tests that around one-third of all 4th grade students are reading below basic grade level (Liptack, 2012). Though not all of these students may be dyslexic, this indicates that all teachers, not just special education teachers, are in need of proper, consistent instruction through the teacher training programs to reach these struggling students. Many graduates know that they are not ready to teach reading as they leave the institution, and feel that they need more professional development with the literacy domains (Cheesman, Hougen, & Smartt, 2010; Cunningham, Perry, Stanovich, & Stanovich, 2004).

Teachers' knowledge of the reading and literacy domains have been studied to see if they are being properly prepared to explicitly and implicitly teach reading. All students can benefit from proper instruction in the areas of phonemic awareness, phonics, fluency, comprehension, and vocabulary (Washburn, Joshi, & Cantrell, 2011). Children with dyslexia need more explicit direction in these areas than their non-struggling peers. A knowledgeable teacher is beneficial to this process. A study of teachers K-3, the prime years for teaching reading and literacy, yielded some surprising results; 20% of teachers were not able to correctly identify phonemes in any word presented within the survey, and many teachers could not identify irregular words (Cunningham, Perry, Stanovich, & Stanovich, 2004). Another study showed that after an examination of 223 first-year teachers, only 18% could correctly identify the differences of phonemic awareness and phonics (Budin, Mather, & Cheesman, 2010). This is particularly troublesome since phonemic awareness is crucial to the success of readers as it is used to help segment and correspond graphemes, or written units, to the spoken sounds, or phonemes (Sprenger-Charolles & Siegel, 2013). The beginning concepts of phonemic awareness and phonics are critical to learning to read properly and are the beginning steps in the process. Many teachers are not proficient in these areas, and are not aware that they lack these skills (Washburn, Joshi, & Cantrell, 2011). Every year that a struggling student is in the classroom with a teacher who is not skilled in these areas, the gap widens between where they are at and where they need to be, as compared to their non-struggling peers (Damer, 2010). That is concerning.

Another caveat to teaching research-based instruction and providing professional development is that many teachers perceive they know more about reading instruction than they actually do (Swerling, Brucker & Alfano, 2005). Those teachers are less likely to participate in further instruction and development seminars. This can be troubling since educators need ongoing support no matter what level they perceive their own

abilities if they are to stay informed of best practices. It was found that teachers with much more experience and training with the reading domains were indeed more proficient than their lesser trained colleagues (Cunningham, Perry, Stanovich, & Stanovich, 2004). This is good news, and shows that requiring specific training and licensure for reading instruction may be needed in order to ensure that teachers are proficient in the literacy domains (Swerling, & Coyne, 2010).

What this means for children with dyslexia is that not only are teachers not prepared to teach any struggling reader, but they are also not instructed about the special needs of dyslexics. Many children are being accused of not being motivated, not trying, lacking focus and so on (Shaywitz & Shaywitz, 2004). They lose confidence and frustration sets in. Many feel they are inadequate and will never be successful (Wadlington & Wadlington, 2005). Educators will see the “Matthew Effect” take place, where students who are not successful readers early on will read less and in turn, repress any future growth that may have been achieved (Nicholson & Dymock, 2011). Teachers may see a student as lower skilled, and not hold them to the same expectations as those students in a class who are higher-level readers (Woodcock, & Vialle, 2011). This does nothing but hinder learning in the case of a dyslexic student. Structured, multi-sensory instruction in basic language areas is essential to the success of these students, as well as accommodations such as extra time, shorter assignments, and specific seating arrangements (Shaywitz, 2003). Children with dyslexia need to have teachers, which are positive influences and know how to handle their specific disability in order to succeed (Wadlington, Elliot, & Kirylo, 2008). These students have great strengths, which can be used to be successful. Teachers should be educated on how to teach a dyslexic student properly, so their strengths are not lost within the obvious weaknesses.

One obstacle to having qualified teachers to help dyslexic children is there are many misconceptions about dyslexia still, even though there has been an abundance of literature written on the topic (Wadlington & Wadlington, 2005). Some of these misconceptions include that dyslexia causes one to see letters and numbers backwards, word reversals are common, dyslexia does not run in families, individuals have the same symptoms with no variance between them, and even if a child is able to pronounce the words correctly that comprehension of the text will be exhibited (Wadlington & Wadlington, 2005). Once dyslexia is suspected, many treatments that claim to aid or “cure” this disability are suggested by educators; such as colored overlays, vision therapy, and strict diets; which have been shown ineffective in many studies. Many parents are sent to medical professionals to seek out medical intervention by suggestion of educators, which may help with attention issues, but not the underlying reading processing issues (Shaywitz, 2003). A good observation that came from a study was most educators do recognize dyslexia as a real disability, which was not the case some years ago (Wadlington & Wadlington, 2005).

Many teachers are willing to participate in workshops and seminars to aid them in teaching students who are struggling to read (Carvalho, & Silva, 2010). Dyslexia is not covered in many teacher training programs, so information must be sought elsewhere. One way to educate teachers on the struggles of a child with dyslexia is to be included in a dyslexia simulation where they are put through experiences that helped them identify with how these children feel in the classroom (Wadlington, Elliot, & Kirylo, 2008).

Teachers who have been a part of this experience found it beneficial, and they recommended that every educator should have a similar seminar offered.

Educators want to be able to help students who struggle, and be part of the solution. There are many research-based assessments and interventions that help children and adults alike in learning to read accurately and fluently which are not being used with those who need it most (Shaywitz & Shaywitz, 2004). Too many myths are still out in the field of education about what dyslexia is and its signs. This is disheartening considering how much research has been done throughout the past few decades and how many children this disability affects. This research is not being communicated to the people who need to understand it most. Teachers need to be afforded the opportunity to learn the facts about dyslexia and the best practices of teaching reading in order to properly teach every student in the classroom, not just the struggling ones.

Significance of Study

The data collected will be analyzed for any discrepancies in knowledge of dyslexia and where those discrepancies may be. Prior studies have shown a lack of knowledge by educators on the topic of dyslexia and effective teaching methods for struggling readers. These studies have shown many misconceptions still exist today, even though the body of peer-reviewed research has been published. There are well documented research based strategies that are effective with teaching struggling readers, especially those who are diagnosed as dyslexic, which are not being utilized for the benefit of the student. Data collection will be done in one school district in Northern Kentucky to ascertain knowledge base of the district with active involvement on the research topic. An advocate is on staff and has provided many opportunities for professional development. The study will show whether misconceptions exist, as consistent with prior studies, or if the extra effort of the district has been effective. If misconceptions still exist, as determined by the study, there will need to be a discussion on the best ways to provide the needed information to the educators so they can support students who are dyslexic in the classroom.

Methodology

The study is an investigation of the beliefs of dyslexia among educators. The purpose of this study is to test how deeply ingrained some of these myths might still be, and decipher where educators are receiving information about dyslexia. The main research question to be answered is: do educators have misconceptions of the specific learning disability, dyslexia? Where have they received their information? Is there a difference in the knowledge of dyslexia among elementary, middle, and high school educators? Lastly, is there a difference in knowledge when years' experience is reviewed?

Participant Selection and Demographics

This research study was a quantitative review on the beliefs of dyslexia of educators in a Northern Kentucky public school district. This included general educators,

special educators, reading specialists, and speech and language pathologists within the district, grades K-12. This district was chosen for having an advocate for dyslexia on staff. This professional has provided many opportunities to learn about dyslexia, and it has been questioned whether the educators have been taking advantage of the extra professional development by the researcher. The district was contacted to receive proper approval for the administration of the research study via an email to the assistant superintendent.

Instrument

Data for this study were collected via an online survey. The link was sent to participants through email, along with instructions and informed consent. The survey was completed anonymously and data were filtered using type of certification, years of service and grades taught for analysis.

The survey consisted of the following sections and items within each section:
1st Section: Demographic Information. Male/ Female; Grade taught: K-5, 6-8, 9-12; Type of certifications: General educator, special educator, reading specialist, speech pathologist; Experience: 0-5 years, 5-10 years, 10-15 years, over 15 years.

2nd Section: Dyslexia beliefs. Rate your comfort level for working with a child with dyslexia: Not at all, slightly comfortable, moderately comfortable, very comfortable, or extremely comfortable.

Rate, each statement as strongly disagree, disagree, neutral, agree, or strongly agree

1.) Dyslexia is a learning disability that affects language processing.	14.) Most students with dyslexia are in special education.
2.) Dyslexia is a visual issue.	15.) Students with dyslexia have the same symptoms to the same degree of severity.
3.) Children with dyslexia see letters and numbers backwards.	16.) Colored overlays are a proper researched-base intervention for dyslexia.
4.) Dyslexia causes problems with word retrieval (finding the right words to say).	17.) It is possible to grow out of dyslexia.
5.) Dyslexia causes social issues, such as immaturity.	18.) Vision therapy is a proper researched-base intervention for dyslexia.
6.) Dyslexia is genetic, and runs strongly in family.	19.) Students with dyslexia may have poor organizational skills.
7.) Dyslexia can cause speech delays.	20.) Students with dyslexia may have short attention spans.

8.) Dyslexia can cause issue with math concepts.	21.) Students with dyslexia need structured, multi-sensory instruction in basic language areas.
9.) People with dyslexia have a low intelligence.	22.) Students with dyslexia lack phonemic awareness skills.
10.) Dyslexia can cause issues with spelling and handwriting.	23.) Students with dyslexia lack comprehension skills when read to orally.
11.) The symptoms of dyslexia can be lessened with proper diet and exercise.	24.) Giving extra time, shorter assignments, and specific seating arrangements are proper accommodations to give to students with dyslexia.
12.) Children with dyslexia can have strengths in music, science, and technical fields.	25.) Children with dyslexia are able to manage symptoms through medication.
13.) One cause of dyslexia is a poor home environment.	

3rd Section: Training on dyslexia. Where have you received training on dyslexia issues, check all that apply: Undergraduate courses, Graduate courses, Seminars, Professional development for school districts, Online class, Journal articles, Other.

Procedures for Gathering Data and Informed Consent

Participants were selected by sending an email to known teachers within the district. An email was sent to 2-3 general educators from elementary schools, a middle school, and a high school. It was also sent to 1-2 special educators also from elementary schools, a middle school, and a high school. The educators were randomly selected from the directory on the district’s website. It was requested to complete the survey as well provide email addresses to colleagues who might be willing to complete the survey as well. The participants were notified of the known risks for participating in this study, and also notified of the contact information of the research and the researcher advisor, if any concerns should arise. The email read as follows, “I am conducting a research study about dyslexia beliefs and educators within the district. The purpose is to ascertain any misconceptions about dyslexia, if any, and to decide on the best way for educators to receive any new information about the topic. I am asking for your help by completing this online survey. It should only take between 15-20 minutes of your time. The survey will remain anonymous, and you will be provided contact information at the end should you wish to review the results of the study or withdraw your consent of participation. There will not be any compensation provided for participation, and the minimal risk is loss of your time. If you feel like you would like the opportunity to participate, please click on the link provided below. If you know of any educators who might be willing to

participate, please reply back to this email with contact information. If you do not have the time to complete the survey, but know of some educators who might be willing, it would be appreciated for their contact information. Thank you for your time.”

Analysis of the information was completed through the SPSS program. Correlation tests was done to analyze and interpret any data received through the survey with regards to the continuous variables of comfort level and dyslexia beliefs. Correlation was chosen as the method for analysis in order to see the strength of any relationship within those particular variables. There were additional analysis done though an ANOVA test, which show if any variability between groups exist with the data collected. The researcher related the following variables: type of certification and dyslexia beliefs; grades taught and dyslexia beliefs; and finally, years’ experience and dyslexia beliefs.

Analysis

There were 26 total respondents to the on-line survey. The demographics of the respondents are as follows:

Table 1
Demographics of Survey Respondents

Gender			Type of Certification		
Male	3	11.5%	General Educator	6	23.1%
Female	23	88.5%	Special Educator	18	69.2%
			Reading Specialist	0	0.0%
			Speech and Language Pathologist	2	7.7%
Grade			Years’ Experience		
K-5	18	69.2%	0-5 years	3	11.5%
9-12	8	30.8%	5-10 years	7	26.9%
			10-15 years	8	30.8%
			> 15 years	8	20.8%

There are considerably more female respondents than male. In addition, about two-thirds are currently teaching at the elementary level. About two-thirds of respondents are special educators. There seemed to be more of a spread of experience between all respondents with the average having taught for about 7.7 years at the time of the survey.

The next question dealt with how comfortable the respondent was while working with children with dyslexia. The average of 3.7 shows that most respondents feel moderately to very comfortable working with children with dyslexia. According to the standard deviation of 1.1, the majority of respondents are slightly or very comfortable working with children with dyslexia.

The next part of the survey was rating statements about dyslexia by a scale from strongly disagree to strongly agree. Please refer to the previous “Instrument” section for exact survey. The results were as follows:

- 1.) According to the standard deviation of 0.9, as well as the percentages, the majority of respondents agree or strongly agree with the statement.
- 2.) There is a higher standard deviation for this question (1.2), which shows that there is more of a spread of answers for this statement, with an average of neutral to the statement.
- 3.) The average shows that most respondents are neutral when answering this statement, with the standard deviation of 1.1 showing the answers were somewhat spread out with how the respondents agree with the statement.
- 4.) Most respondents agree to strongly agree with the statement, but the standard deviation of 1.0 shows some discrepancies with their answers as to degree of how much they agreed with the statement.
- 5.) The average shows that most respondents fell in the neutral position, though the standard deviation (1.0) shows the vast majority disagree to agree with this statement so there were some discrepancies shown here as well.
- 6.) The standard deviation of 1.1 shows another statement in which the respondents show a high degree of difference of answers for the statement. The average shows that most respondents remain neutral to agreeing with the statement.
- 7.) Most respondents agree with the statement, with a lower standard deviation of 0.8, as compared to previous statements.
- 8.) Most respondents agree with the statement, with a low standard deviation (0.8).
- 9.) Most respondents disagree to strongly disagree with the statement, with a very low standard deviation of 0.4 as compared to previous statements.
- 10.) Most respondents agree to strongly agree (almost two-thirds strongly agree) with the statement, with a lower standard deviation of 0.6.
- 11.) Most respondents disagree to strongly disagree with the statement, with a lower standard deviation (0.8) as compared to previous statements.
- 12.) Most respondents agree to strongly agree with the statement, with some discrepancies showing in the standard deviation of 0.9.
- 13.) Most respondents strongly disagree with this statement, as also shown in the standard deviation (0.5) with not much variance in the answers.
- 14.) A simple majority disagree with the statement, while the standard deviation of 0.9 shows some variance of answers.
- 15.) Most respondents disagree to strongly disagree with this statement, with also a low standard deviation of 0.6.
- 16.) This statement had a higher degree of deviation within the answers as shown by the standard deviation of 1.0. The average showed that most were neutral about this statement.
- 17.) Most respondents disagree with this statement, with relatively low discrepancies shown with the standard deviation of 0.8.
- 18.) The statement had a higher than usual standard deviation (1.1), with most respondents disagreeing to being neutral.
- 19.) Most respondents are neutral to this statement with a slightly elevated standard deviation of 0.9 as compared to the others.

- 20.) Most respondents are in the neutral to agree range, with a standard deviation of 0.8.
- 21.) Most respondents agree to strongly agree with this statement with a low standard deviation (0.6).
- 22.) Most respondents are neutral with a standard deviation of 0.6, which shows discrepancies with this statement.
- 23.) Most respondents disagree with this statement, with an elevated standard deviation (1.0) due a couple respondents' answers skewing the data as compared to the majority of answers to the statement.
- 24.) Most respondents are neutral to this statement, with an elevated standard deviation of 1.0.
- 25.) Most respondents disagree with the statement, with a standard deviation (0.7).

The third part of the survey involved where the respondents received an education or training on issues of dyslexia. The survey results were as follows: 30.8% received training in undergraduate courses, 23.1% in graduate courses, 42.3% in seminars, 65.4% had professional development opportunities provided by a school district, 3.9% in online classes, 34.6% read information in published journal articles, and 34.6% selected the category of "other" as their educational training on dyslexia. Most respondents have been educated on issues of dyslexia with professional development and seminars. Less than one-third of respondents were educated about dyslexia within their teacher training programs.

After gathering the above data, the SPSS program was used to further evaluate the information. The average of each scaled response from questions 6 through 30 was found to find the value titled "Dyslexia Beliefs," with 5 being a strong knowledge base and 1 being a weak knowledge base of dyslexia.

The relationship between comfort level for working with a child with dyslexia and dyslexia beliefs was investigated using the Pearson product-movement correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality and homoscedasticity. There was a moderate, positive correlation between the two variables, $r=.449$, $n=26$, $p=0.021$, with the more comfortable the educator is, the more knowledgeable they are on the subject of dyslexia.

ANOVA tests were also done to investigate relationships between types of certification and dyslexia beliefs, as well as years' experience and dyslexia beliefs. A one-way between-groups analysis of variance was conducted to explore the impact of certification on dyslexia beliefs, as measured by the Life Orientation Test (LOT). Participants were divided into three groups according to the certification (Group 1: General Educator, Group 2: Special Educator, Group 3 Speech and Language Pathologist). There was not a statistical significant difference at the $p<.05$ level on LOT scores for the three certification groups: $F(2, 23) = .151$, $p=.860$.

A one-way between-groups analysis of variance was conducted to explore the impact of years' experience on dyslexia beliefs, as measured by the Life Orientation Test (LOT). Participants were divided into four groups according to the certification (Group 1: 0-5 years, Group 2: 5-10 years, Group 3: 10-15 years, Group 4: >15 years). There was a statistical significant difference for a pilot study level at the $p<.05$ level on LOT scores for the four experience groups: $F(3, 22) = 2.896$, $p=.058$.

Because of only having two groups reporting in the survey for grade level taught (K-5, and 9-12), a proper ANOVA is not able to be done as previously expected. A T-test is able to be performed to test for differences in these variables. An independent-samples t-test was conducted to compare dyslexia beliefs to grade level taught (K-5, 9-12). There was a significant difference in scores for grade level K-5 ($M=3.9489$, $SD=.41041$) and grade level 9-12 ($M=3.5$, $SD=.37218$; $t(26) = 2.643$, $p=.014$, two-tailed). The magnitude of the differences in the means (mean difference = $.44889$, 95% CI: $.09841$ to $.79936$) was very large (eta squared = $.2242$).

Limitations of Study

Some limitations posed by this study included the smaller sample size. This sample size might not be a true representation of the population of educators within this school district. The scale is restrictive in a qualitative study, and respondents choose the one that is a close match to their perceptions. The statement itself might be confusing to the respondent, and because of the online nature of the survey, there is not any clarification of the statement available to them. There is not any feedback to the surveyor on what those misconceptions may be. There could be a lack of depth in human perceptions on a scale so one could be missing some valuable information as to how to further inform educators on issues of dyslexia. Because of more elementary leveled respondents, some results may be skewed based on the types of training received within their teacher preparation programs. This is also not based on any one teacher-training program, so it may be difficult to pin point universities that may be doing an exceptional job on educating incoming teachers versus those who are not.

Summary

Statements with the highest standard deviation show much confusion about the symptoms of dyslexia. These included that dyslexia is a visual issue, that they see numbers and letters backwards, dyslexics can have social issues such as immaturity, it causes problems with word retrieval, that it is genetic, colored overlays and vision therapy are proper research-based interventions, dyslexics lack phonemic awareness, and lack oral comprehension skills. Some of these statements, such as lacking phonemic awareness and having oral comprehension skills, are some of the major symptoms of dyslexia. Dyslexia being seen as a visual issue and that dyslexics see numbers and letters backwards are still persistent myths within the education system that need eradicating. The lack of teacher preparation on the issues of dyslexia is shown with how many teachers are educated in undergraduate or graduate studies on the topic. Less than 30% of the opportunities to receive training happened in either undergraduate or graduate studies. This shows that there is a lack of understanding with newly trained teachers, and much of the education received is through the school districts or on their own time, which might have been done years into the respondent's career when students in their classes could have benefitted from having a knowledgeable teacher. This is an area that can be improved upon within the universities and their teacher preparation programs. Because 15-20% of the population have dyslexia, these teachers are most likely to see a student very early in their career, if not the first year, that needs proper researched-based

interventions. It is surprising that 65% of the teachers surveyed have had professional development on the topic of dyslexia within the district. This district has an advocate, who has been specially trained on dyslexia, on staff. She has been very active in trying to make seminars available to those teachers and educators wanting. This figure shows that the majority of teachers have participated in these opportunities at some level.

Based on the correlation test for how comfortable the teacher is working with a child with dyslexia, and their actual knowledge of the disorder, this shows a moderate, positive relationship. It does make sense that the more one understands about dyslexia, the more comfortable that person would be working with such a child. This further illustrates that universities and professional development programs at schools need to provide more opportunities to educators to be trained, so each educator feels comfortable with themselves and their knowledge base on how to effectively help these children.

The ANOVA tests completed on types of certificates and dyslexia beliefs did not show a significant difference within the types of certification (general education, special education, and speech and language pathology). This shows that no one group had more knowledge of dyslexia than the other. Because all groups work in tandem with students, they all need to have knowledge of this disability. All certificates should have some professional development opportunities since children with dyslexia are serviced in all three disciplines because of the nature of the disability.

Another ANOVA test completed between years of service and dyslexia beliefs did show a significant difference between the groups (< 5 years, 5-10 years, 10-15 years, and > 15 years). This fact shows that throughout the 30 years of research completed; some educators are not receiving the vast amount of knowledge acquired, depending on how long they have been in the field of education. Further studies should be done to show where these discrepancies lie so that situation can be remedied.

The T-test completed on level grade taught (K-5, 9-12) and dyslexia beliefs did show a difference though. Elementary level teachers are being exposed to this knowledge more than their high school level colleagues are. This is promising for the younger students, as they may receive proper interventions while they are developing reading skills. As they continue their school career though, these same students may not receive the accommodations (or possibly modifications) needed to have equal access to the same curriculum as their non-disabled peers because of this difference in dyslexia knowledge.

Conclusion

Teachers and administrators alike should work together to educate themselves about dyslexia. There is a definite need to get the research into the hands of those who would utilize it most, as shown in this study. Educators need to be involved in pre- and in- service development specific to dyslexia since this affects so many people and is still very misunderstood. Some resources on the most current research for interested parties are as follows: The Yale Center for Dyslexia (<http://www.dyslexia.yale.edu/>), International Dyslexia Association (<http://interdys.org/>), and The National Center for Learning Disabilities (<http://www.nclld.org/>).

Teacher preparation programs at universities need to do a better job of educating all teachers, not just elementary level teachers, about dyslexia. Teachers need this

information before starting in their own classroom to be effective with these types of students. School districts can also meet the challenge by providing more professional development seminars or journal articles to the teachers who have already been in the field for many years to provide this knowledge and better serve this population. With 1 out of every 5 students having some degree of dyslexia, these needs are not being met and myths about this affliction persist despite the mountain of research which has been done over the past 30 years (Shaywitz, 2003).

References

- Altieri, J. (2006). Children's contemporary realistic fiction portraying dyslexic characters: an examination of the issues confronted and the gender of the characters. *Reading Research and Instruction, 45*, 161-178.
- Arrow, A., & McLachlan, C. (2011). The emergent literacy approach to effective teaching and intervention. *Perspectives on Language and Literacy, 37*, 35-37.
- Budin, S., Mather, N., & Chessman, E. (2010). Examining promising practices to improve linguistic knowledge and inform practice in teacher education. *Perspectives on Language and Literacy, 36*, 13-16.
- Carvalhais, L., & Silva, C. (2010). Developmental dyslexia: perspectives on teacher training and learning disabilities in Portugal. *Learning Disabilities: A Contemporary Journal, 8*, 1-8.
- Cheesman, E., Hougen, M., & Smartt, S. (2010). Higher education collaborative: aligning research and practice in teacher education. *Perspectives on Language and Literacy, 36*, 31-34.
- Cunningham, A., Perry, K., Stanovich, K., & Stanovich, P. (2004). Disciplinary knowledge of K-3 teachers and their knowledge calibration in the domain of early literacy. *Annals of Dyslexia, 54*, 139-167.
- Damer, M. (2010). Developing effective training and coaching programs that reflect the IDA knowledge and practice standards for teachers of reading. *Perspectives on Language and Literacy, 36*, 25-28.
- Beck, M. (2013, April 1). Dyslexia workarounds: creativity without a lot of reading. *The Wall Street Journal*, D1.
- Foss, B. (2013). *The dyslexia empowerment plan*. New York, NY: Ballantine Books.
- Irving, J. (1985). *The cider house rules*. New York, NY: Random House Publishing Group.
- Liptack, E. (2012). The IDA knowledge and practice standards: creating consistency and quality in how we teach reading. *Perspectives on Language and Literacy, 38*, 11-14.
- Marshall, G. (1974-1984). *Happy days*. Los Angeles, CA: CBS Broadcasting.
- Nicholson, T., & Dymock, S. (2011). Matthew effects and reading interventions. *Perspectives on Language and Literacy, 37*, 28-33.
- Shaywitz, S. (2003). *Overcoming dyslexia*. New York, NY: Random House, Inc.
- Shaywitz, S., & Shaywitz, B. (2004). The new science of reading and its implications for the classroom. *Education Canada, 44*, 20-23.
- Sprenger-Charolles, L., & Siegel, L. (2013). Reading acquisition and dyslexia in languages varying in orthographic depth: from behavior to brain. *Perspectives on Language and Literacy, 39*, 23-30.
- Swerling, L., Brucker, P., & Alfano, M. (2005) Teachers' literacy-related knowledge and self-perceptions in relation to preparation and experience. *Annals of Dyslexia, 55*, 266-296.
- Swerling, L., & Coyne, M. (2010). How research-based licensure exams can improve teacher preparation in reading: lessons from Connecticut. *Perspectives on Language and Literacy, 36*, 18-21.

- Wadlington, E., Elliot, C., & Kirylo, J. (2008). The dyslexia simulation: impact and implications. *Literacy Research and Instruction, 47*, 264–272.
- Wadlington, E., & Wadlington, P. (2005). What educators really believe about dyslexia, *Reading Improvement, 42*, 16-32.
- Washburn, E., Joshi, R., & Cantrell, E. (2011). Are preservice teachers prepared to teach struggling readers? *Annals of Dyslexia, 61*, 21-43.
- Woodcock, S., & Vialle, W. (2011). Are we exacerbating students' learning disabilities? An investigation of preservice teacher' attributions of the educational outcomes of students with learning disabilities, *Annals of Dyslexia, 61*, 223-241.