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Investigating the Self-Assessment of Adult Literacy Learners with Dyslexia across Several Cognitive Domains

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INVESTIGATING THE SELF-ASSESSMENT OF ADULT LITERACY LEARNERS WITH DYSLEXIA ACROSS SEVERAL COGNITIVE DOMAINS

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by

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DEDICATION

This dissertation is unequivocally dedicated to my dad. From the days I spent with you on the campus of Ohio State University to the summers I spent in your lab at Fairview and UCI, I knew I wanted to follow in your footsteps. Thank you for forcing me to be your baseline and wear electrodes—you peaked my interest. You are my mentor, role model, friend and dad. Thank you for everything.

Know yourself. Don't accept your dog's admiration as conclusive evidence that you are wonderful.

—Ann Landers

ABSTRACT OF THE DISSERTATION

Investigating the Self-Assessment of Adult Literacy Learners
with Dyslexia Across Several Cognitive Domains
by
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The dissertation evaluated the ability of adult literacy learners with dyslexia to assess their cognitive abilities in two separate domains: reading and memory. This study also evaluated the effect that one-on-one tutoring had on the learner's ability to accurately self-assess these cognitive abilities. Twenty adult literacy learners ($n = 20$) with dyslexia were tested in both domains. This study also included a control group of 10 good readers ($n = 10$) who were administered the same three standardized tests. This data was collected by administering three standardized assessments. This was a quantitative study that used analysis of variance (ANOVA), repeated measures ANOVA, and analysis of covariance (ANCOVA) to determine if there were any differences between the two groups. The results indicated that when both groups performed poorly they both overestimated their performance until they were exposed to the same task repeatedly. It was at this time they not only became more accurate but began to underestimate which might imply they either lost confidence in their ability after multiple exposures or they became more aware of their actual performance over time. Furthermore, the number of hours a learner spent with a tutor and receiving instruction in reading did not correlate with their self-assessment abilities.

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CHAPTER 1

INTRODUCTION

The 2003 National Assessment of Adult Literacy (NAAL) reported that 43% of adults in the United States read at or below the basic level, which means that they are unable or only able to perform "the most simple and concrete literacy skills" (National Center for Education Statistics, 2003). Of these 43 million adults there are currently over 1 million adults enrolled in adult basic education programs throughout the country (Office of Vocational and Adult Education, 2004-2005). However, many of these learners do not stay long enough to attain their goals. In fact, Young, Fleischman, Fitzgerald, and Morgan (1995) reported that most learners spend less than 50 hours of instruction in 1 year in these programs, which is less than what is needed to make substantial progress (Porter, Cuban, Comings, & Chase, 2005).

Adult literacy learners face many challenges when they enroll in a literacy program that can interfere with their longevity or persistence in a literacy program. The purpose of Adult Basic Education, according to the Workforce Investment Act of 1998 (WIA), is to help adults become literate and to obtain the necessary skills for employment, self-sufficiency and/or completion of secondary school education, as well as develop the skills to help in the educational development of their children. However, in order for any of these goals to be attained, learners must persist in a literacy program before they can achieve higher levels of literacy. Comings, Cuban, Bos, and Taylor (2001) and Comings, Cuban, Bos, and Porter (2003) define persistence as ". . . students' ability to continue their learning efforts long

enough and at a level that is intensive enough to ensure significant progress toward their literacy goals" (Comings et al., 2001, p. ix). Adult Basic Education (ABE) practitioners usually measure persistence as participation and retention in formal classes, small group or tutoring sessions (Comings, Parrella, & Soricone, 1999). Unlike K-12 students, adult literacy learners have to manage daily life in addition to meeting with a tutor that can jeopardize their persistence. They might have young children, a change in employment, unexpected illness, and scheduling conflicts. Learners also face the slow, grueling pace of learning to read later in life. Many struggle with learning disabilities, which slows down the learning process (Comings et al., 2003). This slow pace, and unexpected life circumstances often leads to a higher drop out rate. However, an unrealistic expectation of one's own progress might also increase frustration or disappointment, which may lead to premature dropout.

Some investigators estimate that to improve at least one grade level, a learner must attend at least 80 hours of instruction (Comings et al., 2001). Other researchers estimate that it requires 100-150 hours of instruction to gain one grade level (Comings, Sum, & Uvin, 2000; Darkenwald, 1986; Sticht, 1982). Messemer and Valentine (2004) conducted a study with inmates to determine the number of hours needed to improve one grade level. They found that it took 118.4 hours of instruction for inmates to improve one grade level on a standardized test. The National Evaluation of Adult Education Programs (NEAEP) found that ABE students received a mean of 84 hours of instruction and attended programs for an average of 15 weeks (Young et al., 1995). The NEAEP also reported that 44% of ABE, ESOL, and GED learners left their programs satisfied and only 5% left having achieved their goals. Young et al. (1995) reported that most learners spend less than 50 hours of instruction in 1 year, which is less than what I was needed to make substantial progress (Porter et al., 2005).

Another barrier to persistence and goal achievement is the presence of a learning disability. Corley and Taymans (2002) cite estimates as high as 50% of adult literacy learners have a learning disability. Vogel and Reder (1998) speculate that those adults with the lowest reading levels may have a higher incidence of a learning disability. Additionally, Chall, Heron, and Hilferty (1987) proposed that adults who attended school as children, yet still read below the fifth grade level, probably have a learning disability. Given the high estimated incidence of learning disabilities present in adults who participate in literacy programs (Corley & Taymans, 2002; Vogel & Reder, 1998), the training that is provided for tutors and intake counselors should incorporate research-based strategies known to be successful interventions and include a learning disability checklist.

The literature usually uses the term learning disabilities, and it is important to note that 80% of learning disabilities are in fact, reading disabilities, such as dyslexia (Fletcher, Lyon, Fuchs, & Barnes, 2007). Shaywitz et al. (2002) estimate that one in five children in the general population have dyslexia. Because adult literacy learners do not represent the general population, it might be estimated that the incidence of dyslexia is much higher than twenty percent. This is important because adult literacy programs that are sponsored by public libraries or community-based organizations rely on volunteer tutors to provide instruction. However, even after an in-depth, pre-service tutor training that covers instructional strategies, reading disabilities, and goal setting, it ultimately becomes the responsibility of volunteer tutors to know how to help their learners get past their frustration and anxiety in order to get the reading "to happen."

The definition of learning disability has been elusive and the source of much debate, mostly due to the fact that a learning disability is not tangible or visible. It has to be diagnosed and assessed. However, according to Fletcher et al. (2007), learning disabilities

were categorized by the federal government in 1977 when it was determined that learning disabilities can manifest itself with the following deficiencies: (a) listening comprehension or receptive language; (b) oral expression (expressive language); (c) basic reading skills that include decoding and word recognition; (d) reading comprehension; (e) written expression; (f) mathematics calculation; and (g) mathematics reasoning. This study included learners who have dyslexia, which is defined as ". . . a language-based learning disability. Dyslexia refers to a cluster of symptoms, which result in people having difficulties with specific language skills, particularly reading" (International Dyslexia Association, 2008). The learners were defined as dyslexic because they still read below the third grade level in spite of the following: (a) they attended school at least through the third grade, (b) they do not have a developmental disability, (c) they have not had a traumatic brain injury, (d) they have a phonological deficit, and (e) they do not read above the third grade level. Because of these factors, in particular the phonological deficit, the reading disability in this study will be defined as dyslexia.

This proposal investigated an issue that has not been addressed and may contribute to progress and persistence rates in adult literacy programs. The issue was how accurately adult learners with dyslexia can self-assess their cognitive skills. Although this subject has not received any attention in the adult literacy or learning disabilities literature, it has received attention in the social and cognitive psychology literature. This proposal investigated if the inability to accurately self-assess may be one reason for premature dropout. It is often said that we are our own worst critic, but studies in social psychology (Dunning, 2005; Dunning, Heath, & Suls, 2004) have revealed that quite the opposite is true; people have very "flawed self-assessment" in many domains. There are many reasons for this "flawed self-assessment" including omission of the information necessary to make an accurate self-assessment, and

being a poor performer of the task at hand, such as reading comprehension. This "flawed" self-assessment can often lead to an inability for an individual to accurately predict his or her own rate of successes or level of knowledge in any given situation. For adult literacy students with dyslexia, the ability to assess their own reading comprehension skills might be impaired, which would define them as poor performers in reading. Consistent poor performance may leave them unable to accurately predict their performance on reading comprehension tasks. Kruger and Dunning (1999) state that students in the bottom quartile of their studies consistently overestimated their abilities. Because adult literacy students with dyslexia do fall into this quartile, it will be hypothesized that they overestimate their cognitive abilities and that this flaw could lead to an unrealistic expectation of goal achievement and general reading success, which may lead to a low persistence rate.

There is a low rate of persistence in adult literacy programs, which usually means that learners are not meeting their goals or are dropping out before they fully realize their goals. The hypothesis for this study was that adult literacy learners who are dyslexic inaccurately self-assess their cognitive abilities; specifically, that they will overestimate their ability to understand what they read, what they can remember and the time it will take to achieve their literacy goals when they enroll in a literacy program. This flaw leads to increased frustration and slower than anticipated progress and results in frustration and an increase in depressive mood, which leads to a higher dropout rate. However, it is further hypothesized that once the learner is matched with a volunteer tutor and begins instruction, their self-assessment abilities begin to improve, because they are given the information they need to make an accurate prediction. Additionally, their peers who are not low-literate or dyslexic are able to assess their reading skills more accurately. Because they are not poor performers, they have the ability to know when they do not know.

Given the importance of the need for learners to persist in programs, this dissertation sought to determine if a learner's ability to accurately self-assess their reading and other cognitive abilities, such as memory and reading comprehension. If they revealed flawed self-assessment, then adult literacy practitioners might have a new tool and strategy to include during the intake process. In order to increase persistence rates and goal attainment, learners could be counseled about the unrealistic expectations they might have about progress and might have the ability to help them persist. If adult learners with dyslexia were unable to accurately assess how much they understand when they read, then tutors and tutor trainers might be able to include comprehension monitoring strategies into their tutoring sessions. Consistent monitoring of progress or concepts learned or words taught and remembered might help a learner with dyslexia begin to accurately identify when they are making progress or when they have completed a task, such as reading a passage, with accuracy. The hope is that eventually they can accomplish this accurate self-assessment autonomously.

CHAPTER 2

REVIEW OF THE LITERATURE

The ability to accurately judge one's own abilities is elusive at best. In fact, people who are poor performers are the least likely to accurately assess their own abilities. This first section of the literature review will cover the topic of persistence of learners in adult literacy programs in order to examine the current problem of student drop-out rates and a discussion of the reasons currently used to explain low persistence rates. The second section will review the literature about dyslexia. This will include the definition of dyslexia is, how it can be identified, the teaching strategies that are successful when teaching dyslexic individuals, and a review of studies that have identified the amount of time it will take to make progress if a learner has dyslexia. Third, the current research about self-assessment will be presented to illustrate the importance and prevalence in the mainstream population, of this problem. Lastly, the issue of depression among adult literacy learners will be discussed.

PERSISTENCE

Library-based adult literacy programs are uniquely designed to teach those with literacy skills below the third grade level (Comings et al., 2001). There is a growing trend from government and private funders of adult literacy programs to be more accountable. These entities are beginning to require that programs improve retention rates, and provide a plan for how this increase in persistence will be implemented, monitored and measured (Quigley, 2000). Adult literacy practitioners need to meet this rising demand for measurable

learning outcomes for students if they are to survive. Comings (2007) suggest that adult literacy programs have the responsibility to provide learners with the support they need to persist. If common traits of learners who are more likely to persist can be identified, recruitment efforts can be customized to enroll learners who are going to achieve their goals and are highly likely to remain until they make substantial progress. The reality is that most learner goals require hundreds of hours to achieve (Comings et al., 1999).

Recently Comings et al. (2001), Comings et al. (2003), and Porter et al. (2005) conducted a 4-year study to try to determine what would increase persistence in library-based literacy programs across the United States. Comings et al. (2003) suggest that learners who are involved in more aspects of the program than just tutoring persist longer. They suggest that learners need to feel as though they are part of the community within the organization. This might include using computer-aided instruction, meeting with other learners, or attending additional classes in addition to meeting their tutors. Another important aspect of a successful program is one that includes progress and achievement monitoring for the learners enrolled (Tracy-Mumford, 1994). According to Comings et al. (2001), Comings et al. (2003), and Porter (2005), these extracurricular activities lead to longevity, which leads to greater gains in reading levels. Quigley (1997) and Askov, Kassab, and Weirauch (2005) add that the initial intake procedure, which includes explicit goal setting, is imperative to the development of learner persistence. The intake should also include exploring past experiences with the educational system. It has been suggested that prior experiences in "formal institutions" may be connected to an increase in likelihood that an adult will not seek literacy help (Ross-Gordon, Martin, & Briscoe, 1990).

Library-based literacy programs are designed to provide individualized curriculum that are tailored to the learner's goals. This customization may lead to better outcomes and

better persistence. The employment of full-time, trained staff and individualization may lead to improved reading achievement (Fitzgerald & Young, 1997) as well as revisiting with the learners the goals they set throughout their enrollment (Meader, 2000).

DYSLEXIA AND ADULT LITERACY

Scientific findings by researchers impact adult literacy providers because they identify successful interventions that have been shown to significantly improve the phonological skills of dyslexics, both physically and intellectually. The literature reveals that with explicit, structured phonics instruction, people with dyslexia can retrain their nervous systems and learn to read with more fluency (Alexander & Slinger-Constant, 2004).

Adult learners who enroll in Adult Basic Education (ABE) programs have never learned to read well enough to be functionally literate. When environmental factors, opportunities to learn, and developmental delays are omitted as possible explanations of this deficit, the likely cause of their low literacy is a learning disability (LD), specifically the reading disability dyslexia. Knowing this magnifies the importance for those who work in adult literacy to be educated and trained in appropriate teaching strategies for learners with dyslexia. The Learning Disabilities Association of America (LDA) recommends that a teacher or tutor in adult literacy programs, with large percentages of learners have dyslexia, be trained in at least three methods, one of which should be a multisensory approach. When this does not happen, and it often does not, learners will not succeed and may drop out of the program.

It is vital to note that the definitions of LD and dyslexia specify that developmental delays and environmental factors are not causes for LD; dyslexia is caused by a deficit in phonological awareness (Pennington, Van Orden, Smith, Green, & Haith, 1990; Shankweiler

& Fowler, 2004; Shaywitz, 1996). Phonological awareness includes the ability of an individual to separate individual sounds, or phonemes, in order to read fluently and with comprehension. The theory that people with dyslexia had a phonological deficit has been illustrated by fMRI (functional magnetic resonance imaging) studies, which included both adults and children (Eden et al., 2004; Shaywitz & Shaywitz, 2004; Shaywitz et al., 1998; Shaywitz et al., 2002). If this deficit is not identified and remediated, it will persist through adulthood (Demont, Taylor, & Chaix, 2004). The persistent myth that dyslexia can be outgrown, is just that, a myth.

The Science of Dyslexia

Recently, research has supported the idea that dyslexia is a neurobiological problem. With the technology of functional magnetic resonance imaging (fMRI) scientists have been able to identify the areas of the brain that are activated when the subject is given a reading task (Eden et al., 2004; Shaywitz & Shaywitz, 2004; Shaywitz et al., 1998; Shaywitz et al., 2002). The fMRI technology measures the blood flow to the areas of the brain that are significantly more active during activities such as reading than other areas of the brain. While subjects are attempting single word reading tasks, fMRI was taking pictures of the brain at work. The areas that had increased blood flow "light up" in the pictures. This technology is how researchers identified which areas of the brain were active during reading. It is a completely non-invasive procedure, making it more accessible to children as well as adults. Several scientists have used this non-invasive technology to record the brain activity of adults and children with dyslexia. The areas of the brain that have been identified as central reading areas are located in the left hemisphere (Eden et al., 2004; Shaywitz & Shaywitz, 2004). These areas are universal for impaired and unimpaired readers.

The sections of the brain that have been localized and identified as areas involved in the reading process are: the frontal lobe or Broca's area, pario-temporal region, and the occipito-temporal region. Broca's area is responsible for word articulation and word analysis; the pario-temporal area responsible for word analysis; and the occipito-temporal area is responsible for fluency (Figure 1). Studies by Shaywitz (2003) and Shaywitz et al. (1998) show dyslexics have underactivation in the posterior cortical (pario-temporal and occipito-temporal) of the brain. These studies also show that these same readers are over utilizing Broca's area to compensate for the underutilization of the reading areas in the back of the brain.

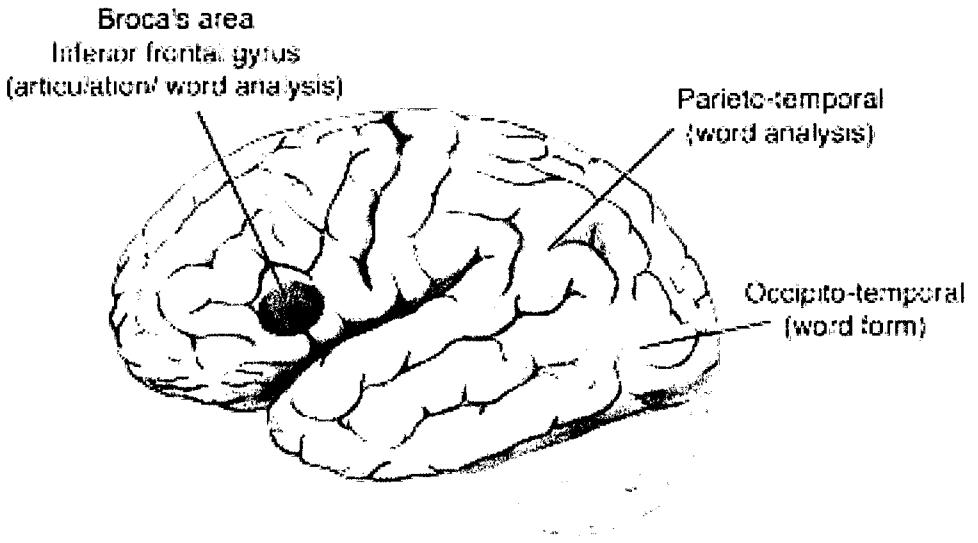

Figure 1. Reading areas of the brain. Source: Shaywitz, S. E., Mody, M., & Shaywitz, B. (2006). Neural mechanisms in dyslexia. *Current Directions in Psychological Science, 15*(6), 278-281.

Dyslexia Interventions

These discoveries are important because they are a stepping-stone to determining which reading interventions can impact the neural plasticity of the brain. This means that the intervention is actually helping the brain change through neurogenisis, which is the ability of the brain to generate new neurons and create new neuronal pathways to help the learner learn to read. Eden et al. (2004) studied a group of adult dyslexics before and after a reading intervention. Her theory that the plasticity in adults differs from that of children, because children's neural plasticity has been shown to be continuously changing, was tested. Eden proposed that because the brain is stable is adulthood, any changes that occur after intervention are attributable to the intervention. Eden used an intervention that was delivered by staff at the Lindamood-Bell Learning Corporation. This intervention is multisensory and focuses on sound awareness, establishment of the rules for letter-sound organization, sensory stimulation and articulatory feedback. The subjects received the instruction daily for 3 hours. At the conclusion of this intervention, fMRI technology via BOLD (Blood Oxegenation Level Dependent) measures showed subjects had increased activity in the left parietal cortex, which is observed in typical readers.

The majority of the studies included adults with dyslexia, reinforcing the call for this science to be implemented in adult literacy settings. As stated earlier, the effects of the interventions on the phonological skills and neural structure of dyslexic adults can be directly attributed to the intervention (Eden et al., 2004; Sherman, 2004). The weakness in these studies, when connecting them to adult literacy, is that most of the subjects were those who had dyslexia but were able compensate and succeed in spite of their dyslexia. There is a need for these studies to be conducted on uncompensated, low-literate adults. Learners in ABE

situations have not compensated for their disability. Some of the subjects of the fMRI studies were children, whose results may be generalized to the adult literacy population. Thompkins and Binder (2003) found that when comparing adult and child emergent readers, they experience the same stages of reading development, allowing for some generalization to take place between groups. Many scientists agree that teaching strategies that work with children also work with adults who are learning to read (Shankweiler & Fowler, 2004). However, the need for low-literate adults to be tested, or screened, remains a priority in determining the appropriate interventions.

The reading interventions were implemented frequently and consistently and were a consistent factor in most of the studies. A few of the hallmarks of the successful interventions were the amount of time spent at each session and the number of times that students met with the tutors. Admittedly, it is unclear if less consistent tutoring would result in the same success; but it can be theorized that the intervention is what causes the change in plasticity and not the frequency of the intervention. This intervention requires enormous time commitment on the part of the learner, which is unrealistic in adult literacy programs. However, if learners are experiencing success they will be more inclined to attend consistently.

Structured, explicit, phonological intervention has created changes in the reading areas of the brain allowing subjects with dyslexia to decode words with more accuracy and less effort than prior to the intervention, as evidenced by fMRI. After the intervention, the subjects were tested again using fMRI technology; the results showed they had significantly improved the utilization of the previously underutilized areas of their brain that control the reading process (Eden et al., 2004; Shaywitz & Shaywitz, 2004). This evidence could influence how adult literacy educators shape their pedagogical practices. It has been noted

that many educators do not embrace new instructional techniques that are research-based, because they do not trust the research to practice movement (Lyon, 1997). It is possible this continues to be true, due to the lack of professional journals in adult literacy dedicated to putting science into practical terms for educators to immediately implement in their classrooms. This could also be a result of the lack of professional development for those working with low literate adults that would teach educators how to interpret results and assess their validity.

The symptoms of dyslexia have been identified and the cause of dyslexia is being better understood because of imaging technology. Furthermore, it has been established that a phonological approach is the most successful intervention, but there is still resistance to this approach in the adult literacy community. According the Shaywitz and Shaywitz (2004), the link between science and reading instruction has not been mutually dependent. However, the time has come for that to change. The National Institute for Health (NIH) funded a study to determine which research-based strategies were effective with learning disabled adults. The product was a five-volume guide titled *Bridges to Practice*. In addition to identifying instructional strategies, they recommended that these strategies be used with all learners in the program (Covington, 2004). Such a process of determining what works for a specific population of learners ensures that all students receive the best research-based instruction.

As long as there are dyslexics in the adult literacy classroom, instructors should be trained in phonics instruction and possess the theoretical framework to implement that instruction. The training they need is available and should be an integral part of any certification course, considering that multisensory, phonics instruction will help all low-level readers, whether or not they have dyslexia.

FLAWED SELF-ASSESSMENT

The inability to accurately assess one's own skills is pervasive across all domains. People of all educational levels, occupations, and expertise are either overly optimistic about their abilities or they do not give themselves enough credit for what they do know (Dunning, 2005; Dunning et al., 2004). In fact, statistically speaking the correlation between self-ratings and actual performance is low (Dunning et al., 2004). Dunning et al. revealed that when students are asked to assess their own performance on a task, their assessments only moderately correlated with their teacher's opinions of their abilities. Dunning and his colleagues also stated that there are several reasons for this flawed self-assessment. First, people who are poor performers simply are not aware of their deficits, which make it unlikely that they can correctly identify their weaknesses. Second, the double curse hypothesis states that their deficits, which create the mistakes they make, also prevent them from analyzing why they made the mistake in the first place. Third, Maki and her colleagues (Maki & Berry, 1984; Maki, Jonas, & Kallad, 1994; Maki, Shields, & Wheeler, 2005) have studied metacomprehension, the ability of students to estimate how much of what they read that they actually understand. She has concluded that skilled readers are better than less skilled readers in accurately judging their comprehension of text. Carter and Dunning (2007) capture this importance of self-assessment by pointing out that this awareness of one's deficits can help one navigate around mistakes. All three hypotheses of why people are not able to accurately self-assess their abilities will be discussed in the following sections.

Poor Performers

As stated earlier, those who are incompetent at the task at hand usually do not have the information they need to correct their mistakes. Kruger and Dunning (1999) suggest that

those who are poor performers might benefit from an intervention in order to receive the information that need to make accurate self-assessments. They simply do not know they are making mistakes in the first place and they do not recognize their incompetence (Dunning, 2005). One study that was conducted by Kruger and Dunning (1999) with college students used a logical reasoning pop quiz. Once the quiz was completed he asked them to estimate how well they had done on the quiz. Most of the students self-reported that they had done better than average. However, when the results were analyzed the reality was that those students who actually scored in the bottom quartile severely overestimated their performance. In fact, they overestimated by 37% the number of questions they thought they had correctly answered and they were almost as confident about their abilities as their peers who performed well on the task.

A common criticism of this research suggests that the participants knew they had performed poorly and chose not to tell the researcher. A second theory is that the participants were not motivated enough to give the task at hand the attention it required. Dunning (2005) responded to these criticisms with another experiment. Students in this study were given a test of logical reasoning and asked to judge their performance on the task. The group was then divided into two. One group was presented with a monetary reward of $100 if they guessed the number correct exactly and only $20 if they were off by just one question. The other group received no incentives. Even with the incentive, there was no increase in student ability to self-assess their performance. In fact, the bottom quartile still vastly overestimated their abilities. Another possibility for this overestimate of ability might be attributed to the premise that people might provide positive self-assessment to those asking for it, in order to "look good" in front of the interviewer (Ehrlingher, Johnson, Banner, Dunning, & Kruger, 2008).

Kruger and Dunning (1999) conducted four studies which required college students to make a judgment about other people's preferences by asking them to judge what other people would think is funny. One study asked participants to rate the humor of jokes that were presented to them. The researchers then compared their scores with professional comedians. Upon completion of this study it was the bottom quartile who overestimated their abilities. Study three involved giving college students a grammar test. They were asked to judge their own performance on the test, and again, the bottom quartile vastly overestimated their scores. One note of interest is that those in the top quartile consistently underestimated their competence in both of the previous studies.

Kruger and Dunning's (1999) fourth study gave participants a puzzle to solve and then were asked to judge their performance. Those in the bottom quartile who had missed every question still estimated that they had answered approximately half of the questions correctly. The bottom quartile was then placed into two experimental conditions in which one group received a lecture about how to solve the puzzle and the other group received a "nonsense" lecture. After the lecture they were asked to complete the puzzle again, and this time the group who received the lecture on how to solve the puzzle not only performed significantly better but were more prepared to admit their poor performance on the first puzzle. The "nonsense" lecture group did not change their self-assessments. The researchers successfully replaced the incompetence with competence and the ability to judge their own performance improved.

The Double Curse Explanation

A double curse is what happens when a person makes many errors, performs worse than their peers, and would appear to be incompetent at the task at hand, such as reading

(Kruger & Dunning, 1999; Dunning, 2005; Dunning et al., 2004). These deficits are what prevent the person from accurately judging their performance. They propose that if those who made the mistakes knew they made the mistakes, they would not have made the mistakes at all. Caputo and Dunning (2005) and Carter and Dunning (2007) refer to this double curse as an error of omission, in which people don't know that they don't know. One way to alleviate the double curse would be give the incompetent person (poor performer) the information they need to make the correct self-assessment, because Dunning (2005) states that " people can easily recognize their incompetence only when that incompetence is removed" (p. 23). They simply do not have the information they need to determine their real level of ability (Caputo & Dunning, 2007). This information could be very useful to practitioners who work with adult literacy learners with dyslexia. Instead of telling these students they can accomplish all of their goals, perhaps the right course of action is to provide them with the feedback they need to make the correct decisions about their lives and avoid mishaps.

In one study (Caputo & Dunning, 2005), college students were asked to play Boggle. When they completed the game they were asked to make a judgment about how well they did based on how many words they were able to create. They were then told how many words were actually possible. After the disclosure about the actual answers possible the participants were much more accurate in their judgment of their ability. They were given the information they needed to make a more realistic assessment of their performance (Dunning, Johnson, Ehrlinger, & Kruger, 2003). Caputo and Dunning (2005) made the conclusion that when people are provided with the missing information they can then use that information to make more accurate self-assessments. Lichtenstein and Fischoff (1980) also noted that when people are given feedback about their confidence versus the reality of their performance

there is marked improvement in their ability to judge their future performance on various tasks. Feedback also provides people with the information they need to gain insight into their own limitations (Dunning et al., 2003). This feedback, which could come from a volunteer tutor, should be part of helping a learner decide when they know that they know.

Metacomprehension

The ability to be able to monitor and identify how much a person understands what they read is invaluable when learning new skills or information (Dunlosky & Lipko, 2007; Maki & Berry, 1984; Maki, Jonas, & Kallad, 1994) and can help a student determine when they have studied enough or not (Hacker, Dunlosky, & Graesser, 1998). Maki and Berry (1984) define this ability as metacomprehension. It can be illustrated as readers who are able to accurately predict how well they understood what they read have good metacomprehenion and those who are not able to predict how much they understood what they read have poor metacomprehension (Hacker et al., 1998). They define metamemory as the ability to predict how much of the information garnered from the text will be remembered in the future. Hacker et al. (1998) also make the argument that the terms metacomprehension, comprehension calibration, and comprehension monitoring all mean the same thing and he proposes the term self-regulated comprehension. Maki and Berry (1984) also report that readers who are not impaired are better than impaired readers when they judge how much they understand after reading a text. Glenberg and Epstein (1985) refer to this as the "illusion of knowing" when they determined that their study participants were not able to accurately calibrate their own comprehension.

Poor readers tend to do less monitoring of their comprehension as they read (Cromley, 2007) and this lack of monitoring can also lead to an inability to know how much

they actually understand. To illustrate this point Maki, Shields, Wheeler, and Zacchilli (2005) conducted a study that investigated the difference in metacomprehension using hard and easy texts. The results revealed what has already been discussed; low achieving students were overconfident when estimating how well they had performed and "high-ability"students were underconfident.

Hacker, Bol, Horgan, and Rakow (2000) also conducted a study with college students asking them to predict how much they had understood. These students were asked to make predictions about how well they would perform on a psychology test and then asked to make postdictions after they completed the exam. The difference was calculated between what they predicted before and after the exam. They were also asked how many hours they studied for the exam. Again, poor performing students were highly unlikely to accurately predict their performance on the exam. In fact, the worse they performed the worse their prediction was. The authors concluded that the low performing students lacked awareness of their own deficits. Because adult literacy learners are low achievers in reading, there is an expectation that they will also overestimate their ability to judge how well they understood what they read.

In addition to poor metacomprehension, prior success or failure might play an important role in the quality of performance on subsequent tasks (Feather, 1968). In fact, Feather conducted a study which required that participants estimate the likelihood that they will complete the item that was presented to them. He found that once the participant experienced failure the subsequent performance declined, thus concluding that. ". . . initial success or failure may have motivational effects which either facilitated or disrupted subsequent performance" (p. 43). If this logic is followed, it would seem that persistence

rates might be correlated with the amount of success learners experience when they enroll in an adult literacy program.

MEMORY AND LEARNING DISABILITIES

The self-assessment of memory by learning disabled (LD) adults was investigated by Wilhart and Sandman (1988). They found that adults with LD, which was defined as an adult with at least normal intelligence, no significant emotional problems, normal eyesight and hearing, and were not able to succeed in basic school subjects, consistently overestimated their ability to remember words that were presented to them via a computer one at a time. They were then asked to estimate the number of words they could recall. The adults with LD overestimated their ability remember the words that had been presented to them. Additionally, when the LD adults were given mnemonic such as pictures and other cues, they significantly improved their ability to remember the word lists. This study gives just one example of how memory might be a deficit for those with dyslexia.

DEPRESSION

It is often presupposed that adult literacy learners have some measurable form of depression. The presumption is based on that fact that many of these learners have experienced years of school failure. However, there is a severe shortage of literature investigating the rate of depression among adult literacy students, specifically adult learners with dyslexia. In school age children it has been shown that students with learning disabilities score significantly higher on depression scales than their non-disabled peers (Maag & Reid, 2006). A few studies have been conducted which seemed to reveal that learners gain self-esteem while they are enrolled, and that low self-esteem is even a deterrent

to enrolling in a literacy program, but these studies are not conclusive (Lipnevich & Beder, 2007). Depression of adult literacy learners with dyslexia has not been investigated.

SUMMATION

The literature that addresses self-assessment and metacomprehension makes a clear case that most people are not able to make an accurate assessment of several cognitive domains, including reading comprehension. To date the studies in this field have not included learners with dyslexia. This dissertation assessed the ability of adult literacy learners to assess not only their reading comprehension skills, but their memory skills, and their ability to accurately assess how long it will take- them to achieve a goal. For any learner to achieve the goals they set when they enroll in an adult literacy program, they have to persist. If learners enroll in a program with unrealistic or "flawed" self-assessment to judge their own cognitive abilities, they may be setting themselves up for frustration when they are not able to progress at the rate they had hoped. This literature suggests that the poor performers in adult literacy programs will probably have a less than accurate assessment of their abilities.

CHAPTER 3

METHODS

This study performed several quantitative statistical methods to analyze adult literacy learners who have dyslexia to determine if they demonstrated inaccurate self-assessments of their reading abilities, memory abilities, and non-verbal abilities. Specifically, the theory was that adults with dyslexia will overestimate their abilities and have inaccurate self-assessments of their performance. This flaw leads to increased frustration due to slower than anticipated progress and possibly an increase in depressive mood, which leads subsequently to a higher dropout rate. Additionally, it was hypothesized that the more hours a learner spends with a volunteer tutor and receives feedback about their level of comprehension the more accurate their self-assessment becomes. Furthermore, adults who do not have dyslexia would have more accurate self-assessment of their reading abilities and memory capacity.

RESEARCH QUESTIONS

1. Are adults with dyslexia able to accurately assess their abilities in reading and memory when compared to good readers?
2. Do those learners who have more hours of tutoring do better on the self-assessment tests?
3. Do depressive symptoms become worse once learners begin tutoring and realize they have overestimated their abilities?

SETTING

READ/San Diego, the adult literacy program of the San Diego Public Library, provides free one-on-one tutoring services to adults over the age of 18 who read below the eighth grade reading level. This program is available to adults who live or work within the City of San Diego. The program has been in existence since 1987 and serves approximately 300 adult learners every year. The 2007READ/ San Diego Annual Report showed that READ/San Diego served 446 adult literacy learners and 396 of the learners were under the age of 59. Of the 446 learners, 109 were Black, 193 Latino, 61 Asian, 79 White, 4 Pacific Islander, and 2 Native Americans. Thirty-two percent withdrew from the program because they self-reported that they either moved, transferred to another program, or had health, family, or personal problems. The program was purposefully selected by the researcher because of her role as a full-time Literacy Tutor/Learner Coordinator at READ/San Diego.

Prior to enrollment in this program, potential adult learners are required to complete an intake process before being matched with a volunteer tutor. The first step in this enrollment process requires that the adult learner attend an orientation that is conducted by a READ/San Diego staff member. The orientation is 2 hours in duration and provides an overview of the program, the services offered, the expectations of the learners and delineates who qualifies for services, and a learner who is currently in enrolled in READ/San Diego tells their story. Upon completion of the orientation, learners sign up for a reading assessment that will be done one-on-one either by a READ/San Diego staff member or a trained volunteer. Volunteer assessors are trained and supervised by literacy tutor/learner coordinators, including the researcher. They have been observed and their assessments are critiqued on a regular basis. The assessment consists of a background questionnaire

(including demographics, last grade in school completed, whether or not they were in special education in K-12, and current goals). The skills assessment includes the Slosson Oral Reading Test (Slosson, 2002), a sight word reading assessment, the Adult Reading Inventory (ARI: unknown author, unknown date), a silent reading comprehension assessment, the Bader Reading and Language Inventory (Bader, 2002), a phonics assessment, and an informal writing assessment that includes dictating spelling words and producing the alphabet.

Upon completion of the assessment, learners are placed on a waiting list for a volunteer tutor. The wait can be as long as 6 months. During the assessment learners are asked which days and times they are available and at which library branch they would like to meet. Based on this information, the learner is eventually matched with a volunteer tutor who is available at the same time and location. Once the match is made a READ/San Diego staff member known as a Literacy Tutor/Learner Coordinator (T/LC) meets with the pair, prescribes the curriculum based on the assessment, and aides the pair in getting started with their lesson planning.

The tutors are all volunteers. The qualification for tutors is that they are over 18 and have a high school diploma. Tutors are required to complete a 15-hour tutor training before they are matched with an adult learner. The tutor training consists of five sessions which are divided as follows: (a) orientation to the program, (b) learning disabilities, (c) phonics instruction, (d) reading comprehension instruction, and (e) writing instruction. Tutor training is conducted by Literacy Tutor/Learner Coordinators that includes the researcher. Once tutors complete tutor training and are matched with a learner, the pair is supervised and monitored by a Tutor/Learner Coordinator.

PARTICIPANTS

Twenty adult literacy learners were recruited for this study. The learners were chosen at random from a pool of learners who were enrolled in the READ/San Diego program during the course of the study. The participants were between the ages of 18 and 65. The cross-sectional sample for this dissertation consisted of one discrete group with 20 ($n = 20$) adult literacy learners with dyslexia enrolled in READ/San Diego. The learners included in this study were identified as dyslexic when they meet the criteria that was set forth in this section.

For the purpose of this dissertation, dyslexia was defined as: (a) native English speaker, (b) reads below the third grade level based on the READ/San Diego intake assessment, (c) attended school as a child, at least through the third grade, (d) no self-reported substance abuse history, (e) no self-reported head injuries, (f) no self-reports of developmental disabilities, and (g) displays phonological processing difficulties on the Bader Reading and Language Inventory. These seven qualifying characteristics were included on the intake assessment, but they were all self-reports, which is a limitation of this study. Although the researcher must rely on these self-reports, the reading abilities were measured directly via reading, phonics, and writing assessments. Additionally, self-reports of reading disabilities of adult learners are often a reliable and somewhat accurate self-diagnosis (White & Polson, 1999).

A control group of 10 community members ($n = 10$) were recruited and administered the same standardized tests as the adult learner group. They were matched as closely as possible by ethnicity, age, and sex.

MEASURES

This study required that participants predict their performance and their cognitive abilities on several tasks. Every participant was administered all three tests and one depression survey. The constructs of self-assessment of reading comprehension, memory, and depressive symptoms were measured using the following measures.

Intelligence Quotient

An estimated Intelligence Quotient (IQ) measure was derived by administering two subtests of the Weschsler Adult Intelligence Scale (WAIS-III; Wechsler, 1999). The WAIS-III was restandardized from the WAIS-R with a sample of 2,450 individuals whose age ranged from 16 to 89 years old. This sample was a representative sample of the United States in the areas of age, education, ethnicity, and geographic region as indicated in the 1995 U.S. Census. According to the Psychological Corporation (Wechsler, 1999) it is possible to calculate a reasonable Full Scale of Intelligence (FSIQ) using two of the subtests, which are the Vocabulary and Matrix Reasoning. Therefore, the participants in this study were only given these two subtests in order to determine that their intelligence quotient was at least low average, which would be at least 80. The WAIS-III is the gold standard in intelligence testing. The editors acknowledge that even when all four of the subtests are given, they are designed to collect information about many attributes that lead to intelligence, the tester must take into account the individual's "social and medical history and linguistic and cultural background" (p. 3).

The Vocabulary subtest of the WAIS-III tests the verbal vocabulary ability of the participant. The tester is instructed to start the test with the following instructions: "In this

section, I want you to tell me the meanings of some words. Now listen carefully and tell me what each word I say means. Are you ready?" (p. 68).

Once the instructions have been read and the participant understands the task, the tester then reads the vocabulary words that are provided by the manual. For each word, acceptable responses are included for the tester to choose from. The tester is permitted to ask the participant to "explain what you mean" or prompt for more information by saying, "Tell me more about it." Each response is scored zero, one, or two and there are 26 items on the scale. The respondent receives two points for a complete response, one point for a partially correct answer and zero points for an incorrect answer. Testing was discontinued when the respondent received six consecutive zeros.

The Matrix Reasoning subtest measures the nonverbal reasoning ability of the participant. The tasks include: pattern completion, classification, analogy, and serial reasoning. The participant is required to identify either verbally or manually the missing piece of the matrix. The WAIS-III manual instructs the tester to begin the test by saying: "I am going to show you some pictures. For each picture, there is a part missing. Look at all aspects of each picture carefully and choose the missing part from the five choices" (p. 130). The respondent receives either a zero or a one for each item. They will receive a zero for an incorrect response and a one for a correct response. There are 26 items. The test is stopped when the respondent receives four consecutive zeros.

Reading Comprehension

Self-assessment of reading comprehension skills was assessed using the Adult Diagnostic Reading Inventory (ADRI; Campbell & Brokop, 2001). The ADRI requires participants to read either an informational or narrative passages. Upon completion of

reading the passage, participants are verbally asked to answer questions about the passage that are both factual and inferential. The test administrator records the answers. There is also an opportunity for the participant to retell the passage to the test administrator, which the administrator records on the answer sheet. The ADRI was developed by determining the types of passages adult learners would like to read. The results of 24 focus groups determined that the adults would like to read informational passages more than narrative (6:1). A modified Dale-Chall and Fry formulas were used to determine the grade level of each passage that was created. Both inferential and factual questions were created for each passage. To determine if the questions for the graded passages were written at the correct level, three pilot tests were conducted with adult learners. The mean scores for each level is expressed in percentages and ranges from 73% to 84%.

Memory

The Wechsler Memory Scale-III (WMS-III; Wechsler, 2002) was administered to determine the participants' ability to self-assess their memory. This was administered to determine if participants under- or overestimate their abilities in areas other than reading. This was also an important measure due to the fact that memory plays an integral part in learning to read or remembering what has been read. The WMS-III consists of 11 subtests. In order to determine the self-assessment of memory three of the subtests will be administered to each participant. The subtests that were included were the: (a) Faces 1, (b) Verbal Pairs Associates, and (c) Word Lists.

The Faces subtest required the participant to remember faces from pictures they were shown by the tester. This is a nonverbal test that is included to test the learner's self-assessment abilities in nonverbal domains as well as verbal domains, such as reading

comprehension. The tester showed each participant 48 photographs of faces and the participants were asked to remember each test. After this was complete, the tester then showed the participants a second series of photographs and asked the participant to identify if the picture was one they remember or a new picture. This was not a timed test. The respondent received a zero for an incorrect response and a one for a correct response. There were 48 items.

The Verbal Paired Associates I subtest tests the participant's ability to remember words when they are associated with another word. The tester verbally presented the participant with eight word pairs. Once that was complete, the tester then read only the first word of each pair and the participant was asked to supply the second word. This test was administered four times, with the same word pairs, but in different order. This was not a timed test. The WMS-III manual instructs the tester to present the word pairs every 3 seconds and pause 5 seconds before asking for recall.

The Word Lists I required that the participant remember as many words from a list as possible. This test was included to test the self-assessment of the learner's memory. The tester was instructed to read a list of words to the participant and the participant was asked to recall as many words as possible in any order. This was repeated three times, with three different lists. Once that was complete the participant was then asked to repeat as many as words as possible from the first list.

The WMS—III was standardized using 1,250 people who ranged in age from 16 to 89 old. Internal consistency coefficients ranged from .70 to .90.

Depression

The Beck Depression Inventory—Second Edition (BDI-II; Beck, Steer, & Brown, 1996), is a 21-item screening tool that was used to determine if there was depressive mood at the onset of tutoring sessions and it the depressive mood was different for those who received tutoring or those who are not dyslexic. This inventory is designed to take about 5 minutes to complete. The BDI-II is a 21-item measure of depressive symptoms. Each item consists of four statements, scored zero to three, indicating increasing symptom severity, and total scores range from 0 to 63. Respondents were asked to describe the way they have been feeling during the past 2 weeks. Each item gave the respondent a choice of four responses, scored zero to three, indicating increasing symptom severity, and total scores range from 0 to 63.

The BDI-II was recently restandardized with a clinical sample of more than 500 (N = 500) participants. The new sample shows improved sensitivity. The reliability was .92 which was higher than the original BDI that was .86.

PROCEDURES

Once a learner was identified as having dyslexia and they met the criteria of the study, they were contacted by the researcher for a one-on-one meeting. The learner was administered five tests during this initial meeting. This meeting was one-on-one and occurred at a public library that was convenient for the participant. The first test consisted of two subtests of the WAIS-III intelligence testing to determine that their estimated IQ was 80 with a range of ± 5 points. All the tests (ADRI, WMS-R, BDI-II) were administered to each potential participant at each session. This meeting lasted approximately 90 minutes to 2 hours and took place at a public library.

The Adult Diagnostic Reading Inventory (ADRI) was used to determine how well participants were able to self-assessment of how much they understand what they read. It was hypothesized that readers with dyslexia would overestimate their comprehension abilities and the ADRI was used to measure their actual ability. Additionally, the participant had the opportunity to re-assess how much they understand after an initial exposure to the types of reading comprehension questions that were asked. First, each participant was asked to silently read a passage at their reading level as assessed at intake. Once they read the passage they were told there were comprehension questions about the passage. The number of questions they were asked depended on the passage they read, as the questions asked per passage vary. They were then asked to estimate how many of the questions they answered correctly. The estimated number was recorded. They were then asked to answer the comprehension questions. The number of correct answers was recorded and compared to the estimated number of questions answered correctly. Once they had a chance to answer the comprehension questions they were asked to estimate how many they thought they answered correctly. This measure determined if learners believed they comprehended more or less than they actually did based on their actual performance.

The WMS was then administered to determine if this flawed self-assessment was pervasive or if it was specific only to reading comprehension. It was hypothesized that learners with dyslexia would continue to show low self-assessment accuracy rates in areas other than reading, such as memory tasks. The WMS was used to measure the self-assessment of memory. This test required participants to remember visual stimulus (Faces), verbal vocabulary (Verbal Paired Associates I), and isolated words (Words Lists I). During each test the participant was told what the task entailed before it was administered. After the task was described and before it was administered the participant was asked to estimate how

many items they believed they will remember. Once the task was completed they were asked to estimate how many items they had answered correctly as a form of post-assessment. Both estimations were recorded before and after the test was administered and compared against the actual number of items in each test that was correctly remembered. A ratio of how many answers predicted compared to how many answers actually answered correctly was calculated.

The Beck Depression Scale (BDI-II) was used to determine if there was an increase in depressive symptoms from the pretutoring phase to the more than 12 hours of tutoring phase. It was hypothesized that once tutoring begins, depressive symptoms increase when learners realize they have overestimated their abilities and underestimated the amount of time it will take to achieve their goals.

The learners were required to sign a consent form after it had been read to them and they agreed to the content in the form (Appendix A). The control group was required to read and sign the consent form in Appendix B.

ANALYSIS

Both descriptive and inferential statistics were performed to illustrate demographic data and determine if there were differences between the groups.

Descriptive Statistics

Descriptive statistics were used to describe the sample which included: age ranges, reading levels, ethnicity, sex, grade completed, estimated IQ, number of tutors and number of hours spent with a tutor.

Inferential Statistics

Correlational data was collected to determine if there was a correlation between any of the demographic data and the cognitive tasks administered. One-Way Analysis of Variance (ANOVA) was performed to determine if there was a significant difference between the learner group and the control group of the self-assessment of their cognitive abilities. Repeated Measures ANOVA was performed to determine if there was a significant change over time in the subject's ability to self-assess their performance. Finally analysis of covariance was performed to determine if estimated IQ, age or grade completed had an effect on the statistical outcomes.

LIMITATIONS

The sample size for this study is the most obvious limitation. During the course of the study enrollment in the program was halted for a 6-month period due to an excessive waiting list. This made it extremely difficult to identify and recruit appropriate learners for this study. Secondly, when identifying learners with dyslexia I had to rely on their self reports about prior head injuries, drug abuse and the grade completed in school.

CHAPTER 4

FINDINGS

This study examined the cognitive abilities of adults with dyslexia and adults without dyslexia and their ability to accurately assess their own cognitive abilities in memory and reading comprehension. This study also investigated whether there was a correlation between depressive symptoms, self-assessment and number of hours tutoring. Twenty adults with dyslexia ($n = 20$) participated in the study. These adults were enrolled in the READ/San Diego adult literacy program and they were chosen based on the qualifications outlined in Chapter 3. The 20 adults were compared to 10 ($n = 10$) adults without reading problems who were recruited from the community at large. The groups were matched as closely as possible in the areas of sex, ethnicity, and age. There was no significant difference between the two groups in sex or ethnicity. There was a significant difference in the average age of the groups as well as a significant difference in the average estimated IQ score and grade level completed. The learner group consisted of 25% whites, 25% Hispanics, 45% African-American, and 5% other. The control group consisted of 30% whites, 30% Hispanics, 40% African-American, and 0% other. Binomial expansion was performed to determine if the two groups were biased in sex, age, or ethnicity and they were not ($p > .05$) indicating that they were comparable groups. Table 1 provides an overview of the demographics of the participants and a comparison between the learner group and the control group.

The participants were asked to estimate their performance on three cognitive tasks: memory of faces, memory of words, and reading comprehension. Four different statistical

analyses were conducted. Bivariate correlation was used to examine the association between hours of tutoring, age, IQ, grade completed, depression, and gender. Analysis of variance (ANOVA) was used to determine if there were differences in self-assessment and performance between and within groups. Repeated Measure ANOVA was used to determine if there was improvement during tasks within groups. This chapter will answer the three questions that guided this research as well as provide correlational data and demographic data. Lastly ANCOVA was performed to determine if any of the demographic variables had an impact on the statistical significance within and between groups.

Table 1. Mean Demographic Data for Sample ($N = 30$)

	Learners ($n = 20$)		Controls ($n = 10$)	
Variable	Mean	*SE*	Mean	*SE*
Age	4.725	2.6	38*	2.9
Number of tutoring hours	8e+16	.339	N/A	N/A
IQ		2.2	106**	N/A
Grade completed		.46	12**	N/A
Number of tutors		.73	N/A	N/A
Women		N/A	4	N/A
Men		N/A	6	N/A
White		N/A	3	N/A
Hispanic		N/A	3	N/A
African-American		N/A	4	N/A
Other		N/A	0	N/A

*Significant difference between groups at the .05 level.
**Significant at the .01 level.

CORRELATIONAL DATA

A bivariate Pearson Product Moment correlational analysis was used to determine if there were significant positive or negative associations among IQ, age, and grade completed for the entire group ($N = 30$). This correlational analysis is used to determine if one variable

can predict a second variable (Creswell, 1994; Hinkle, Wiersma, & Jurs, 2003). As illustrated in Table 2 expected there was a statistically significant positive correlation ($p <$ .05) between grade level completed and estimated IQ indicating that those with more education had a higher estimated IQ.

Table 2. Correlational Data for Entire Sample ($N = 30$)

Variables	Age	Estimated IQ
Age	1	-.089
Estimated IQ	-.089	1
Grade completed	-.048	.417*

*Significant at the .05 level.

A bivariate correlational analysis was used to determine if there were significant positive or negative associations between IQ, age, and grade completed for the learner group ($n = 20$), which included age, IQ, grade completed, number of hours of tutoring, and number of tutors. There was a statistically significant positive correlation ($p < .05$) between age and the number of tutors a learner had during their enrollment at READ/San Diego indicating that older the learner the more tutors they had worked with (Table 3).

A bivariate correlational analysis was used to determine if there was a significant positive or negative association between IQ, age, and grade completed for the control group ($n = 10$), which included age and estimated IQ. There was not a statistically significant positive or negative correlation between age, estimated IQ for the control group of community members without dyslexia (Table 4).

Bivariate correlations were used to determine if there was a significant positive or negative association among IQ, age, and their ability self-assess their memory for faces for

the entire group ($N = 30$), as illustrated in Table 5. There was not a statistically significant positive or negative correlation between age, estimated IQ, and their ability self assess their memory for faces. Therefore these independent variables are not associated with the ability to self-assess.

Table 3. Correlational Data for Learner Sample ($n = 20$)

Variables	Age	Estimated IQ	Grade Completed	Number of Hours	Number of Tutors
Age	1	1.141	.218	.393	.462*
Estimated IQ			.176	.077	-.142
Grade completed				.089	.81
Number of hours					.391

*Significant at the .05 level.

Table 4. Correlational Data for Controls Sample ($n = 10$)

Variables	Age	Estimated IQ
Age	1	0.31

Table 5. Correlational Relationships for the Faces Task for Entire Group ($N = 30$)

Variables	Age	Estimated IQ
Faces Estimated	-.173	.010
Faces Post	-.099	-.073
Faces Actual	-.319	.244

A bivariate correlational analysis was used to determine if there was a significant correlation between IQ, age, grade completed, number of hours, number of tutors, and the ability to self-assess their performance on the memory task for faces for the learner group

($n = 20$). There was a statistically significant negative correlation ($p < .05$) between age and how many faces they were actually able to remember (Table 6). This indicates that older learners exhibited poorer memory for faces than younger learners.

Table 6. Correlational Relationships for the Faces Task for Learner Group ($n = 20$)

Variables	Age	Estimated IQ	Grade Completed	Number of Hours	Number of Tutors
Faces Estimated	-.306	-.217	-.013	-.086	.164
Faces Post	-.168	-.410	-.239	-.292	.115
Faces Actual	-.511*	-.142	.019	-.305	-.052

*Significant at the .05 level.

A bivariate correlational analysis was used to determine if there was a significant association among estimated IQ, age, and the ability to self-assess their performance on the memory test in the control group ($n = 10$). Table 7 shows a statistically significant positive correlation ($p < .01$) between estimated IQ and how many faces they were actually able to remember. This indicates that subjects with higher the estimated IQ were able to remember more faces. This finding was not present in the learner group ($n = 20$). These finding suggest that that the significant results for the entire group was driven by the learner group.

Table 7. Correlational Data for the Faces Task for Control Group ($n = 10$)

Variables	Age	Estimated IQ
Faces Estimated	.278	.416
Faces Post	.338	.187
Faces Actual	.501	.836**

**Significant at the .01 level.

A bivariate correlational analysis was used to determine if there was a significant association among estimated IQ, age, and the ability to self-assess their memory for remembering word pairs as assessed with the WMS. There was a statistically significant positive correlation ($p < .05$) for the entire group ($N = 30$) between age and the participants' ability to accurately post assess the number word pairs for Word Pair B they remembered correctly (Table 8). This indicates that older subjects were more accurate with their self-assessment abilities after one exposure to the task.

Table 8. Correlational Data for the Word Pair Task for Entire Group ($N = 30$)

Variables	Age	Estimated IQ
Word Pair A Estimated	.065	.120
Word Pair A Post	-.003	-.068
Word Pair A Actual	-.322	.183
Word Pair B Estimated	.225	.240
Word Pair B Post	.365*	-.133
Word Pair B Actual	-.254	.055
Word Pair C Estimated	.126	.025
Word Pair C Post	-.107	-.127
Word Pair C Actual	-.043	.210
Word Pair D Estimated	.197	-.159
Word Pair D Post	-.084	.351
Word Pair D Actual	.027	.327

*Significant at the .05 level.

A bivariate correlational analysis was used to determine if there was a significant association among estimated IQ, age, grade completed, number of hours, number of tutors, and the ability to self-assess their performance on the memory for remembering Word Pairs task as dictated from the WMS for the learner group ($n = 20$). There no statistically significant positive or negative correlations which indicate that estimated IQ age, grade

completed, number of hours, and number of tutors did not predict accuracy of self-assessment abilities (Table 9). This is important because it eliminates demographic variables as potential confounding influences on the ability to self-assess cognitive tasks.

Table 9. Correlational Data for the Word Pair Task for Learner Group (n = 20)

Variables	Age	Estimated IQ	Grade Completed	Number of Hours	Number of Tutors
Word Pair A Estimated	.122	-.149	-.122	-.276	-.281
Word Pair A Post	-.058	-.125	.192	-.285	-.386
Word Pair A Actual	-.385	.032	-.060	-.129	-.168
Word Pair B Estimated	.378	.066	.039	-.400	-.067
Word Pair B Post	-.334	-.217	-.056	-.264	-.059
Word Pair B Actual	-.402	.033	.045	.104	.000
Word Pair C Estimated	.240	-.208	.294	-.231	.084
Word Pair C Post	-.006	-.315	.071	-.093	.229
Word Pair C Actual	-.055	-.065	.141	-.020	.174
Word Pair D Estimated	.341	-.349	.080	-.205	.109
Word Pair D Post	.050	-.169	.054	.053	.416
Word Pair D Actual	.072	-.120	.012	.237	.271

A bivariate correlational analysis was used to determine if there was a significant association among IQ, age, and the ability to self-assess their performance on the memory for remembering Word Pairs task as dictated from the WMS for the control group (n = 10). There was a statistically significant positive correlation ($p < .05$) between the estimated IQ and the post assessment of performance on Word Pair D, indicating that the higher the estimated IQ of the participant the more accurate they are at post assessment of their performance (Table 10). There was statistically significant positive correlation ($p < .05$) between the estimated IQ and actual performance indicating that the higher the estimated IQ the better the subject's actual performance.

A bivariate correlational analysis was used to determine if there was a significant association among IQ, age, and the ability to self-assess their performance on the memory for remembering Word List task as dictated from the WMS for the entire group ($N = 30$, Table 11). There was statistically significant negative correlation ($p < .01$) between the age and the actual performance on Word List A, indicating that the higher the age of the participant the worse they actually performed on the task. There was statistically significant positive correlation ($p < .05$) between the estimated IQ and actual performance indicating that the higher the estimated IQ the better the subject actually did on the task. As expected there was statistically significant positive correlation ($p < .05$) between the estimated IQ and actual performance on Word List B, C, D, and AA indicating that the higher the estimated IQ the better the subject actually did on the task which may also indicate that those with higher IQs were able to learn from previous exposure to the task better than those with lower IQs.

Table 10. Correlational Data for the Word Pair Task for Control Group ($n = 10$)

Variables	Age	Estimated IQ
Word Pair A Estimated	.198	.316
Word Pair A Post	.092	.150
Word Pair A Actual	-.102	.435
Word Pair B Estimated	.112	.432
Word Pair B Post	-.531	-.132
Word Pair B Actual	.190	.319
Word Pair C Estimated	-.047	.314
Word Pair C Post	-.253	-.237
Word Pair C Actual	.233	.569
Word Pair D Estimated	-.426	.046
Word Pair D Post	.230	.696*
Word Pair D Actual	.371	.646*

*Significant at the .05 level.

Table 11. Correlational Data for the Word List Task for Entire Group ($N = 30$)

Variables	Age	Estimated IQ
Word List A Estimated	.187	.150
Word List A Post	-.297	.330
Word List A Actual	-.447**	.383*
Word List B Estimated	.103	.290
Word List B Post	.215	.170
Word List B Actual	-.378	.407*
Word List C Estimated	-.141	.186
Word List C Post	-.199	.290
Word List C Actual	-.286	.386
Word List D Estimated	-.128	.158
Word List D Post	-.224	-.268
Word List D Actual	-.336	.450*
Word List AA Pre	-.022	.316
Word List AA Post	-.024	.287
Word List AA Actual	-.234	.457*
Word List E Pre	-.195	.197
Word List E Post	-.041	.198
Word List E Actual	-.147	.338

*Significant at the .05 level.
**Significant at the .01 level.

A bivariate correlational analysis was used to determine if there was a significant association among estimated IQ, age, grade completed, number of hours, number of tutors and the ability to self-assess their performance one the memory for remembering Word List task as dictated from the WMS for the learner group ($n = 20$). There were no statistically significant positive or negative correlations found in the learner group (Table 12).

A bivariate correlational analysis was used to determine if there was a significant associaton among estimated IQ, age, and the ability to self-assess their performance on the Word List task as dictated from the WMS for the control group ($n = 10$). Table 13 (p. 45) shows there was statistically significant positive correlation ($p < .05$) between the estimated

Table 12. Correlational Data for the Word List Task for Learner Group (n = 20)

Variables	Age	Estimated IQ	Grade Completed	Number of Hours	Number of Tutors
Word List A Estimated	.046	-.236	-.401	-.403	-.392
Word List A Post	-.131	.092	-.060	-.396	-.090
Word List A Actual	-.392	.113	.103	-.211	-.073
Word List B Estimated	.406	-.078	.113	.051	.242
Word List B Post	-.192	.154	.010	-.211	.028
Word List B Actual	-.334	.216	.144	-.275	-.375
Word List C Estimated	.094	-.196	-.018	-.028	.144
Word List C Post	-.186	-.112	.132	-.231	.177
Word List C Actual	-.437	.085	.217	-.184	-.166
Word List D Estimated	.074	-.326	-.111	-.007	.274
Word List D Post	-.176	-.266	-.045	-.149	.235
Word List D Actual	.389	.063	.047	-.131	.004
Word List AA Pre	.020	.118	-.091	.035	.351
Word List AA Post	-.024	.147	.031	.038	.200
Word List AA Actual	-.407	.349	.143	-.078	-.314
Word List E Pre	-.240	-.282	.025	-.255	.032
Word List E Post	-.042	-.385	.022	-.003	.320
Word List E Actual	-.269	.008	-.028	-.228	-.127

IQ and post assessment on Word List C. These findings indicate that subjects with higher estimated IQ made more accurate assessments of their performance. There was a statistically significant positive correlation ($p < .05$) between the estimated IQ and post assessment on Word List D. These findings indicate that subjects with higher estimated IQ made more accurate post assessments of their performance.. There was a statistically significant positive correlation ($p < .05$) between the estimated IQ and prediction on Word List E. These findings indicate that the subjects with higher estimated IQ made more accurate predictions of their performance. There was a statistically significant positive correlation ($p < .05$) between the estimated IQ and post assessment on Word List E. These results indicate that the subjects with higher estimated IQ made more accurate post assessments of their performance. There was statistically significant positive correlation ($p < .05$) between the estimated IQ and actual

performance on Word List E. These results indicate that the subjects with higher estimated IQ performed better than their those with lower IQs.

Table 13. Correlational Data for the Word List Task for Control Group (n = 10)

Variables	Age	Estimated IQ
Word List A Estimated	-.413	.003
Word List A Post	.094	-.047
Word List A Actual	-.085	-.239
Word List B Estimated	-.096	.155
Word List B Post	.103	.596
Word List B Actual	.135	.407
Word List C Estimated	-.153	.411
Word List C Post	.245	.644*
Word List C Actual	.478	.552
Word List D Estimated	-.056	.545
Word List D Post	.033	.692*
Word List D Actual	.078	.626
Word List AA Pre	.192	.482
Word List AA Post	-.305	.287
Word List AA Actual	.600	.342
Word List E Pre	.030	.639*
Word List E Post	.258	.762*
Word List E Actual	.391	.690*

*Significant at the .05 level.

A bivariate correlational analysis was used to determine if there was a significant correlation between IQ, age, and the ability to self-assess their performance on the ADRI task for the entire group (N = 30). As illustrated in Table 14 there was a statistically significant positive correlation ($p < .01$) between estimated IQ and the actual performance on the reading comprehension task indicating that the higher the estimated IQ the better the subject actually performed on the task.

Table 14. Correlational Data for the Reading Comprehension Task for Entire Group ($N = 30$)

Variables	Age	Estimated IQ
ADRI Estimated	-.210	.250
ADRI Post	-.060	.342
ADRI Actual	-.037	.596**

**Significant at the .01 level.

A bivariate correlational analysis was used to determine if there was a significant correlation between IQ, age, grade completed, number of hours, number of tutors, and the ability to self-assess their performance on the ADRI task for the learner group ($n = 20$). There was a statistically significant positive correlation ($p < .05$) between the number of hours completed and the actual performance on the reading comprehension task indicating that the more time spent tutoring the better the subject actually performed on the task (Table 15).

Table 15. Correlational Data for the Reading Comprehension Task for Learner Group ($n = 20$)

Variables	Age	Estimated IQ	Grade Completed	Number of Hours	Number of Tutors
ADRI Estimated	-.146	-.287	-.072	.002	.253
ADRI Post	.118	-.325	-.066	.269	.301
ADRI Actual	.305	.017	.150	.510*	.023

*Significant at the .05 level.

A bivariate correlational analysis was used to determine if there was a significant correlation between IQ, age, and the ability to self-assess their performance on the ADRI task for the control group ($n = 10$). Table 16 shows a statistically significant positive

correlation ($p < .05$) between estimated IQ and the actual performance on the reading comprehension task indicating that the higher the estimated IQ the better the subject actually performed on the task.

Table 16. Correlational Data for the Reading Comprehension Task for Control Group ($n = 10$)

Variables	Age	Estimated IQ
ADRI Estimated	.187	.304
ADRI Post	.036	.586
ADRI Actual	.175	.723*

**Significant at the .01 level.

SELF-ASSESSMENT DIFFERENCES BETWEEN GROUPS

In order to determine if there was difference between groups on the faces task, the word pair memory task, word list task and reading comprehension, a one-way analysis of variance (ANOVA) was performed.

Faces

One-Way Analysis of Variance (ANOVA) was used to determine if there was a significant difference between groups when asked to predict, post assess and actual performance on the faces memory task as assessed by the WMS. There was not a significant difference between groups when asked to predict their performance or post assess their performance. There was also not a significant difference in actual performance on the faces task. This illustrates that subjects who were diagnosed with dyslexia were not impaired in their ability to perform, predict or post-assess their performance when compared with community controls.

Word Pair Memory Task

One-Way Analysis of Variance (ANOVA) was used to determine if there was a significant difference between groups when asked to predict, post assess and actual performance on the Word Pair memory task as assessed by the WMS. There was a significant difference ($F(1,28) = 10.417, p < .05$) between the learner group with dyslexia and the control group without dyslexia when asked to post assess their performance on List D, which was the last list. According to the means (Table 17), the control group was more accurate in their performance after they had been exposed to the task than the learner group.

Table 17. Mean Scores for Word Pair Task by Group for List D

Group	Pre	Post	Actual
Learner	3.20	2.15	2.45
Control	3.40	3.40	3.60

Word List

One-way ANOVA was used to determine if there was a significant difference between groups when asked to predict, post assess and actual performance on the Word List memory task as assessed by the WMS. As illustrated in Tables 18-21, there was a significant difference between the learner group and the control group on their actual performance on Word Lists A ($F(1,28) = 12.150, p < .01$), B ($F(1,28) = 32.267, p < .01$), C ($F(1,28) = 9.730, p < .01$), and D ($F(1,28) = 20.417\ p < .05$), illustrating that the control group performed significantly better at remembering words in isolation as presented on a list than those with dyslexia.

Table 18. Mean Scores for Word List Task by Group for List A

Group	Pre	Post	Actual
Learner	3.10	1.95	1.85
Control	4.50	3.30	3.20

Table 19. Mean Scores for Word List Task by Group for List B

Group	Pre	Post	Actual
Learner	3.55	3.90	3.70
Control	4.70	4.90	5.90

Table 20. Mean Scores for Word List Task by Group for List C

Group	Pre	Post	Actual
Learner	4.20	4.65	5.05
Control	5.60	6.10	7.00

Table 21. Mean Scores for Word List Task by Group for List D

Group	Pre	Post	Actual
Learner	5.00	5.65	6.15
Control	6.50	7.40	7.90

There was a significant difference between the learner group and the control group on the Word Lists B ($F(1,28) = 8.817, p < .05$), C ($F(1,28) = 13.067, p < .05$), and D ($F(1,28) = 21.600\ p < .05$), prediction of how well they will remember the words on the list, once again indicating that the control group was more confident about their potential performance before the task was completed than the learners with dyslexia.

There was a significant difference between the learner group and the control group on the Word List A ($F(1,28) = 12.150, p < .01$),C ($F(1,28) = 14.017, p < .05$), post assessment, indicating that the control group was more confident about their performance after the task was completed than the learners with dyslexia.

Interestingly the significance disappears when the new list (List E) is introduced to interrupt the learning of the list. So when both groups were asked to predict, post assess and perform on list E there were no significant differences. Also, when list the original list (List F) was reintroduced directly after List E, the difference between groups remained insignificant. This indicates that both groups predicted and post-assessed their abilities to perform on the new list and the reintroduced list similarly. It also illustrates that the actual performance was not significantly different after learning was interrupted by a new list.

Reading Comprehension

One-way ANOVA was used to determine if there was a significant difference between groups when asked to predict, post assess and actual performance on the reading comprehension task as assessed by the Adult Diagnostic Reading Inventory (ADRI). Table 22 illustrates the mean scores for this task and there was not a significant difference between the learner group with dyslexia and the control group without dyslexia, when asked to predict their performance or post assess their performance. There was also not significant

difference between groups on actual performance. This result indicates that dyslexia does not appear to affect the subject's ability to know whether or not they understood what they read or their confidence level about what they read.

Table 22. Mean Scores for the Reading Comprehension Task

Group	Pre	Post	Actual
Learner	3.20	2.15	2.45
Control	3.40	3.40	3.60

SELF-ASSESSMENT DIFFERENCES BETWEEN GROUPS OVER TIME

One-way repeated measure ANOVA was used to determine if there was a significant difference between groups to self-assess their abilities for the memory tasks over time and after exposure to the task. The numerical values for these variables were translated into ratios in order to determine how much they were over- or underestimating their performance. This was done by subtracting the prediction or post prediction estimated score from the actual score and dividing by the actual score (A-P/A).

Word Pairs

Learners and controls were asked to estimate their performance four separate times for the Word Pair task. Repeated measure ANOVA determined that there was a significant difference ($F(1,28) = 6.880, p < .01$) for each group in their ability to self-assess their performance over time. The first trial the learner group overestimated their predicted performance by a mean of 162%. The second trial they did not overestimate by a mean of 100%. The third trial they overestimated by 87% and the fourth trial they overestimated by

78%. As the trials progressed the learners began to adjust their predictions in response to their prior experience and exposure to the task, but they still overestimated their performance. However, there was not a significant difference between the groups which indicates that dyslexia did not have an impact on estimation abilities. The control group performed similarly to the learner group. The first trial they overestimated their predicted performance by 212%. The second trial they overestimated their predicted performance by 110%. The third trial they overestimated their predicted performance by 60% and the fourth trial they overestimated their performance by 18% (Figure 2).

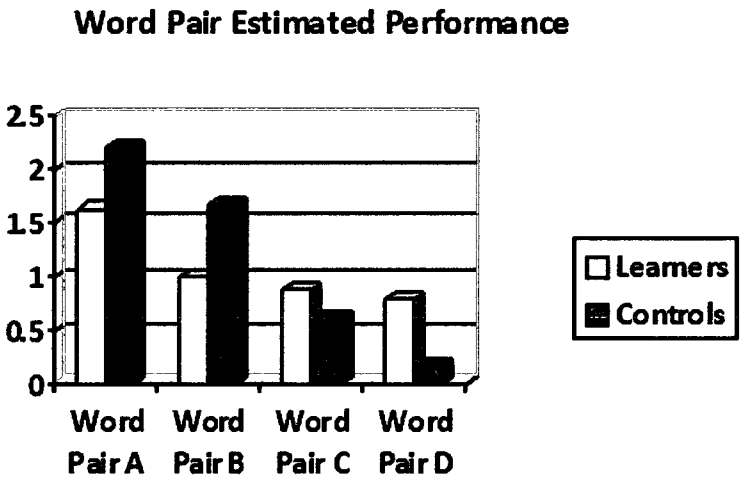

Figure 2. Word pair estimation by group over time.

Learners and controls were asked to post assess their performance four separate times for the Word Pair task. Repeated measure ANOVA determined that there were no significant differences in each group's ability to post-assess their performance over time. There were also no significant differences between the groups which indicate that dyslexia did not have an impact on post assessment abilities (Figure 3).

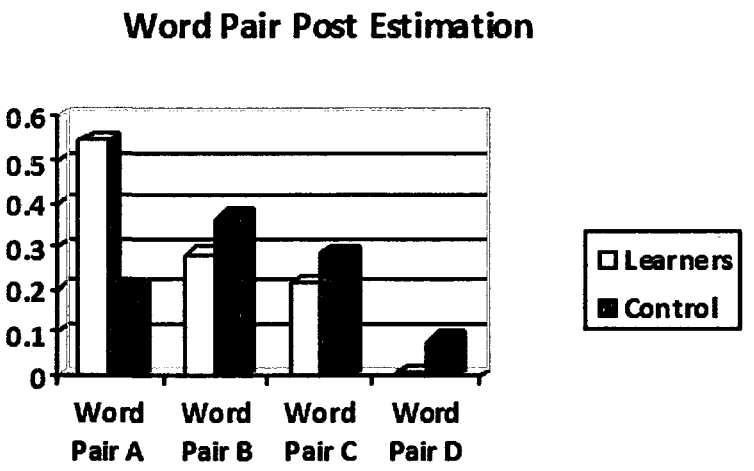

Figure 3. Word pair post estimation by group over time.

Word List Estimation

Learners and controls were asked to estimate their performance six separate times for the Word List task. List A through D required the subject to recall isolated words from the same list. List E was an intruder list of new words and List F was the original list repeated. Repeated measure ANOVA determined that there was a significant difference ($F(1,28) = 9.33, p < .01$) for each group independently indicating that each group was able to become more accurate at estimated their actual performance over time. However, there was not a significant difference between the groups which indicates that dyslexia did not have an impact on estimation abilities. For the List A the learner group overestimated their predicted performance by 83%. The List B overestimated their predicted performance by 47%. For list C they underestimated their performance by 15% and List D they underestimated their performance by 18%. The control group performed similarly, for List A they overestimated their performance by 43%. For List B they underestimated their performance by 19%. For

List C they underestimated their performance by 18%, and for List D they underestimated their performance by 12%. List E was the intruder list that consisted of new words and the learners overestimated their performance by 76%. List E was the original list that was reintroduced and the learners underestimated their performance by 4%. The controls overestimated their predicted performance by 29% on List D and underestimated their predicted performance by 7% on List E. Therefore, as the task progressed there was a statistically significant change in how each group assessed their abilities but there was no statistically significant difference between the groups and the estimation of their performance (Figure 4).

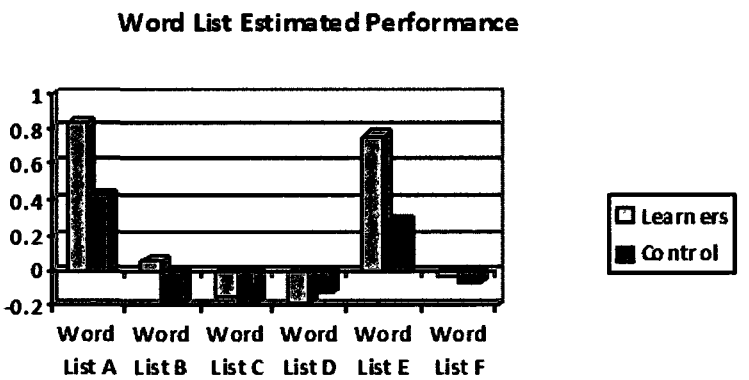

Figure 4: Word list estimated performance by group over time.

Word List Post-Assessment

Learners and controls were asked to post assess their performance six separate times, including the intruder list, for the Word List task. Repeated measure ANOVA determined that there were no significant differences for each group indicating that the groups did not make any significant change in their ability to self-assess their performance over time

(Figure 5). Additionally, there was not a significant difference between the groups which indicates that dyslexia did not have an impact on post assessment abilities.

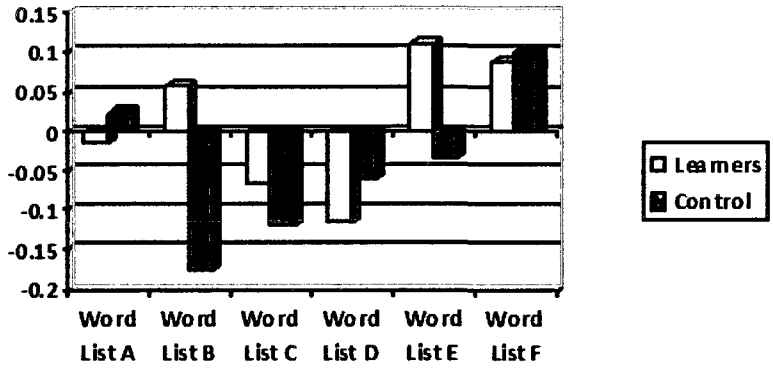

Figure 5. Word list post estimation by group over time.

DO DEMOGRAPHIC VARIABLES ACCOUNT FOR THE VARIANCE?

Lastly, an analysis of Covariance (ANCOVA) was performed which controlled for IQ and grade level, and age to determine if there were significant factors (Hinkle et al., 2003). The results were not changed and remained statistically significant indicating that IQ, grade level, and age were not related to the differences between learners with dyslexia and the control group's ability to self-assess their performance on the three cognitive tasks.

DEPRESSION

Both groups took the Beck Depression Inventory and one-way ANOVA was performed to determine if there was a significant difference of depression scores between groups. There was no statistically significant difference between groups which indicates that

during the two weeks prior to testing those with dyslexia in this study were not more likely to be depressed than the control group. There were also no statistically significant correlations between depression and any of the other variables.

CHAPTER 5

DISCUSSION

The chapter begins with a review of the problem as identified in Chapter 1. Secondly, the purpose of the study will also be revisited in the context of the results from Chapter 4. Third, a discussion of key findings and their implications will be presented. Finally, recommendations for practice and additional research will be postulated.

THE PROBLEM

Adult literacy programs struggle to retain students in their programs long enough for them to accomplish meaningful goals. This can be frustrating for several reasons. It is expensive to train volunteers to work with these learners and the amount of staff time to assess them and create their instructional plan is also costly. Therefore it is of great importance to try to discover why these students drop out prematurely. Many variables have been identified as barriers to persistence (Comings et al., 2003) but the presence of dyslexia and the inability to accurately self-assess one's cognitive abilities has not been investigated.

RESEARCH QUESTIONS

Three questions guided the study.

1. Are adults with dyslexia able to accurately assess their abilities in reading, memory when compared to good readers?

2. Do those learners who have more hours of tutoring do better on the self-assessment tests?

3. Do depressive symptoms become worse once learners begin tutoring and realize they may have overestimated their abilities?

KEY FINDINGS

Library-based adult literacy programs face a number of barriers when trying to keep learners in their programs long enough to make progress or meet their goals. Comings et al. (2001, 2003) refer to this length of time as persistence. Belzer (1998) introduced the concept of "stopping out" instead of "dropping out" when describing the inconsistent nature of adult literacy learners. She suggested that instead of thinking of those who do not accomplish a number of hours or to meet major goals as failures but to realize that these students think they are just taking a break and plan to return; however, literacy programs still measure progress by number of hours spent and goals achieved. Some of the reasons these learners may "stop out" when trying to learn to read or accomplish a goal by learning to read are childcare issues, work related issues, illness, and transportation troubles. What has not been accounted for or investigated in the education literature is the barrier of not being adequately aware of one's own cognitive abilities and if those with dyslexia are worse at assessing their performance than their non-dyslexic peers. It is theorized in this study that if a learner enrolls in a program with higher than realistic goals for themselves, they may become frustrated and prematurely leave the program when they do not make the progress they envisioned.

The ability to self-assess one's own performance on cognitive skills seems to be an elusive proficiency for even the most skilled and intellectually superior individuals. It would seem logical that a "disability" like dyslexia—which impairs a person's ability to read well—would also impair their ability to assess their performance. According to Kruger and Dunning (1999) this would fit under the theory that those who don't know, don't know that

they don't know, therefore they do not know they are making errors and subsequently overestimate their performance.

This study found that those with dyslexia did not self-assess as well on tasks that required memory of individual words, such as the Word Pair Task and the Word List task, but learners with dyslexia were as accurate as their non-dyslexia peers when asked to predict their performance both before and after the task was complete for the Faces task, which required no language skills. Furthermore, there was a significant difference in estimated IQ, as determined by the WAIS using both a language task and non-language task, between the two groups which is in direct contrast to the dyslexia literature which often states those with dyslexia have above average IQ.

Although this study did not find a correlation between the number of hours spent in a literacy program and an increase in the ability to self-assess their skills, it did note that it may be more difficult for learners with dyslexia to predict how well they will remember words. What is most interesting is that those with dyslexia and those without dyslexia did not differ in prediction or post-assessment of performance on the reading comprehension task or their actual performance on that task. This indicates that the low performing participants do know when they don't understand what they read which contradicts the studies of metacomprehension (Cromley, 2007; Glenberg & Epstein, 1985; Maki & Berry,1984). But these findings support the theory that those with dyslexia may not read the passage well but they understand the concepts in the passage, and they understand them well enough to be able to perform at the same level as those without dyslexia.

The Interaction of Demographic Data With Self-Assessment Abilities

The correlational data revealed that the only demographic variable that correlated with performance was the age of the learner, which correlated positively with the numbers of tutors they had during their enrollment at READ/San Diego. This supports the "stopping out" theory discussed earlier, because the older the student the more times they returned to the program and were rematched with a new tutor. Interestingly, estimated IQ, age, number of hours, and grade completed did not correlate with performance on any of the tasks for the learner group which supports the Dunning theory that everyone has difficulty self-assessing their performance on cognitive tasks. Dunning's monograph (2005) revealed that, in general, people are not able to accurately self-asses their abilities by either overestimating their performance on a task or underestimating their performance.

The number of hours a learner spent in a literacy program did not improve or correlate with their ability to self-assess on any of the cognitive tests. Therefore, the theory that once a poor performer is exposed to the correct answer they then improve their assessment of their performance (Caputo & Dunning, 2005; Dunning, 2005; Dunning et al., 2003) was not supported by this study. The learners were exposed to two tasks more than four times and independent of the amount of hours they spent tutoring, there was no improvement in their self-assessment abilities. This may imply that these learners need to be explicitly told they are not doing as well as they believe in order to help them become aware of when they are actually learning.

However, the number of hours spent in the literacy program did positively correlate with their actual performance on the reading comprehension test. This may indicate two things. First, the tutors and learners in this study spent most of their time on reading

comprehension instead of word attack skills. Or, as the literature suggests, the presence of dyslexia makes remembering words in isolation more difficult than reading a story that might be easier for the learner to visualize and, therefore, remember.

Group Differences

When the learner group and control group were compared using ANOVA, differences did appear for the tasks that required language skills and memory. However, when asked to self-assess their ability to remember faces, the learner group self-assessed their performance as well as the control group, which may indicate that it is easier to remember visual prompts than non-verbal language tasks.

However, when the task was to remember words in isolation there was a significant difference between the groups. For the Word List task, controls were more accurate in predicting their performance on three of the four tasks. They were more accurate in post-assessing their performance on two of four tasks and their actual performance was better on all four of the tasks. When an intrusion list was introduced and both groups had to start over with new words they both performed equally. Based on this information it appears the control group, without dyslexia, was able to monitor their performance better than those with dyslexia. This may imply that when tutoring those with dyslexia the teacher or tutor may want to give frequent and honest feedback to the learner until they can begin become more accurate at determining when they have made progress or not.

When asked to estimate their performance on the Word Pair task that required the groups to remember word pairs that did not make sense there was no difference between groups. It should be noted, however, that both groups performed poorly on the task and had

great difficulty remembering any of the word pairs. The control group without dyslexia seemed to be as inadequate in their memory ability for word pairs as the learner group.

If the theory that those who are poor performers in a certain area would overestimate their performance on that task were true (Dunning, 2005), then the learners in this study should have overestimated their performance on the reading comprehension task, due to the fact that they do not read well as determined by the initial reading assessment they received upon enrollment into the program, which qualifies them as poor performers. This did not happen. The learners with dyslexia and the control group did not differ significantly on this task. In fact, the learners were surprisingly accurate with both their predictions and post-assessments of their performance. This indicates that they are acutely aware of how they are doing when reading a passage. This is good news for tutors and literacy professionals as they can be fairly sure when a learner tells them they understood or did not understand the text, they can accept their self-assessment This may indicate that they have improved their ability to read because of the tutoring sessions. This would lead to another question for future research, can those with dyslexia and not tutors perform as well as these learners did?

Changes in Self-Assessment Over Time

Because two of the tasks (Word Pair and Word List) required the subject to be exposed to the same prompt several times, repeated measures was performed to determine if there was a difference in self-assessment over time between groups. It turns out there were differences between the groups. The WMS found the learners and the control group overestimated their predicted performance on all four trials of the task. Although both groups overestimated, they also adjusted their self-assessments and their overestimates were not as dramatically inaccurate as they became increasingly aware of their performance as the task.

This fits in nicely with the Dunning et al.'s (2003) experiments that illustrated once the poor performers (in this case both groups performed poorly) were given information about their performance such as the task being repeated, they would adjust their self-assessment to become more realistic. This was supported by the Word List task. Both groups did learn from the repeated exposure and became more accurate, about their performance. There was a significant difference between their initial self-assessment and their final self-assessment for both groups. This indicates that they either lost confidence in their ability or became more realistic about their performance—both carry different implications for practitioners and may be a question for future research.

A different pattern resulted when the Word List was presented several times. Both groups overestimated their performance for the first half of the task and then abruptly began to underestimate. This is an indication that they began confident and then lost confidence due to the fact that they did not just adjust their predictions but began to severely underestimate their performance, intimating that they may have given up trying to accomplish the task after several exposures. This may be important in relation to the issue of persistence of those with dyslexia in an adult literacy program. If they begin a program with high expectations and begin to realize they are not performing as well as hoped, do they lose the motivation to continue to try? This needs further research. However, this occurred for both groups so in this study dyslexia was not a factor in self-assessment of this task. Their predictions were significantly different from the first prompt to the last prompt, indicating that they were also learning from exposure to the task. Once again, this supports the self-assessment literature (Kruger & Dunning, 1999). Both groups did learn from the repeated exposure and became more accurate, although in this task they became less confident, about their performance.

Depression

There was no difference in depression scores between the groups indicating that learners with dyslexia in this study were not more depressed than the controls. There was no correlation in this study between depression and number of hours of tutoring. Although there is no research that measures depression in adult literacy learners it is often stated casually that they must be more depressed because they have suffered from low literacy for so long. The learners in this study did not fit that profile. In fact, some of the learners appeared quite happy about their progress and the positive changes tutoring had brought to their lives. It may be further hypothesized, based on the results of this study, that learners are able to accurately assess their performance on many of the tasks, therefore giving them the motivation to persist when they know they are achieving success.

CONCLUSION

The ability to remain in a program to accomplish goals is how most programs define persistence and success. However, it is often the case that this does not happen. This study investigated whether or not an inflated view of one's cognitive abilities might have an impact on the persistence of a learner and the number of hours a learner spends in a program which would eventually lead to frustration and drop-out. The learners in this program persisted despite the knowledge that they were not performing well on language-based and memory tasks. Their initial inflated self-assessment on the different tasks and their steady decline that was in line with the actual score illustrates that they are aware of their deficits, yet they persisted. Therefore, for this group of learners with dyslexia, self-assessment was not a factor in their persistence in the program.

This study further hypothesized that there would be a significant difference between the self-assessment abilities of adult learners with dyslexia and their non-dyslexic peers on cognitive tasks. The self-assessment literature that supported this theory stated that those that performed poorly on the tasks would overestimate their performance but once they were exposed to the task they would then become more accurate. This was the case for the language-based tasks, for both groups.

Self-assessment is an elusive skill for the general population and adult literacy learners with dyslexia and their non-dyslexic peers are no exception. They overestimated when they performed poorly and they underestimated when they received feedback via repeated exposure. It is also important to note that those with dyslexia performed as well as those without dyslexia on tasks that were non-language tasks such as the recognition of faces. Unexpectedly, those with dyslexia also performed on par with non-dyslexics when asked to remember concepts from a reading passage. This suggests that although a person has dyslexia they are still capable of understanding the concepts from a reading passage. This information could be valuable to the way tutors and teachers are trained to work with adult learners. This will be further explored in implications.

IMPLICATIONS

The results point in two directions. First, learners with dyslexia may benefit from visual stimulus while learning since they are more successful at tasks presented in that format. Second, those who work with learners with dyslexia may want to conduct periodic retention checks with their learners when teaching words in isolation in order to accurately determine if progress is being made rather than relying on their self-report—as they tend to

overestimate their memory for words in isolation. This is important because many programs teach sight words and vocabulary words with isolated words.

As stated earlier the fact that hours in the program did not correlate with an ability to more accurately self-assess implies that learners with dyslexia are either not being given accurate feedback from tutors who do not want to discourage their learners or learners with dyslexia are not able to learn from their mistakes. This leads to two different suggestions. First, literacy practitioners who train the volunteer tutors should teach them how to give honest feedback without risking the drop-out of the learner due to discouragement and slow learning. This training may even extend to the learners. Perhaps they need to be told their learning will be slow and laborious. A lesson in metacognition might be useful to teach learners with dyslexia how to determine when they have actually learned a concept or new word. It might be surmised that if they were asked if they think they made a mistake and why or why not, some insight may be gained into why they are unable or unwilling to learn after several trials.

The finding that there is no correlation between the number of hours of tutoring and depression may imply that it is time to drop the stereotype that learners with dyslexia are depressed. Perhaps they have found other areas of their life that where they have been successful or performed normally and choose to focus on those areas of their life rather than their low literacy.

RECOMMENDATIONS

Based on the findings of this dissertation the following recommendations might be made to adult literacy practitioners and tutors:

- Tutor training might include a module that spends a significant amount of time teaching tutors how to give honest and appropriate feedback that would lead to a more accurate self-assessment of the learner's word recall abilities.

- The learners with dyslexia in this study became more accurate in their self-assessment after repeated exposure to the task which simulated feedback. In response to this and the learners consistently inaccurately assessing their performance during several tasks, tutor training might also include an activity for tutors to use with learners that helps monitor their learning. This may be in the form a metacognition chart (Appendix C) where the learner can summarize what they perceive to have learned in each session and what still is not clear. The learners would need to explain what they liked about the lesson, what helped them the most during the lesson, and how they well they think they performed during the lesson. The tutor must then tell them whether they are self-assessing their performance accurately. This frequent feedback about their performance might give them the information they need on a consistent basis to begin to make more accurate assessments of their progress.

- Because the learners performed so well and were able to accurately self-assess their performance on the recognition of faces task, tutors might be encouraged to use more visuals when teaching. The incorporation of multisensory instruction should accompany most the lessons. This would require presenting all the information via an activity that is visual, auditory, and tactile with a special emphasis on the visual. An example may be to show a picture that represents a new vocabulary word. If they are learning the word *devout* they may look for a picture on the internet or in a book that depicts someone who is devout. The learners performed poorly on the word memory tasks and they performed well on the faces recognition task, therefore this instructional method may help them remember words.

- It is often presupposed that people with dyslexia who are poor or inadequate decoders or have insufficient fluency are also poor comprehenders. However, the learners with dyslexia in this study were able to adequately understand the concepts they read and they were accurate at assessing their performance. Therefore, it can be surmised that these learners have the intellectual capacity to understand concepts despite their phonological deficit. Therefore, because learners in this study were able to understand and remember the concepts from reading passages, tutors need to be reminded and explicitly taught to ask critical thinking questions rather than literal questions because their ability to decode is not an indication of their ability to understand.

- Lastly, the learners with dyslexia in this study had significant difficulty remembering words in isolation. This was a strictly auditory task which might implicate an auditory processing difficulty, a vocabulary deficit or a memory problem. This study did not make the diagnosis of what the root of this problem was but there are some instructional techniques that tutors can use that may help.

- Learners may benefit from spending some their instructional time practicing auditory drills with their tutor. One option may be to use the book *Help for Auditory Processing* (Lazzari & Peters, 1994) which gives the tutors verbal instructions to read to the learner and they must answer verbally to the instructions.

- Perhaps tutors can replicate the recognition of faces task with words instead of faces. For example, the tutor shows the learners several words and asks them to say the word and study the word for a few seconds. The second part of the task would require the learner to look at a new pack of words that contains the old words and some new words and they would have to determine if they had seen those words before. Perhaps this would help with word recognition and a by-product may be increased reading fluency.

FUTURE RESEARCH

One area of research might select a group of adult literacy learners with dyslexia as they enter a program, determine their self-assessment abilities before they begin meeting with a tutor and assess them again after 80 hours of tutoring (Comings et al., 2001), which is the time it takes to improve one grade level. This may give adult literacy practitioners the information to determine if success and progress increase self-assessment abilities as well as persistence rates. It may also begin to create a profile of a learner with dyslexia is more likely to prematurely drop-out which would then lead to a discussion about preventive measures that can be taken to lessen the chances of drop-out.

Another area of future research in the area of self-assessment and adult learners with dyslexia might investigate the difference between the ability to remember and understand concepts as opposed to isolated words. This is a very interesting area that needs to be further developed in the dyslexia research. In this study learners not only accurately assessed their performance as well as their non-dyslexic peers but performed as well as their non-dyslexic peers. So, it appears that understanding the concepts in reading is not the issue, but

remembering isolated words is an issue that set the two groups apart. Why is there a discrepancy only with the word recognition and not the reading comprehension?

Reading comprehension was surprisingly not a difficult task for the learners in this study to self-assess and they also performed quite well. Perhaps a future study would compare two groups of learners, both with dyslexia. The variable that differs will be whether or not they received tutoring. This could parse out whether it was the tutoring that helped them comprehend or if they had an innate ability to comprehend concepts.

REFERENCES

Alexander, A. W., & Slinger-Constant, A. M. (2004). Current status of treatments for dyslexia: Critical review. *Journal of Child Neurology, 19*(10), 744-758.

Askov, E. N., Kassab, C., & Weirauch, D. (2005). Women in Pennsylvania's family literacy programs: Effects of participant characteristics on extent of participation. *Adult Basic Education, 15*(3), 131-149.

Bader, L. A. (2002). *Bader Reading, Language Inventory and reader's passages.* Englewood Cliffs, NJ: Prentice-Hall.

Beck, A. T., Steer, R. A., & Brown, G. T. (1996). *Beck Depression Inventory (BDI-II) manual.* New York: Harcourt Brace.

Belzer, A. (1998). Stopping out, not dropping out. *Focus on Basics, 2*(A), 15-17.

Campbell, P. M., & Brokop, F. M. (2001). *Adult Diagnostic Reading Inventory.* Edmonton, Alberta: Grass Roots Press.

Caputo, S., & Dunning, D. (2005). What you do not know. The role played by errors of omission in imperfect self-assessment. *Journal of Experimental Social Psychology, 41*, 488-505.

Carter, T. J., & Dunning, D. (2007). Faulty self-assessment: Why evaluating one's own competence is an intrinsically difficult task. *Social and Personality Psychology Compass, 2*(1), 346-360.

Chall, J. S., Heron, E., & Hilferty, A. (1987). Adult literacy: New and enduring problems. *Phi Delta Kappan, 69*(3), 190-196.

Comings, J. (2007). Persistence: Helping adult education students reach their goals. *Review of Adult Learning and Literacy, 7,* 23-45.

Comings, J., & Cuban, S. (2000). *So I made up my mind: Introducing a study of adult learner persistence in library literacy programs.* New York: MDRC.

Comings, J., Cuban, S., Bos, J., & Porter, K. (with F. Doolittle). (2003). "As long as it takes": Responding to the challenges of adult student persistence in library literacy programs. New York: MDRC.

Comings, J., Cuban, S., Bos, J., & Taylor, C. (2001). "I did it for myself": Studying efforts to increase adult student persistence in library literacy programs. New York: MDRC.

Comings, J., Parrella, A., & Soricone, L. (1999). *Persistence among adult basic education students in pre-GED classes.* NCSALL Reports 12. Cambridge, MA: National Center for the Study of Adult Learning and Literacy.

Comings, J., Sum, A., & Uvin, J. (2000). *New skills for a new economy: Adult education's key role in sustaining economic growth and expanding opportunity.* Boston: Massachusetts Institute for a New Commonwealth.

Corley, M. A., & Taymans, J. M. (2002). Adults with learning disabilities: A review of the literature. In *Annual review of adult learning and literacy* (vol. 3, pp. 44-83). San Francisco: Jossey-Bass.

Covington, L. E. (2004). Moving beyond the limits of learning: Implications of learning disabilities for adult education. *Adult Basic Education, 14*(2), 90-103.

Creswell, J. W. (1994). *Research design: Qualitative & quantitative approaches.* Thousand Oaks, CA: Sage Publications.

Cromley, J. G. (2007). Metacognition, cognitive strategy instruction, and reading in adult literacy. In *Annual review of adult learning and literacy* (vol. 5, pp. 187-219). San Francisco: Jossey-Bass.

Darkenwald, G. (1986).. *Adult literacy education: A review of the research and priorities for future inquiry.* New York: Literacy Assistance Center.

Demonet, J. F., Taylor, M. J., & Chaix, Y. (2004) Developmental dyslexia. *The Lancet, 363,* 1451-1460.

Dunlosky, J., & Lipko, A. R. (2007). Metacomprehension: A brief history and how to improve its accuracy. *Current Directions in Psychological Science, 16*(4), 228-232.

Dunning, D. (2005). *Self-insight: Roadblocks and detours on the path to knowing thyself.* New York: Psychology Press.

Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest, 5*(3), 69-106.

Dunning, D., Johnson, K., Ehrlinger, J., & Kruger, J. (2003). Why people fail to recognize their own incompetence. *Current Directions in Psychological Science, 99*, 83-87.

Dunning, D., & Story, A. L. (1991). Depression, realism, and the overconfidence effect: Are the sadder wiser when predicting future actions and events? *Journal of Personality and Social Psychology, 61*(4), 521-532.

Eden, G. F, Jones, K. M., Cappell, K., Gareau, L., Wood, F. B., Zeffiro, T. A., et al. (2004). Neural changes following remediation in adult developmental dyslexia. *Neuron. 44*, 411-422.

Ehrlinger, J., Johnson, K., Banner, M., Dunning, D., & Kruger, J. (2008). Why the skilled are unaware: Further explorations of (absent) self-insight among the incompetent. *Organizational Behavior and Human Decision Processes, 105*, 98-121.

Feather, N. T. (1968). Change in confidence following success or failure as a predictor of subsequent performance. *Journal of Personality and Social Psychology, 9*(1), 38-46.

Fitzgerald, N. B., & Young, M. B. (1997) The influence of persistence on literacy learning in adult. *Adult Education Quarterly, 47,* 78-82.

Fletcher, J. M., Lyon, G. R., Fuchs, L. S., & Barnes, M. A. (Eds.). (2007). *Learning disabilities: From identification to intervention.* New York: The Guilford Press.

Glenberg, A. M., & Epstein, W. (1985). Calibration of comprehension. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 11*(4), 702-718).

Hacker, D. J., Bol, L., Horgan, D. D., & Rakow, E. A. (2000). Test prediction and performance in a classroom context. *Journal of Educational Psychology, 92,* 160-170.

Hacker, D. J., Dunlosky, J., & Graesser, A. C. (Eds.). (1998). *Metacognition in educational theory and practice.* Mahwah, NJ: Lawrence Erlbaum Associates.

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences.* Boston: Houghton Mifflin.

International Dyslexia Association. (2008). *What is dyslexia?* Retrieved March 31, 2008, from www.interdys.org

Kruger, J. M., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77,* 1121-1134.

Lazzari, A. M., & Peters, P. M. (1994). *Help for auditory processing.* East Moline, IL: LinguiSystems.

Lichtenstein, S., & Fischoff, B. (1980). Training for calibration. *Organizational Behavior and Human Performance, 26*(2), 149-171.

Lipnevich, A., & Beder, H. (2007). Self-esteem among adult literacy learners. *Adult Basic Education and Literacy Journal, 1*(2), 73-82.

Lyon, G. R. (1997). *Why reading is not a natural process.* Adapted from statements made before the Committee on Education and the Workforce, U.S. House of Representatives, Washington, DC, July 10, 1997.

Maag, J. W., & Reid, R. (2006). Depression among students with learning disabilities: Assessing the risk. *Journal of Learning Disabilities, 39*(1), 3-10.

Maki, R. H., & Berry, S. L. (1984). Metacomprehension of text material. *Journal of Experimental Psychology: Learning, Memory & Cognition, 10,* 663-679.

Maki, R. H., Jonas, D., & Kallad, M. (1994). The relationship between comprehension and metacomprehension ability. *Psychonomic Bulletin and Review, 1,* 126-129.

Maki, R. H., Shields, M., Wheeler, A. E., & Zacchilli, T. L. (2005). Individual differences in absolute and relative metacomprehension. *Journal of Educational Psychology, 97*(4), 723-731.

Meader, P. (2000). The effects of continuing goal setting on persistence in a math classroom. *Focus on Basics, 4*(A), 7-10.

Messemer, J. E., & Valentine, T. (2004). The learning gains of male inmates participating in a basic skills program. *Adult Basic Education, 14*(2), 67-89.

National Center for Education Statistics. (2003). *The 2003 National Assessment of Adult Literacy (NAAL).* Retrieved March 10, 2007, from http://nces.ed.gov/pubs2003/2003495rev.pdf

Office of Vocational and Adult Education. (2004-2005). *State-administered adult education program enrollment.* Retrieved March 29, 2008, from http://www.ed.gov/about/offices/list/ovae/pi/AdultEd/datatables/2004-2005enroll.xls

Pennington, B. F, Van Orden, G. C., Smith, S. D., Green, P. A., & Haith, M. M. (1990). Phonological processing skills and deficits in adult dyslexics. *Child Development. 61,* 1753-1778.

Porter, K. E., Cuban, S., Comings, J. P., & Chase, V. (2005) *One day I will make it: A study of adult student persistence in library literacy programs.* New York: MDRC.

Quigley, B. A. (1997). *Rethinking literacy education: The critical need for practice-based change.* San Francisco: Jossey-Bass.

Quigley, B. A. (2000). Retaining adult learners in the first three critical weeks: Quasi-experimental model for USE in ABE programs. *Adult Basic Education, 10*(2), 55-68.

Ross-Gordon, J. M., Martin, L. G., & Briscoe, D. B. (1990). Serving culturally diverse populations. *New Directions for Adult and Continuing Education, 48,* 5-15.

Shankweiler, D., & Fowler A. (2004). Questions people ask about the phonological processes in learning to read. *Reading and Writing, 17,* 483-515.

Shaywitz, S. E. (1996). Dyslexia. *Scientific American, 275*(5), 98-103.

Shaywitz, S. E. (2003). *Overcoming dyslexia.* New York: Random House.

Shaywitz, S. E., Mody, M., & Shaywitz, B. (2006). Neural mechanisms in dyslexia. *Current Directions in Psychological Science, 15*(6), 278-281.

Shaywitz, S. E., & Shaywitz, B. (2004). Neurological science and reading research provide the scientific knowledge we need to ensure that almost every child becomes a successful reader. *Educational Leadership. 61(6),* 6-11.

Shaywitz, S. E., Shaywitz, B.A., Pugh, K. R., Fulbright, R. K., Mencl, W. E., Shankweiler, D. P., et al. (1998). Functional disruption in the organization of the brain for reading in dyslexia. *Neurobiology, 95*(5), 2636-2641.

Shaywitz, B. A., Shaywitz, S. E., Pugh, K. R., Mencl, W. E., Fulbright, R. K., Skudlarski, P. R., et al. (2002). Disruption of posterior brain systems for reading in children with developmental dyslexia. *Society of Biological Psychiatry, 52*(2), 101-110.

Sherman, G. (2004). *Gordon Sherman on brain research and reading.* Retrieved July 12, 2005, from www.schwabLearning.org

Slosson, R. L. (2002). *Slosson Oral Reading Test.* East Aurora, NY: Slosson Educational Publications.

Sticht, T. (1982). *Evaluation of the reading potential concept for marginally illiterate adults.* Alexandria,VA: Human Resources Research Organization.

Thompkins, A. C., & Binder, K. S. (2003). A comparison of the factors affecting reading performance of functionally illiterate adults and children matched by reading level. *Reading Research Quarterly, 38*(2), 236-258.

Tracy-Mumford, F. (1994). *Student retention: Creating student success.* NAEPDC Monograph 2.Washington, DC: National Adult Education Professional Development Consortium, Inc.

Vogel, S. A., & Reder, S. (1998). *Learning disabilities, literacy, and adult education.* Baltimore, MD: Brooks Publishing.

Wechsler, D. (1999). *WAIS-III administration and scoring manual.* San Antonio, TX: The Psychological Corporation.

Wechsler, D. (2002) *The Wechsler Memory Scale—III (WMS-III).* San Antonio, TX: The Psychological Corporation.

White, W. J., & Polson, C. J. (1999). Accommodations for adults with disabilities in adult education centers. *Adult Basic Education, 9*(2), 90-103.

Wilhardt, L., & Sandman, C. A. (1988). Performance of nondisabled adults and adults with learning disabilities on a computerized multiphasic cognitive memory battery. *Journal of Learning Disabilities, 21*(3), 179-185.

Workforce Investment Act of 1998, 29 U.S.C. § 2801 (1998).

Young, M., Fleischman, H., Fitzgerald, N., & Morgan, S. 1995. *National evaluation of adult education programs*. Arlington, VA: Development Associates.

APPENDIX A

IRB CONSENT FORM FOR LEARNERS

IRB Consent Form
San Diego State University
University of San Diego
Consent to Act as a Research Subject

INVESTIGATING THE SELF-ASSESSMENT OF ADULT LITERACY LEARNERS WITH DYSLEXIA ACROSS SEVERAL COGNITIVE DOMAINS

You are being asked to participate in a research study. Before you give your consent to volunteer it is important that you read and understand the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Principal Investigator:

Kelli Sandman-Hurley, a doctoral candidate in the San Diego State University and the University of San Diego Departments of Education. Doug Fisher, Ph.D., from the Department of Education at San Diego State University is supervising this study.

Purpose of the Study:

The purpose of this study is to determine the self-assessment abilities of adults enrolled in a Library-based adult literacy program.

Study Procedures:

You will be asked to complete four standardized tests and one survey which will be administered by Kelli Sandman-Hurley. This may be audiotaped for the purposes of the scoring the tests only. You will only meet with Kelli Sandman-Hurley one time and should not take more than two hours.

Foreseeable Risks:

Other than some minor discomfort that you may feel while you are being tested, there are no other foreseeable risks involved in this study.

Benefits to the Subjects or Others:

We expect the project to benefit adult literacy by determining which enrollment and teaching strategies are most effective when enrolling and teaching adults with learning disabilities and helping them persist long enough to achieve their goals.

Procedures for Maintaining Confidentiality of Research Records:

The audio recordings and test results will be available only to the Kelli Sandman-Hurley and Dr. Doug Fisher. The tapes and test scores will be stored at the home of Kelli Sandman-Hurley for no less than three years. The consent

forms will be stored at the office of Kelli Sandman-Hurley so that the identity of the subjects in this study will be kept confidential.

Questions about the Study:

If you have any questions about the study, you may contact Kelli Sandman-Hurley at telephone number 619-992-2735, or Dr. Doug Fisher, SDSU Department of Education, at telephone number 619-594-2507.

Review for the Protection of Participants:

This research study has been reviewed and approved by both the San Diego State University and the University of San Diego Institutional Review Board (IRB). The SDSU IRB can be contacted at (940) 565-3940 or (619) 594-6622 or irb@mail.sdsu.edu and the University of San Diego IRB can be contacted at (619) 260-4553.

Research Participants' Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- Kelli Sandman-Hurley has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as the research participant and you voluntarily consent to your participation in this study.
- You have been told you will receive a copy of this form.

_____
Printed Name of Research Participant

_____ _____
Signature of Participant Date

For the Principal Investigator or Designee:

I certify that I have reviewed the contents of this form with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

_____ _____
Signature of Principal Investigator or Designee Date

APPENDIX B

IRB CONSENT FORM FOR CONTROL GROUP

San Diego State University & University of San Diego

INVESTIGATING THE SELF-ASSESSMENT OF ADULT LITERACY LEARNERS WITH DYSLEXIA ACROSS SEVERAL COGNITIVE DOMAINS.

Control Group

You are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you listen to the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Investigators: Kelli Sandman-Hurley, Principal Investigator, Education Department, San Diego State University and the University of San Diego. This research is being supervised by Doug Fisher, Ph.D., Principal Investigator, Education Department, San Diego State University

Purpose of the Study: The purpose of this study is to determine if adults with dyslexia are able to accurately predict their performance on several tasks when compared to proficient readers.

Description of Study: If you choose to participate in the study, you will be asked to take four tests that will include questions about your vocabulary, reading comprehension and memory. You will be asked questions to see how much you understand when you read and what you are able to remember. In addition, we will ask you to answer some questions about your mood and goal setting. If you choose to participate, the whole process should take about one to two hours. This study will take place in a private room in the public library.

Risks and Discomforts: You may feel uncomfortable answering some of the questions. You do not have to answer any question you don't want to and all your answers will be kept completely confidential. We will not release your name or any other that may identify you. You may end your participation in the study at any time.

Confidentiality: All information collected will be compiled into one report and no individual responses will be reported. Your name will be replaced with a number on all documents so that you will not be identified. I would like to audio record the session so that I can score the tests at a later time. However, this is not mandatory and you may request that I do not record the session. All research materials including audio recordings will be kept at my home for seven years and I will be the only one with access to them.

Benefits of the Study: We expect the project to benefit adult literacy by determining which enrollment and teaching strategies are most effective when enrolling and teaching adults with dyslexia and helping them persist long enough to achieve their goals. I cannot guarantee, however, that you will receive any benefits from participating in this study.

Voluntary Nature of Participation: Participation in this study is voluntary. If you decide to participate, you are free to withdraw your consent and stop your participation at any time without penalty or loss of benefits to which you are allowed. Your choice of whether or not to participate will not influence your future relations with the researcher, San Diego State University or the University of San Diego.

Questions: If you have any questions about the research now, please ask. If you have any questions later about the research, you may contact Kelli Sandman-Hurley at 619-992-2735. If you have any questions regarding your rights as a human subject and participation in this study, you may contact the *SDSU* Institutional Review Board at 619-594-6622 or irb@mail.sdsu.edu. You may also contact the USD Institutional Review Board at 619-260-4533.

SAN DIEGO STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
Approved By: _____
Expires: 6/12/2010

Agreement: The San Diego State University IRB and the University of San Diego IRB has approved this consent form as signified by the Committee's stamp. The consent form must be reviewed annually and expires on the date indicated on the stamp.

Your signature below indicates that you have read the information in this document and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to be in the study and have been told that you can change your mind and withdraw your consent to participate at any time. You have been given a copy of this consent form. You have been told that by signing this consent form you are not giving up any of your legal rights.

_____
Participant Name (Print)

_____ _____
Participant Signature Date

_____ _____
Signature of Investigator Date

SAN DIEGO STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
Approved By: _____
Expires: 6/12/2010

APPENDIX C

METACOGNITIVE CHART

METACOGNITIVE CHART

Date	Books/ Materials Used	Concepts Taught	Learner Response to Lesson	Tutor Response to Lesson