PROGRAM EVALUATION: FAST FORWARD AS AN INTERVENTION TO IMPROVE READING ACHIEVEMENT IN AN APPALACHIAN OHIO ELEMENTARY SCHOOL

Thesis
Submitted to
The School of Education and Allied Professions of the UNIVERSITY OF DAYTON

In Partial Fulfillment of the Requirements for The Degree of Educational Specialist in School Psychology

By
Talitha C. Malone
Dayton, Ohio
August, 2013
PROGRAM EVALUATION: FAST FORWARD AS AN INTERVENTION TO IMPROVE READING ACHIEVEMENT IN AN APPALACHIAN OHIO ELEMENTARY SCHOOL

Name: Malone, Talitha C.

APPROVED BY:

_____________________________
Susan Davies, Ed.D.
Advisory Committee Chairman
Assistant Professor
Department of Counselor Education & Human Services

_____________________________
Elana Bernstein, Ph.D.
Committee Member
Clinical Faculty
Department of Counselor Education & Human Services

_____________________________
Patricia Polanski, Ph.D.
Committee Member
Associate Professor
Department of Counselor Education & Human Services
ABSTRACT

PROGRAM EVALUATION: FAST FORWORD AS AN INTERVENTION TO IMPROVE READING ACHIEVEMENT IN AN APPALACHIAN OHIO ELEMENTARY SCHOOL

Name: Malone, Talitha C.
University of Dayton
Advisor: Dr. Susan Davies

The purpose of this study was to evaluate the effectiveness of the Fast ForWord program on the reading achievement of at-risk students attending a Title I elementary school in an Appalachian region of southern Ohio. The design of the study was a single-school program evaluation using the results of the reading portion of the state-mandated Ohio Achievement Assessment (OAA) to determine the program’s effectiveness. A pre-test/post-test comparative analysis and an independent samples $t$-test were used to assess changes in student performance. The results indicated that students did not make significant improvements in their reading achievement after participating in the Fast ForWord intervention program. Implications for future research, including the collection of additional student data to expand the participant sample as well as assessing treatment acceptability and treatment fidelity of program implementation in order to make a better determination of the effectiveness of the program, are discussed.
I would like to dedicate this to my family, especially my husband, Brandon Middleton.
ACKNOWLEDGMENTS

To my committee chair, Dr. Susan Davies, and my entire committee, who have endured this process with me: thank you for your guidance, your feedback, and your expertise. I am truly grateful!

To the superintendent and administration of the participating school: thank you for allowing me to come into your school, providing me with such helpful information, and giving me this opportunity to further my studies and experiences in this way.

To my husband, Brandon, who has been so supportive and understanding throughout this process: thank you for your care and your love and for doing what needed to be done to sustain our family during this time.

To my parents, David and Tanya Malone, who gave me life: you have always been there for me and I am so blessed that God saw fit for you two to be my parents.

To my aunt Velda, who is like a second mother to me: thank you for allowing me to live with you throughout my graduate studies, and more importantly, thank you for your wisdom and your prayers.

To the rest of my family, including my sister (Charis), brother-in-love, grandma, aunts, uncles, nephew, cousins, my second family (in-laws), and special friends: thank you for being you and thank you for being who you are to me. I love you all!

Last, but certainly not least, to my Lord and Savior: thank you for sending your son, Jesus, to die for me that I might have the opportunity to live life abundantly. Thank
you for sending the gift of the Holy Spirit to comfort, lead, and guide me. Thank you for your word that encourages me and reminds me that “I can do all things through Christ who gives me strength”. May your name be glorified in all things!
# TABLE OF CONTENTS

ABSTRACT ........................................................................................................ iv  
DEDICATION ..................................................................................................... v  
ACKNOWLEDGMENTS ...................................................................................... vi  
LIST OF TABLES ............................................................................................... xi  
CHAPTER I: INTRODUCTION ............................................................................ 1  
CHAPTER II: LITERATURE REVIEW ................................................................. 4  
  Reading as a Process ...................................................................................... 4  
    Phonemic awareness ................................................................................. 5  
    Alphabetic principle .............................................................................. 6  
    Reading fluency ..................................................................................... 7  
    Vocabulary ........................................................................................... 7  
    Reading comprehension ...................................................................... 8  
  Measurements of Reading Achievement .................................................. 9  
  Poverty and School Performance ............................................................... 11  
  Implications for High-Stakes Testing ......................................................... 13  
  Fast ForWord .......................................................................................... 15  
    How Fast ForWord works .................................................................. 16  
  Fast ForWord Research .......................................................................... 17  
  Program Evaluation as a Tool for Evaluating Interventions ....................... 24
LIST OF TABLES

Table 1  Demographics of Student Sample  ..........................................................30
Table 2  OAA Pre-/Post-Test Scores of Treatment Group Participants .................34
Table 3  Difference in Reading Scores between Groups .....................................37
CHAPTER I
INTRODUCTION

There are a variety of skills that one must master in order to achieve true reading success. Based on the Ohio Department of Education, there are five essential components, or reading standards, students should master by third grade, including: phonemic awareness, phonics, fluency, vocabulary, and comprehension. There are additional standards outlined that a student should learn by the time he or she reaches the eighth grade, which include phonemic awareness, word recognition and fluency; acquisition of vocabulary; reading process, which includes concepts of print, comprehension and self-monitoring strategies; reading applications as informational, technical and persuasive text; and, reading applications as literary text (Ohio Department of Education, 2012). These components make up the academic standards and benchmarks that each student should master before matriculating to the next grade.

Branty Elementary School (pseudonym used to protect confidentiality) is the larger of two elementary schools in the Branty City School District in Branty, Ohio. Branty is located in Appalachia Southern Ohio. As the county seat, Branty is home to 20,226 people, with a median household income (from 2007-2011) of $23,459 (U.S. Department of Commerce, 2012; Wikipedia, Branty, Ohio, 2012). The Branty City School District is the only public school district in the city and has been in existence for over 140 years. With three schools in its district, it serves approximately 2,000 students.
in grades PK-12. The student demographics are comprised of approximately 83% White students, 7% Black students, 2% Hispanic students, and 8% Multi-Racial students; the district is considered high-poverty/economically disadvantaged with a population of approximately 74%, as compared to the 43% state average. Thus, Branty Elementary School is a Title I school and receives federal and state funding (GreatSchools, Inc., 2013; National Center for Education Statistics, 2012; Ohio Department of Education, 2012; Branty City Schools, 2012; U.S. Department of Education, 2012a).

Based on the 2010-2011 school year report card (Ohio Department of Education, 2012), Branty City School District was in a Continuous Improvement designation, meeting 13 out of the 26 state indicators. The district is in its fifth year of improvement and has not met Adequate Yearly Progress (AYP). Branty Elementary was also designated in Continuous Improvement during the 2010-2011 school year, meeting only 3 out of the 10 state indicators. As a Title I and Reading First school, empirically-based research on reading and teaching techniques is used and tested to ensure that all students can read at or above grade level by the time they have completed third grade. Also, under the Reading First program (U.S. Department of Education, 2012b), a program specifically designed for grades K-3 in low-performing, high-poverty schools, Branty Elementary School follows the five essential components of reading first, in conjunction with the Ohio English Language Arts Academic Standards established by the Ohio Department of Education.

From letter/sound awareness to decoding to automatic word recognition to fluency, all of these basic reading skills are building blocks to the ultimate goal of a student’s comprehension of text (Armbruster, Lehr, & Osborn, 2001). Even if a reader is
able to complete the task of reading words in a text, he or she is not considered a fluent reader until the reading of the text is accompanied by simultaneous comprehension of what is read. It is important for students to automatically read words so that they can focus on making connections with the words in the text (Armbruster, Lehr, & Osborn, 2001). Consequently, many students are unable to maximize their reading achievement because they are lacking some of the foundational structures necessary.

The primary purpose of this study was to evaluate the impact of the Fast ForWord computerized software program (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012) as an intervention for increasing the reading achievement of at-risk students attending Branty Elementary School. The evaluation primarily examined the impact of the reading program on students’ test scores on the Ohio Achievement Assessment (OAA) by comparing students’ growth over a one-year period. The information and data collected for analysis were used to complete a summative evaluation to help determine the effectiveness of the Fast ForWord intervention program in helping to improve student reading achievement.
CHAPTER II

LITERATURE REVIEW

Reading is a skill that is necessary for a student to possess in order to be successful in all subject areas. There are those students who, for many reasons, lack or are underdeveloped in this skill area. Therefore, it is necessary to intervene in the area(s) of need. Fast ForWord (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012) is one such intervention tool that not only helps to build reading and language skills, but it also helps the development of certain cognitive skills that are used in various areas of language and learning. Throughout this chapter, the process of learning to read is discussed, as well as methods to measure reading achievement. Literature regarding factors that potentially contribute to the lack of achievement is reviewed. In addition, information that defines, describes, and reviews the Fast ForWord program—a possible solution to the problem—is discussed. This chapter will conclude with a discourse of the use of a program evaluation as a tool for assessing interventions and an identification of clients/stakeholders for this particular program evaluation.

Reading as a Process

An essential component, and one of the most important attributes, that a skilled reader possesses is the ability to quickly and effortlessly read words in text. If less effort is expended on trying to figure out what a word says then there can be more cognitive availability placed on determining what a word/s means (Learning Point Associates,
In order to master the skill of reading, a student must learn the basics of the skill (e.g. letters, sounds, words, etc.), put the basics together with fluency and automaticity, and then comprehend what is written in order to communicate it to others. According to the Big Ideas in Beginning Reading (University of Oregon Center on Teaching and Learning, 2013), there are five essential skills of early literacy. They are: phonemic awareness; alphabetic principle; accuracy and fluency with text; vocabulary; and, comprehension. As a result of the work of the National Reading Panel, a group that was formed to review research on how children learn to read in an effort to determine the most effective methods to use in order to teach children to read, these areas of reading ability were the skills identified as the “building blocks”, or essentials, for learning to read (University of Oregon Center on Teaching and Learning, 2013).

**Phonemic awareness.** What is phonemic awareness? According to a position statement from the Board of Directors of the International Reading Association (1998), there is no single definition of phonemic awareness. Phonemic awareness includes oral language and the segmentation and manipulation of sounds in speech; phonemic awareness predicts reading success (International Reading Association, 1998). Accordingly, phonemic awareness is defined as the ability to hear, identify, and manipulate the individual sounds in spoken words. It is important to note that phonemic awareness does not require knowledge of written language; it is merely auditory (University of Oregon Center on Teaching and Learning, 2013). Since letters represent sounds, phonemic awareness is necessary in learning to read in that it is the basis for translating speech into written/read language. Examples of phonemic awareness skills include blending sounds together and segmenting sounds in words (University of Oregon
Center on Teaching and Learning, 2013). According to the Ohio Department of Education’s (ODE) Early Learning Content Standards (2006), the most basic level of this skill includes matching sounds, identifying syllables, and rhyming words.

**Alphabetic principle.** The first basic reading skill that involves print is alphabetic principle. Alphabetic principle represents a methodical relationship between spoken sounds and written letters (Texas Education Agency, 2002). It takes the sounds acquired through phonemic awareness, matches it with its corresponding letter, and puts those letters together to make words—letter-sound correspondence. Alphabetic principle involves reading regular words (words that are sounded out using the most common sound for the letter presented), reading irregular words (a word that is not sounded out because the sound of the letter is not its typical sound and is unique to that word or a few words or the letter-sound correspondence has not yet been learned), and advanced word analysis (the ability to recognize letter-sound correspondence in words and producing the sounds). Letter-sound correspondence and word reading are the two skills necessary for developing alphabetic principle in kindergarten through third grades. These skills involve letter-sound and letter-combination knowledge, decoding (sound out words), automatic word recognition, and sight word reading (University of Oregon Center on Teaching and Learning, 2013).

In teaching alphabetic principle, there is no rule that determines the rate or sequence in which this skill of letter-sound relationships should be taught. It is suggested, however, that when teaching this skill, to begin instruction with letter-sound relationships that would be most beneficial to a beginning reader—such as those with high utility. For example, the letters *m, a, t, s, p* and *h* are letters commonly used. In addition, students
should learn letters whose sounds have an isolated pronunciation, such as \( f, m, n, r, \) and \( s. \) Ultimately, instruction of this skill should be consistent with the student’s current rate and level of learning (Texas Education Agency, 2002).

**Reading fluency.** Fluency is not only the ability to read a text correctly and quickly, but also effortlessly and with expression (Armbruster, Lehr, and Osborn, 2001). It is, having mastered word recognition skills, automatically reading a word without effort. In order to demonstrate fluency, one must perform the task accurately, quickly, and effortlessly. According to the Early Learning Content Standards (Ohio Department of Education, 2006), fluency is exhibited through the recognition of familiar words or environmental print, as well as through the use of phrasing, intonation, and expression in shared reading. By the end of third grade, a student should read a passage fluently with changes in tone, voice, timing, and expression to demonstrate meaningful comprehension (Ohio Department of Education, 2007).

**Vocabulary.** Vocabulary is the knowledge of the meaning of words used to communicate (Ohio Department of Education, 2006). Students gain vocabulary through reading, as well as everyday conversation with peers and adults. This is called indirect vocabulary learning. Direct vocabulary learning is learning vocabulary through specific instruction in individual words as well as word learning strategies. This type of vocabulary learning helps one learn more difficult and complex words that are not generally included in everyday experiences (Partnership for Reading, 2001).

One may infer or predict a word meaning based on the context in which it is presented; this is called contextual analysis. Morphemic analysis is when the meaning of a word is determined based on the various parts of the word (University of Oregon Center
on Teaching and Learning, 2013). As a result of this skill, students should accurately read high-frequency sight words, know meanings of words by “breaking down” the word and applying knowledge of known parts, and use resources to determine the meaning and pronunciations of unfamiliar words (Ohio Department of Education, 2007). Further, the acquisition of vocabulary also includes the use of context clues in text to establish new word meanings. Beginning in the upper elementary and junior high grades, students should also begin to infer word meaning through identification and analysis of analogies and other word relationships (Ohio Department of Education, 2001).

**Reading comprehension.** Reading comprehension is best defined as a process, rather than a product, in which the reader connects with the text in order to establish meaning from what is read (Rice, 2009). A problem-solving process, the skill of comprehension enables a reader to extract meaning from what was read; it is the essence of reading (University of Oregon Center on Teaching and Learning, 2013). The mastery of this skill affords students the ability to establish a purpose for reading and use a range of comprehension strategies to understand literary text, make predictions and give examples to support predictions, summarize information from the text, and apply self-monitoring techniques to evaluate comprehension of text (Ohio Department of Education, 2007). In addition to the four basic reading skills previously discussed, reading comprehension and the meaning one receives from the text is impacted by one’s prior knowledge, including knowledge of language and print, experience, as well as his/her engagement and purpose for reading (Rice, 2009). Furthermore, in order to master the critical skill of comprehension in reading, one must possess “the ability to read words, quickly, accurately, and effortlessly” (Adams, 1990, p. 3).
Measurements of Reading Achievement

According to the No Child Left Behind Act of 2001, assessment and testing are key functions of the accountability requirement of schools (Zucker, 2004). Assessment examines, or measures, a student’s understanding of a task and what students know and are able to do (Ohio Department of Education, 2001). It also provides helpful feedback for instructional planning and decision making. Although assessments are ultimately designed to measure knowledge and achievement, there are various types of assessments used in order to analyze this information: achievement tests; diagnostic assessments; classroom assessments; and, national and international assessments (Ohio Department of Education, 2001).

The University of Oregon Center on Teaching and Learning (2013) identifies four types of reading assessments that should be included in a comprehensive reading program. Screening assessments are the initial tool used for identifying students who may be at risk for underachievement and may need additional instructional supports. Diagnostic assessments provide more specific information and are able to target specific skills in each individual student that may be underdeveloped. Progress monitoring assessments are more frequent and are able to examine student progress of grade-level reading outcomes. Outcome assessments evaluate level of proficiency in relation to established performance levels, whether a norm-referenced assessment or criterion-based assessment. This type of assessment is typically administered at the end of the year, such as state-mandated high-stakes tests, and can also be administered as a pre/post-test as a measure of overall student growth (University of Oregon Center on Teaching and Learning, 2013).
There are a plethora of assessments available for measuring learning and achievement in all areas. Specific to reading, there are also an abundance of assessment tools available for use. One such assessment tool that was designed to measure the five Big Ideas of early literacy is the Dynamic Indicators of Basic Early Literacy Skills, or DIBELS (University of Oregon Center on Teaching and Learning, 2012). It measures the attainment of early literacy skills from kindergarten through sixth grades. As stated in its name, DIBELS measures are indicators and do not measure all aspects of early reading skills—it is simply an indicator of a student’s progress toward long-term reading ability; therefore, it is considered a general outcome measure assessment (University of Oregon Center on Teaching and Learning, 2012). DIBELS is a beneficial tool because it provides benchmark as well as progress monitoring assessments.

The Achievement Improvement Monitoring System, better known as AIMSweb, is another type of assessment tool with a general outcome measurement approach. As the “leading assessment and RTI solution in school today” (NCS Pearson, Inc., 2012), AIMSweb is a web-based curriculum-based measurement (CBM) that assesses the areas of reading, mathematics, and language arts. It assesses overall performance of foundational skills and is used for universal screening, progress monitoring, and data management for kindergarten through twelfth grades (NCS Pearson, Inc., 2012). Of all assessment areas, the reading CBM is the most consistent with the Common Core State Standards (CCSS) K-5 Reading Standards (Shinn, 2012). More importantly, in regards to identifying need, AIMSweb has established itself as a legitimate reading assessment tool for identifying students at-risk in reading achievement (Shinn, 2012).

Unlike DIBELS and AIMSweb, the STAR Reading (Renaissance Learning, Inc.,
2013) assessment does not measure early reading skills; it is a computer-based assessment that measures general reading achievement and comprehension for students in first through twelfth grades. Used for screening, progress monitoring assessment, and instructional planning, the STAR Reading assessment provides nationally norm-referenced and criterion-referenced scores (Renaissance Learning, Inc., 2010). The most recent version of the STAR assessments, STAR Enterprise, includes items that are in alignment with the Common Core State Standards (CCSS). More specifically, it assesses 36 reading skills within the following five domains: word knowledge and skills; analyzing literary text; understanding author’s craft; comprehension strategies and constructing meaning; and, analyzing argument and evaluating text. On this assessment, test items are selected for difficulty according to a student’s response to the previous item, and based on the sequence of responses, the program allows the examiner to evaluate the student’s achievement level. Results from the assessment are immediately produced and include a listing of the specific level of skills and understandings students are prepared to acquire next, which is a beneficial tool for teachers in planning future instruction (Renaissance Learning, Inc., 2013).

**Poverty and School Performance**

It is believed, amongst psychologists, child development specialists, and the like, that one’s behavior (or personality) is a result of a combination between genetics and environment (Jensen, 2009). Based on the claims of behavioral geneticists, DNA accounts for 30-50 percent of one’s behaviors, while an approximate 50-70 percent of one’s behaviors are a result of his or her environment (Saudino, 2005). In regards to genetics, DNA does affect cognition and intelligence; however, cognitive ability is very
complex, and is therefore affected by numerous factors, including socioeconomic status. Socioeconomic status has been associated with a number of indices of children's cognitive ability, including IQ, achievement tests, grade retention rates, and literacy (Jensen, 2009).

In addition to DNA (genetics), there are other factors that affect an individual’s intelligence and behaviors. The time a fetus spends in utero is a risk factor, especially when it comes to intelligence (IQ) (Jensen, 2009). Social relationships—with family, peers, and other adults—and all its complexities influence an individual’s behaviors. Typically, it begins with an individual’s core relationship with parents/caregivers, which cultivates a secure/attached individual or an unsecure/unattached individual. As a child becomes school-aged, social status and peer relationships begin to affect the way a child behaves. Furthermore, socioeconomic status plays a significant role in an individual’s behaviors. More specifically, because of the daily issues and challenges that impoverished children face, their brains have been “rewired” to become accustomed to sub-par living conditions, often developing survival instincts, which typically impairs good school performance (Jensen, 2009).

In his book, *Teaching with Poverty in Mind: What Being Poor Does to Kids’ Brains and What Schools Can Do about It* (2009), Jensen discusses several risk factors that affect children raised in poverty. Of the most significant, he lists emotional and social challenges, acute and chronic stressors, cognitive lags, and health and safety issues, and states that the combination of these factors makes it difficult for one to achieve academic and social success. By the time an impoverished child reaches school-age, more than likely, he or she will already be academically below his or her more advantaged
peers because of the limited language interactions between parent and child. Noble, Norman, and Farah (2005) conducted a study that examined the differences in cognitive functions of economically disadvantaged children compared to children of higher socioeconomic status. It was found that language and memory were the two functions that were most negatively affected. Parent-child communicative interactions help stimulate cognition in young children, and little to no exposure to spoken language, communication, grammar, etc., can result in underdeveloped cognitive, social, and emotional ability in later childhood; thus, influencing vocabulary growth, IQ, and social skills. Furthermore, a correlation between poverty and lower cognitive skills has been shown through standard IQ tests, and disadvantaged students often earn low average scores in reading, math, and science, in addition to demonstrating poor writing skills (Jensen, 2009).

Implications for High-Stakes Testing

The No Child Left Behind Act of 2001 (NCLB), which became law in 2002, has since placed additional requirements, thus adding tremendous pressure, on teachers and schools to improve academic achievement, especially in reading and mathematics. Because of this, all students in the 3rd through 8th grades are tested each year in order to measure their achievement. Schools that receive unsatisfactory test results over a number of consecutive years are subject to consequences, which include staff replacement (No Child Left Behind, 2011). As a result of these severe consequences, there are implications that these high-stakes tests narrow instruction to the skills and knowledge that are tested. Conversely, based on an article that reported interviews with 49 teachers and administrators in a Texas school district, some teachers report that the high-stakes testing
provided discussion points on ways to better instruct and educate students, thus allowing them to focus on higher order thinking skills rather than drill and practice, which in turn provided a more balanced curriculum (Yeh, 2006).

Diamond and Spillane (2002) conducted a study examining the effects of high-stakes testing in low- and high-performing schools. The study examined four public schools in the Chicago area—two of them low-performing schools and two high-performing schools—and how each of those schools took action as a result of high-stakes testing. The low-performing schools primarily consisted of minorities (African-Americans and Hispanics) and the schools were on probation, while the high-performing schools were made up of middle-income white students and the schools were not on probation. The study found that all of the schools used the information for accountability measures, but in very different ways. The low-performing schools, which were in danger of additional consequences because they were on probation, took the results as they had received them, neglecting to do any further analysis or “breakdown” of the scores, and based on what they found, they focused on helping “target students” who were close to reaching the national norms and could help increase the schools’ overall scores to get them off probation.

In contrast, the high-performing schools took the testing results and dissected them in order to find key areas in which students needed additional instruction. Further, they did not target specific students based on who would or would not achieve passing marks on the test. Rather, they used the results as a way to provide additional learning opportunities for every student. What they found in analyzing the data was that the instruction given focused more on the middle range of students with the possibility of
excluding the high and low ranges of students. As a result, the teachers altered their instruction to include a higher-ordered level of teaching and a re-teach for the middle and lower ranged students in the classroom.

**Fast ForWord**

Fast ForWord is an intervention program created by the Scientific Learning Corporation. It was created as a tool to help increase one’s ability to read and learn through brain fitness exercises and activities. Fast ForWord, and its accompanied Reading Assistant, are the result of over thirty years of research completed by Scientific Learning, specifically neuroscience research, which sought to understand how the brain learns. First developed in 1997 by four internationally renowned research scientists, Fast ForWord was developed to build the cognitive skills that are critical in one’s ability to read and learn (Scientific Learning Corporation, 2010).

The Fast ForWord products consist of sound and word exercises that work together to help develop and build an understanding of basic speech sounds and the basic cognitive skills needed for reading and learning. “The sound exercises present complex auditory information in a sub-word format, such as frequency sweeps and syllables. The word exercises present words, either in isolation or within sentences, with various levels of linguistic complexity” (Scientific Learning Corporation, 2010, p. 54). In totality, the Fast ForWord products work to build the following skills: advanced listening accuracy, auditory sequencing, auditory word recognition, English language conventions, following directions, listening accuracy, listening comprehension, phonological accuracy, phonological fluency, phonological memory, sustained attention, vocabulary, and word analysis (Scientific Learning Corporation, 2010).
**How Fast ForWord works.** The Fast ForWord reading intervention program was created as a supplement in support of the existing curriculum, and is aligned to the No Child Left Behind mandates. Fast ForWord works to develop and strengthen four main functions of the brain, including memory, attention, processing rate, and sequencing. These cognitive skills are necessary in improving critical language and reading skills, such as phonological awareness, phonemic awareness, fluency, vocabulary, comprehension, decoding, working memory, syntax, and grammar (Scientific Learning Corporation, 2010). Product studies and research have shown that by maximizing the Student Success Formula, known as CAPS (completion, attendance, participation, sequence of products), students reach the greatest academic gains (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012).

Fast ForWord is a web-based intervention that consists of various products. The Fast ForWord products include Fast ForWord Language Basics, Fast ForWord Language v2, Fast ForWord Language to Reading v2, Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Readiness, and Fast ForWord Reading (Levels 1 through 5). Completion of a Fast ForWord product is based on regularly scheduled activity, which consists of participation five days a week for 30-90 minutes per session (decided based upon the product selected and individual school schedule). Each product, depending on the schedule selected, could take as little as three weeks or up to sixteen weeks to complete, and it is suggested that a student complete at least two products in order to observe results of increased reading achievement and reading success. On average, a student can increase his or her reading skills by 1-2 grade levels.
within 8 to 12 weeks (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012).

In order to begin the intervention, a student must first take the Reading Progress Indicator (RPI), which is a pre- and post-test instrument that provides reading skill assessment. The RPI assessments—developed by Bookette Software Company—“correlate to nationally recognized normed assessments, are reliable and valid, and provide overall reading scores that can help indicate how participants are responding to Fast ForWord product use” (Scientific Learning Corporation, 2010, p. 9). The RPI pre-test establishes a student’s baseline and assigns a Fast ForWord product (e.g. Fast ForWord Reading Level 2), based on the RPI pre-test results, for that student. Once a product is assigned, a student can select three activities within that product to complete during each session. A student’s progress, including participation and completion of each activity, daily attendance, and accuracy, is monitored by the program’s Progress Tracker, and when the student has achieved a specific set of criteria while completing a product, the RPI post-test is then given to measure the student’s growth. Based on the results of the RPI post-test, the student is then given another product assignment, and the process continues (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012).

**Fast ForWord Research**

The Scientific Learning Corporation has been conducting research for years. As part of its mission, “Scientific Learning applies proven research on how the brain learns to accelerate learning” (Scientific Learning Corporation, 2012), and it uses this research to create products that will help supplement learning in schools and classrooms. The Fast
ForWord program is no different. There was research conducted to assist in the creation of the program, and research has been conducted following its inception in order to support the effectiveness of the program.

One such study investigated the use of Fast ForWord products to improve language and reading skills of students attending Title I schools. Three Title I schools (two elementary schools and one middle school) from three different districts across the U.S. participated in the Fast ForWord program from 1999-2001. Data were reported for 32 students between the ages of seven and ten from Elementary School I (ES1), 48 students (majority of who were in the first through third grades) from Elementary School II (ES2), and 141 seventh-graders (who used Fast ForWord for 11 days or more) from the middle school. All elementary students were evaluated using the Test of Language Development (TOLD) before and after using the Fast ForWord Language product. Additionally, the reading skills of students at ES1 were also assessed using two reading subtests (Letter-Word Identification and Passage Comprehension) of the Woodcock Johnson Tests of Achievement, Revised (WJ-R), which produced a Broad Reading composite score.

The students in ES1 made significant improvements in both language and reading following participation in the Fast ForWord program. According to the results of the TOLD, on average, students increased language skills by 18 points on the scaled score, moving them from low average range into the middle of the average range. Reading abilities also improved for the students of ES1, as evidenced from the Broad Reading composite score of the WJ-R. Prior to Fast ForWord, students had an average scaled score of 92; following the use of the Fast ForWord Language to Reading product, the
average score of students increased to the middle of the *average* range with a scaled score of 102. The language skills of students at ES2 were also assessed using the TOLD. Based on the results, there was a significant difference in pre- and post-test scores in student performance in each of the five Quotients (Organizing, Syntax, Speaking, Semantic, Listening); additionally, overall language ability, as measured by the Spoken Language Quotient, increased from the *below average* range to just below the *average* range of standard scores. Based on the results of the Stanford Achievement Test, Ninth Edition (SAT-9) that was given as a pre-test and then again as a post-test following Fast ForWord participation, the middle school participants tested, on average, between the 11th and 18th percentiles prior to Fast ForWord, and between the 14th and 24th percentiles following participation, with significant increases found in the reading and language scores (Scientific Learning Corporation, 2004).

In another study, four elementary schools of the Oregon City School District, located in Oregon, OH, participated in the Fast ForWord program during the 2003-2004 school year. It reported pre- and post-test data from the state tests of 36 of its third and fourth grade students who participated in the Fast ForWord program that year. In the fall of 2003, students were assessed using the Ohio Achievement Test (OAT) for third graders and the Ohio Proficiency Test (OPT) for fourth graders. All of the third grade students were below proficiency (which requires a score of at least 400) with an average score of 373, and only one of the fourth grade students was at a *Proficient* level. Following the fall assessment, students began using the Fast ForWord products and were again tested, using the OAT and OPT, during the spring of 2004. The results at that time indicated that 25 of the 36 students (69%) improved at least one performance level, and
47% (an increase from 3%) reached a level of *Proficient* or higher. Based on grade-level, one-third of the third grade students reached a performance level of *Proficient* or better. For the fourth graders, 54% achieved the *Proficient* level after Fast ForWord use (Scientific Learning Corporation, 2005).

There is also research that supports longevity, or the enduring benefits, of the Fast ForWord products. The Washington Local School District in Toledo, Ohio had 610 students from 8 of its 12 schools participate in the Fast ForWord program during the 2004-2005 and 2005-2006 schools years. For this study, Reading Edge, a software program for phonological and early reading skills, and the Ohio Achievement Test (OAT) were the assessments used to measure reading growth. The Reading Edge assessment was given to 380 students during the fall and spring of the 2005-2006 school year, before and after participation in the Fast ForWord program. The results showed an average increase of 14, from a composite score of 65 before Fast ForWord to a composite score of 79 after Fast ForWord. There were 22 students who participated in the Fast ForWord program during the 2004-2005 school year who had longitudinal results available during the 2005-2006 school year. The results showed an average composite score around 70 in the fall of 2004 (prior to Fast ForWord) with continued gains through 2006 to an average composite score around 90. Based on the results of the OAT, 41 students, who used the Fast ForWord products between the fall of 2004 and spring of 2006, achieved average gains in scaled scores from 403 to 416, with an increase in performance at or above the *Proficient* level from 46% to 70%. Longitudinal results were also reported for 21 students who had OAT test scores from 2003-2006. The majority of these students participated in the Fast ForWord program during the 2004-2005 school
year, which means the post-test scores were obtained more than a year after Fast ForWord participation had ended. The results demonstrated a significant increase in scores, from an average scaled score of 386 to an average scaled score of 406. Furthermore, prior to Fast ForWord participation there were only 19% of students performing at or above a Proficient level; however, following participation in the Fast ForWord program, the percentage of students scoring at or above the Proficient level increased to 76% (Scientific Learning Corporation, 2007).

Independent reviews and studies of Fast ForWord products have also been conducted since its inception. During the 2009-2010 school year, Dr. Jody Woodrum, Assistant Superintendent (K-5 Programs) of Bulloch County Schools in Statesboro, Georgia conducted a study examining the effects of Fast ForWord on academic achievement. Study participants were sixth grade students at a local middle school, and included all students in that grade across all ability levels regardless of special education/gifted classification or English Language Learner (ELL) status. The particular school selected had the largest population of English Language Learners in the district, and it also had a high population (65%) of minority students. Students were tested using the Northwest Evaluation Association’s Measures of Academic Progress (MAP) in the spring of 2009, participated in the Fast ForWord program for at least one semester during the 2009-2010 school year, and then in the spring of 2010, were again assessed using the MAP as the post-test. Data from 173 students were analyzed, and the results indicated that 111 students (64%) increased their percentile rank with significant gains on the reading portion of the MAP regardless of achievement level, the specific Fast ForWord product completed, or the number of days needed for completion (Woodrum, 2012).
The Schultz Center for Teaching and Leadership, in conjunction with the Duval County Public Schools, conducted a longitudinal study on Fast ForWord products (Schultz Center for Teaching and Leadership, 2009). The study was conducted over a 3-year period and examined the academic progress of struggling readers by assessing whether participation in the Fast ForWord program would result in student gains on the state-mandated reading assessment over a period of time. To determine the results, the developmental scale scores (DSS) in reading were used from the Florida Comprehensive Assessment Test (FCAT) from the spring of 2005-2008, and the scores of students who participated in Fast ForWord over the 3-year period were compared to the scores of students who did not participate in Fast ForWord. It was found that the annual gains of Fast ForWord student participants were significantly different (higher) than non-participants with combined cumulative gains of 405.07 (Fast ForWord participants) compared to 221.84 (non-Fast ForWord participants). It was also found that cumulative gains were impacted by the number of products completed by a student, with 2-3 products completed correlating to the highest gains (Schultz Center for Teaching and Leadership, 2009).

On the contrary, all research conducted on Fast ForWord has not indicated positive improvements on student achievement. One study conducted by Borman, Benson, and Overman (2009) as a field trial using eight urban schools of the Baltimore City Public School district. The design of the experiment was a within-school random assignment into the intervention and control groups across each of the eight participating schools. Participants were 2nd and 7th grade, predominately African-American, students from low socioeconomic families who were considered “at-risk” and were performing
below national averages on norm-referenced reading achievement assessments. Language and reading scores of students who participated in the Fast ForWord program (experimental group) as a supplement to regular classroom-based literacy instruction were compared to a control group of students who only received classroom instruction. Data analyzed were produced as a result of a pretest/posttest of student’s language and reading comprehension scores from the Comprehensive Test of Basic Skills, Fifth Edition (CTBS/5) Terra Nova. Based on the results, the scores obtained were statistically equivalent between the experimental group and the control group; therefore, in general, the Fast ForWord Language program did not help improve language and reading comprehension outcomes (Borman, Benson, & Overman, 2009).

There were several factors identified as potential reasons for the lack of difference found between the outcome scores of the two groups. One such factor was student scheduling, which could have impacted the attendance and completion rates of program implementation, as suggested by the program developer. A second factor identified was that the Fast ForWord Language product, whose primary research base involves use with students with speech/language/auditory difficulties, may be designed to help students with more profound learning problems rather than the more general population of educationally “at-risk” students. Another potential factor identified was related to the measurement tool used to assess outcomes. It was suggested that group-administered standardized achievement tests typically used by school districts for accountability purposes, such as the CTBS/5 used in this study, may not be sensitive enough to measure skills targeted by the Fast ForWord Language program (Borman, Benson, & Overman, 2009).
Based on the availability of current research on the Fast ForWord program, there is a need for program evaluations such as the present evaluation conducted. Excluding the research conducted by the Scientific Learning Corporation, there is minimal research that exists to either support or refute the effects of the Fast ForWord intervention program in schools. Although the research conducted by Scientific Learning provides valid data in regards to the implementation and outcomes of the Fast ForWord program, it is suggested that the program could be considered more reliable if there was a wider range of independent research presented to researchers and/or potential program users.

**Program Evaluation as a Tool for Evaluating Interventions**

A program evaluation is a tool utilized across various career fields and can be very beneficial in decision-making processes. An evaluation can be formative or summative. A formative evaluation is an evaluation in which the primary objective is to provide information for the improvement of the program that is evaluated. In this type of evaluation, the information provided helps to judge the merit of a part of a program. Conversely, a summative evaluation provides information that aids decisions or judgments in regards to adopting a program, continuing a program, or expanding a program (Fitzpatrick, Sanders, & Worthen, 2004).

In education, it is important to have programs and resources available to students and those who instruct them—and those programs should be efficient and effective. The term “program” refers to “a specific set of education practices or interventions that are thought to have an impact on a given set of education outcomes” (U.S. Department of Education, 2003). The basic purpose of an education program evaluation is to: 1) assess whether the program provides the assistance to students it is designed to perform, and 2)
determine if developing programs are creditable and warrant expansion to broader schools/settings (U.S. Department of Education, 2003).

Program evaluations of school-based intervention programs can be implemented in classrooms or schools. Typically, such evaluations involve comparisons of schools and/or students who receive the intervention to those who do not. In order to complete a solid program evaluation, data on relevant outcomes as well as background attributes of students and schools should be collected. Further, in order to assess the effectiveness of the intervention, baseline (pretest) data should be collected prior to the start of the intervention as well as follow-up (posttest) data once the intervention has taken place (ACT, Inc., 2007).

ACT, Inc. (2007) provides five suggestions for evaluating intervention programs, based on its analysis of the GEAR UP intervention program. The first is to tailor the analysis to the intervention, meaning that the tool used to measure outcomes should relate to the intervention. For instance, achievement test scores may be the most appropriate tool to analyze outcomes of interventions targeting specific academic skills. The second suggestion is to follow students across time, thus allowing them ample opportunity to improve. Another suggestion is to track students’ participation level in the program, which helps to isolate contributing factors when evaluating the effectiveness of the program. In order to trace the effects of the intervention over time, you should track students’ long-term outcomes. The final suggestion provided is to use a control group comprised of students with similar demographics (ACT, Inc., 2007).

Clients and Stakeholders

Identifying stakeholders and evaluation audiences are essential when conducting
an evaluation in order to ensure that the evaluation addresses proper issues/concerns. Further, identifying audiences outside of the immediate and “obvious” stakeholders can help the evaluator consider audiences with whom to share evaluation results in the future. An evaluation is adequate if the information collected and reported is disseminated to all justifiable evaluation audiences. “An evaluation of a school program that answers only the questions of the school staff and ignores questions of the school board, parents, students, and relevant community groups is simply a bad evaluation” (Fitzpatrick, Sanders, & Worthen, 2004, p. 200). Therefore, in conducting the present program evaluation, an Evaluation Audience Checklist (see Appendix B) was utilized in the identification process of clients and stakeholders (Guba & Lincoln, 1981).

The primary stakeholders for this program evaluation included the district superintendent, curriculum supervisor, school principal, program facilitators, teachers, students, and parents. The role of the superintendent, curriculum supervisor, and school principal was to read and discuss the results of the program evaluation data in order to identify strengths and weaknesses of the Fast ForWord program, but more importantly, to determine its effectiveness in order to make decisions regarding continued implementation of the program. The program facilitators should read the evaluation and have access to information that indicates the results of the work performed through program implementation. The teachers, students, and parents will have access to the program evaluation to determine whether the intervention program was beneficial in improving reading achievement.

Conclusion

These include attention and focus, short- and long-term memory, sequencing and processing, problem-solving, perseverance and the ability to apply skills in the long term, social skills, and hopefulness and self-esteem. In his work, Jensen also acknowledged that poverty, or growing up in poverty, could negatively affect these various skills. This is significant to the current evaluation because of the high percentage of low-income students that attend Branty Elementary School. As previously indicated, Branty Elementary School, and the district as a whole, has performed below a satisfactory level on high-stakes tests and has struggled to meet state standards. Could it be that the performance of its students is impacted by the negative repercussions that arise from living in poverty?

As an intervention, Fast ForWord works to build a student’s memory, attention, processing rate, and sequencing—all skills that Jensen considers necessities. In its totality, Fast ForWord was created to develop and strengthen skills necessary for learning success. Perhaps, Fast ForWord is the type of intervention tool needed in schools, such as Branty Elementary School, that have a high population of low-income students who are in need of an intervention to help develop these lacking skills. Nevertheless, it is not so much about what intervention is used, but more so how the intervention tool is used to increase student achievement.

As high-stakes tests and other assessments are used to monitor progress, it would benefit all involved to use the information obtained from these assessments to develop successful students. It is not enough to simply give these assessments for the sake of following the mandates set by local and federal governments. These assessments should be used to indicate a need and then, once the need is identified, it is imperative to create
and implement a plan, including the use of intervention tools such as Fast ForWord, that will help build skills and result in academic success for all students.
CHAPTER III

METHODOLOGY

This study was conducted as a program evaluation of the Fast ForWord reading program. The following sections in this chapter describe the study participants and the setting used for the intervention. This chapter also provides a description of the design of this study as well as a detailed description of the study’s procedures. This will be followed by a description of the intervention materials, measures used, and data analysis.

Participants and Setting

Participants. The sample in the present study included (N = 78; treatment group = 39, control group = 39) students in the 4th and 5th grades. The treatment group included students who participated in the Fast ForWord intervention program; the control group was comprised of students who did not receive Fast ForWord intervention. Student participants identified as “at-risk” in reading, based on the three-tier problem-solving model approach, were selected to participate in the Fast ForWord intervention program. These “at-risk” students were those whose reading performance, based on diagnostic screening, fell within the bottom fifteen percent of scores, indicating a need for supplemental instruction/intervention. Of the “at-risk” students in the treatment group, 26 of the 39 student participants were identified for special education services and had an Individualized Education Plan (IEP) in reading. In order to create groups that were comparable, students who were identified for special education services were also
selected for the control group. Fourteen of the 39 students in the control group had an IEP in reading. This program evaluation focused on grades 4 and 5 due to the fact that these were the students who would have at least two years (2010-2011 and 2011-2012 school years) of high-stakes testing results and be enrolled at the participating school through the completion of the present study.

Table 1

Demographics of Student Sample

<table>
<thead>
<tr>
<th>Students</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
<td>59.0</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>41.0</td>
</tr>
<tr>
<td>Grade Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>46</td>
<td>59.0</td>
</tr>
<tr>
<td>Grade 5</td>
<td>32</td>
<td>41.0</td>
</tr>
<tr>
<td>Educational Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Education</td>
<td>40</td>
<td>51.3</td>
</tr>
<tr>
<td>Non-Special Education</td>
<td>38</td>
<td>48.7</td>
</tr>
<tr>
<td>Experimental Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Group</td>
<td>39</td>
<td>50.0</td>
</tr>
<tr>
<td>Control Group</td>
<td>39</td>
<td>50.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>78</td>
<td>---</td>
</tr>
</tbody>
</table>
**Setting.** The Fast ForWord intervention was implemented at Branty Elementary School beginning October 17, 2011 and continued throughout the school year, ending on May 25, 2012. The intervention was implemented for 30 minutes daily in a computer lab designated for the Fast ForWord intervention. Students sat individually at a computer equipped with headphones and worked at their own pace to complete his or her 30-minute session.

**Research Design**

This project was conducted as a summative program evaluation; this type of evaluation provides information to aid in the decision-making process of adopting, continuing, and/or expanding a particular program. The program evaluated for this study was the Fast ForWord program, an online reading intervention program created by the Scientific Learning Corporation. The evaluation examined the effects of the Fast ForWord intervention program on reading achievement at Branty Elementary School using existing data from the reading portion of the Ohio Achievement Assessment.

**Procedures**

**Phase I: IRB approval.** Upon approval of the thesis proposal from the thesis advisory committee, an application was submitted to the Institutional Review Board (IRB) at the University of Dayton, a committee for the protection of human subjects in research, for further approval.

**Phase II: Recruitment.** Once approval was obtained from the Institutional Review Board (IRB), a control group was established. Existing student data (e.g. grade, educational placement, etc.) were reviewed in order to compile a control group that was similar in demographics to the treatment group. The control group was formed in order to
compare outcome data of the two groups; the control group, however, was comprised of “at-risk” as well as typical readers. The treatment and control groups were comprised of 4th and 5th grade students. The students selected as the treatment group were those who participated in the Fast ForWord intervention program during the 2011-2012 school year and had Ohio Achievement Assessment (OAA) results in reading for both the 2010-2011 and 2011-2012 school years. The students selected as the control group also had OAA results in reading for the 2010-2011 and 2011-2012 school years, but students in the control group did not participate in the Fast ForWord intervention program.

**Phase III: Baseline.** The results of the reading portion of the Ohio Achievement Assessment (OAA) from the 2010-2011 school year were used as the baseline data to examine student outcomes. An existing data set containing the OAA results was obtained from the school principal via the Ohio Department of Education.

**Phase IV: Intervention.** The Fast ForWord intervention was implemented during the 2011-2012 school year. The existing intervention data from that time period was used for the present evaluation.

**Phase V: Post-Intervention data collection.** The results of the reading portion of the Ohio Achievement Assessment (OAA) from the 2011-2012 school year were used as the post-intervention data to measure student outcomes. An existing data set containing the OAA results was obtained from the school principal via the Ohio Department of Education.

**Materials**

**Intervention materials.** The Fast ForWord intervention program is a computerized software program developed by Scientific Learning. The software package
was downloaded onto each of the computers in the appropriate computer labs. The Scientific Learning program package included the Fast ForWord Language/Literacy Series and the Fast ForWord Reading Series. Each student was assigned to a specific product (starting point) based on his or her results obtained on the Reading Progress Indicator, which is the baseline assessment used on Fast ForWord.

**Measures.** The results from high-stakes testing were used to determine the outcome of the intervention. Specifically, an existing data set containing test scores from the Ohio Achievement Assessment (OAA) over a two-year period was used to measure change in students’ reading achievement scores.

All information gathered and data collected were compiled and entered onto various computer software systems (including Microsoft Word, Microsoft Excel, and SPSS), and were stored on a password protected hard drive. Any hardcopy materials were kept in a securely locked file cabinet. All data were kept and stored for the duration of the intervention, and were destroyed within six months of the completion of this project.

**Data Analysis**

Results were analyzed using: 1) the growth (or lack of) of reading achievement for each student who participated in the Fast ForWord program, and 2) the difference in the average gains in reading achievement between students who participated in the Fast ForWord program and those who did not participate in the program. A pre-test/post-test design was used to analyze the reading achievement outcomes for the students who participated in the Fast ForWord program. To analyze the difference in the average gains of intervention participants compared to control participants, an independent samples $t$-test was used with a $p$-value of .05 for identifying statistical significance.
Sixty-seven 4th and 5th grade students used the Fast ForWord intervention products during the 2011-2012 school year at Branty Elementary School (pseudonym used to protect confidentiality). There were a number of students who participated in the Fast ForWord program whose Ohio Achievement Assessment (OAA) scores from both the 2010-2011 and 2011-2012 school years were not available for various reasons, such as transiency and/or relocation. Therefore, the results of this evaluation were comprised of 39 students’ performance on the reading portion of the OAA who had results available for pre- and post-test comparison of Fast ForWord participation. Table 2 provides the OAA reading outcomes for the 2010-2011 (pre-test) and 2011-2012 (post-test) school years for the 39 students included in the treatment group.

Table 2

OAA Pre-/Post-Test Scores of Treatment Group Participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>373</td>
<td>398</td>
<td>25</td>
</tr>
<tr>
<td>Student 2</td>
<td>376</td>
<td>403</td>
<td>27</td>
</tr>
<tr>
<td>Student 3</td>
<td>429</td>
<td>390</td>
<td>-39</td>
</tr>
<tr>
<td>Student</td>
<td>Score 1</td>
<td>Score 2</td>
<td>Score 3</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Student 4</td>
<td>398</td>
<td>429</td>
<td>31</td>
</tr>
<tr>
<td>Student 5</td>
<td>385</td>
<td>353</td>
<td>-32</td>
</tr>
<tr>
<td>Student 6</td>
<td>399</td>
<td>442</td>
<td>43</td>
</tr>
<tr>
<td>Student 7</td>
<td>394</td>
<td>353</td>
<td>-41</td>
</tr>
<tr>
<td>Student 8</td>
<td>389</td>
<td>429</td>
<td>40</td>
</tr>
<tr>
<td>Student 9</td>
<td>391</td>
<td>418</td>
<td>27</td>
</tr>
<tr>
<td>Student 10</td>
<td>398</td>
<td>427</td>
<td>29</td>
</tr>
<tr>
<td>Student 11</td>
<td>386</td>
<td>411</td>
<td>25</td>
</tr>
<tr>
<td>Student 12</td>
<td>429</td>
<td>413</td>
<td>-16</td>
</tr>
<tr>
<td>Student 13</td>
<td>408</td>
<td>439</td>
<td>31</td>
</tr>
<tr>
<td>Student 14</td>
<td>396</td>
<td>413</td>
<td>17</td>
</tr>
<tr>
<td>Student 15</td>
<td>405</td>
<td>369</td>
<td>-36</td>
</tr>
<tr>
<td>Student 16</td>
<td>415</td>
<td>382</td>
<td>-33</td>
</tr>
<tr>
<td>Student 17</td>
<td>394</td>
<td>435</td>
<td>41</td>
</tr>
<tr>
<td>Student 18</td>
<td>373</td>
<td>411</td>
<td>38</td>
</tr>
<tr>
<td>Student 19</td>
<td>413</td>
<td>369</td>
<td>-44</td>
</tr>
<tr>
<td>Student 20</td>
<td>398</td>
<td>379</td>
<td>-19</td>
</tr>
<tr>
<td>Student 21</td>
<td>396</td>
<td>395</td>
<td>-1</td>
</tr>
<tr>
<td>Student 22</td>
<td>432</td>
<td>424</td>
<td>-8</td>
</tr>
<tr>
<td>Student 23</td>
<td>385</td>
<td>376</td>
<td>-9</td>
</tr>
<tr>
<td>Student 24</td>
<td>427</td>
<td>398</td>
<td>-29</td>
</tr>
<tr>
<td>Student 25</td>
<td>406</td>
<td>378</td>
<td>-28</td>
</tr>
<tr>
<td>Student 26</td>
<td>394</td>
<td>384</td>
<td>-10</td>
</tr>
<tr>
<td>Student 27</td>
<td>424</td>
<td>363</td>
<td>-61</td>
</tr>
<tr>
<td>Student 28</td>
<td>409</td>
<td>395</td>
<td>-14</td>
</tr>
<tr>
<td>Student 29</td>
<td>419</td>
<td>398</td>
<td>-21</td>
</tr>
<tr>
<td>Student 30</td>
<td>433</td>
<td>390</td>
<td>-43</td>
</tr>
<tr>
<td>Student 31</td>
<td>392</td>
<td>429</td>
<td>37</td>
</tr>
<tr>
<td>Student 32</td>
<td>404</td>
<td>414</td>
<td>10</td>
</tr>
<tr>
<td>Student 33</td>
<td>387</td>
<td>420</td>
<td>33</td>
</tr>
<tr>
<td>Student 34</td>
<td>416</td>
<td>372</td>
<td>-44</td>
</tr>
<tr>
<td>Student 35</td>
<td>389</td>
<td>387</td>
<td>-2</td>
</tr>
<tr>
<td>Student 36</td>
<td>378</td>
<td>355</td>
<td>-23</td>
</tr>
<tr>
<td>Student 37</td>
<td>404</td>
<td>375</td>
<td>-29</td>
</tr>
<tr>
<td>Student 38</td>
<td>404</td>
<td>392</td>
<td>-12</td>
</tr>
<tr>
<td>Student 39</td>
<td>378</td>
<td>387</td>
<td>9</td>
</tr>
<tr>
<td>Mean</td>
<td>400.67</td>
<td>397.31</td>
<td>-3.36</td>
</tr>
</tbody>
</table>

Of the 39 students in the treatment group, only 16 students increased their OAA reading scores following the Fast ForWord intervention. The average pre-test score for the treatment group participants was 400.67. Following the Fast ForWord intervention, the average (post-test) score decreased to 397.31; yielding a mean difference of -3.36. A paired samples *t*-test was conducted to compare the pre-test and post-test mean scores of the treatment group. There was no significant difference found between the pre-test mean (*M*=400.67, *SD*=16.78) and the post-test mean (*M*=397.31, *SD*=24.84) scores [*t*(38) =
.69, \( p = .495 \)]. These results indicate that the Fast ForWord intervention did not have an effect on students’ OAA reading scores.

In addition to the treatment group, a control group of scores from 39 students who did not participate in the Fast ForWord program were gathered. The pre-test mean (average) score for the control group was 404.21 and the post-test mean score was 408.95; that was a mean difference of 4.74. A paired samples \( t \)-test was conducted to compare the pre-test and post-test mean scores of the control group. There was a significant difference found between the pre-test mean (\( M=404.21, SD=18.48 \)) and the post-test mean (\( M=408.95, SD=18.93 \)) scores \( t(38) = 1.99, p = .054 \).

In addition to within group comparisons, comparisons were also made between groups. The mean scores of the treatment group were compared to the mean scores of the control group. Table 3 provides the results of the mean scores of each of the groups.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Treatment Group</td>
<td>400.67</td>
<td>16.78</td>
</tr>
<tr>
<td>Control Group</td>
<td>404.21</td>
<td>18.48</td>
</tr>
</tbody>
</table>
An independent samples $t$-test was conducted in order to compare the outcomes of the OAA reading scores of the two groups. The 39 students in the treatment group had a pre-test mean of 400.67 ($SD=16.78$). The 39 students in the control group had a pre-test mean of 404.21 ($SD=18.48$). The difference in pre-test means was -3.54. The results of the analysis found no significant difference in the means of the pre-test scores between the treatment group and the control group [$t(76) = .885, p = .38$]. This indicated the groups had similar reading skills at the beginning of the study.

According to the treatment and control groups’ means, there was a decrease in the treatment group’s average score while the control group’s average score increased. The 39 student participants in the treatment group had an average difference from pre-test to post-test scores of -3.36; the average difference from pre-test to post-test of the control group’s scores increased by 4.74. An independent samples $t$-test was conducted to compare the post-test scores of the treatment group ($M=397.31, SD=24.84$) and control group ($M=400.67, SD=16.78$). The results indicated a significant difference between the mean scores of the two groups [$t(76) = .233, p = .023$]. These results implied that the Fast ForWord intervention was not effective.
CHAPTER V
DISCUSSION

This program evaluation was conducted to assess the effectiveness of the Fast ForWord intervention program at Branty Elementary School (pseudonym used to protect confidentiality). This section of the evaluation will review the purpose of this study and discuss its major findings. It will also include an interpretation of the results as well as limitations of the study. This chapter will conclude with a discussion of implications for future research.

Review of Purpose and Major Findings

The Scientific Learning Corporation put many years of research into developing the Fast ForWord intervention program. When creating this program, it sought to produce a program that would stimulate the brain in order to increase one’s language, reading, and overall learning potential (Scientific Learning Corporation, 2012). Because of its support of existing curriculum, its alignment with No Child Left Behind mandates, and its noted successes, the district administrator for Branty Elementary School decided to implement the Fast ForWord intervention for struggling readers. In conjunction with the primary stakeholders of this evaluation, it was decided that the purpose of this study was to examine the impact of the Fast ForWord intervention program on reading achievement of at-risk students attending Branty Elementary School by analyzing students’ test scores on the reading portion of the Ohio Achievement Assessment (OAA) over a two-year period.
The results of this program evaluation indicated that the Fast ForWord intervention program was not effective in its overall improvement of students’ reading achievement, as noted by the outcome results of the Ohio Achievement Assessment (OAA) test scores.

**Interpretation of Results**

Based on the results of the study, the intervention was not effective in increasing reading outcomes on the Ohio Achievement Assessment (OAA) for student participants. In order to determine the overall effectiveness of the program, when examining the average of scores of student participants, there was a decline of 3.36 when comparing the pre-test and post-test OAA reading scores. Only 16 of the 39 students (41%) who participated in the Fast ForWord intervention program increased scores from pre-test to post-test. Of the 16 students who improved their scores, 12 were 4th graders and 4 were 5th graders; 15 of those students who showed improvement were students with a current Individualized Education Plan (IEP).

When the post-test scores of students who participated in the Fast ForWord intervention program were compared to the post-test scores of non-participants, the difference in scores was statistically significant. The average scores of non-intervention participants demonstrated a 4.74 point increase between the pre-test and post-test scores. Twenty-four of the 39 students (62%) in the control group increased their scores without the use of the Fast ForWord intervention—one-third as many students who showed improvement as compared to the treatment group.

The results found in this study indicated that the Fast ForWord program was not effective in increasing OAA reading scores for student participants. This inference is the result of a decrease in the average scores (from pre-test to post-test) in the treatment
group combined with the increase in the average scores (from pre-test to post-test) in the control group. It is important to note, however, that there may have been other contributing factors to the changes in the mean scores of the control group. The control group was formed to be a comparable group to the treatment group. Therefore, there were students within the control group who had been identified for special education services. Special Education is, in itself, a form of intervention that provides supplemental instruction as well as classroom and testing accommodations and modifications, based on the need of the student. Thus, it is unknown the extent of services that each student received and the subsequent impact of these services on reading achievement.

With regard to the treatment group, a major reason for the lack of improvement may have been because of limitations in the Fast ForWord program design. This program may be limited by 1) time/contact hours of the program, 2) facilitator ownership/“by-in”, and 3) student “likeability” of the program. The time/contact hours required of Fast ForWord may be a limitation to the overall program. It is suggested that Fast ForWord be used every day for 30-90 minutes per session, depending on the product used. In addition, each product could take up to 16 weeks to complete (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012). This could be a huge burden of time and/or resources for users. Some schools may not have the flexibility in their schedules to allow for daily interaction and/or the duration of time needed each day to complete a session. Some schools may not have the space to accommodate each of their Fast ForWord participants each day. There are also those schools which, if they have the time and the space, may not have the available staffing resources to ensure that someone is available to provide access for use to participants. This limitation may have impacted the current
study in regard to contact hours. In general, students in this study were assigned to participate in the intervention every day for 30 minutes. However, if a student took a break during an exercise or did not complete the allotted time of each exercise assigned for the day, his/her contact hours (i.e. participation time) is incomplete, and could therefore alter the effectiveness of the intervention.

Another limitation to the program may be facilitator ownership/“by-in”. The Fast ForWord program is a program that requires close monitoring for optimal growth. Each session, the facilitator/teacher should monitor students’ participation and completion of the assigned tasks. The facilitator/teacher should also monitor student success rate of each product to ensure that students are receiving supplemental instruction in their trouble areas and to ensure that students are assigned to the appropriate product based on their level of ability. The level of monitoring in this study is uncertain as treatment integrity was not assessed. Nonetheless, close and consistent monitoring of the program is necessary in order for the program to be effective. Thus, if the facilitator/teacher takes ownership and is excited and motivated about the program, there is a greater likelihood that the students will also show ownership and be excited and motivated about the program.

Student “likeability” of the Fast ForWord program may also be a limitation to the program. The Fast ForWord products are set up in a gaming format. Some of the animations and structure of the games may seem too child-like, and therefore may be less attractive to older/more mature users. This could affect students’ participation and completion rates, and as a result, could affect the overall effectiveness of the program.
Student “likeability” via treatment acceptability data was not collected for the current study.

Specific to this evaluation, treatment fidelity data was not collected for research analysis. Without this data it is not possible to determine whether the intervention was implemented as intended by the Scientific Learning Corporation. This, too, could be a contributing factor in the results, which demonstrated a lack of improvement in the student participants in the treatment group. If the intervention was not effectively implemented (with a high level of treatment integrity), this may have clearly impacted the intervention outcomes demonstrated.

Limitations of the Study

There were a number of potential limitations to this study. This study was limited by 1) the size of the sample, 2) the population makeup of the sample, 3) human connection for learning, 4) student transiency, and 5) the time frame of the evaluation. The size of the sample in the present study was contingent upon which students had Ohio Achievement Assessment (OAA) reading scores available for the years being compared. Of the 67 4th and 5th grade students who participated in the Fast ForWord program at Branty Elementary School, only 39 students had OAA reading results for the 2010-2011 (pre-test) and 2011-2012 (post-test) school years and could be included in the treatment sample for this study.

The population of the sample could also be a limitation of this study. The Fast ForWord participants were selected according to placement in reading based on the three-tier problem-solving model approach. Intervention participants were considered “at-risk” in reading; therefore, the likelihood of an intervention participant having a
disability/Individualized Education Plan (IEP) was potentially greater than for a student who was not considered “at-risk” and did not participate in the Fast ForWord intervention program. In order to make the student sample more balanced, the control group also included students who had been identified with a disability and who currently had an IEP in reading. Among the sample population, 26 students in the treatment group and 14 students in the control group were identified for special education and had an IEP for reading.

An additional limitation to this study was (the lack of) learning through human connection. Human connection for learning involves the concept that positive human interaction promotes brain growth – learning through human connection. The brain is an organ designed to learn through shared experiences, and learning relies on changes in the brain’s structural design and its chemical makeup (Cozolino & Sprokay, 2006). The impact of technology on learning varies because human beings vary. Technology can have positive effects and be a very beneficial tool for learning and development. However, if allowed, technology can also become a human barrier, minimizing quality interaction with other human beings, and more specifically to the classroom, separating learners from each other and their teachers.

Various animal studies have found that animals require positive social interaction and nurturance to learn, which implies that face-to-face interaction and instruction is more effective for learning. A study conducted by Alexander Astin (1993), in which he surveyed college students from more than 200 four-year colleges and universities, found that student-to-student interaction as well as student-to-teacher interaction were the most significant influences on student academic and personal development and overall college
success. In a more recent *New York Times* article, “In Classroom of the Future, Stagnant Scores” (2011), Richtel described an Arizona school district that, despite spending millions of dollars on technology in classrooms, reading and math scores showed no growth.

Fast ForWord is a technological (computerized) intervention that does not require students to rely on or interact with other students for completion. While the students in the treatment group were spending time (in isolation) completing their Fast ForWord intervention sessions each day, students in the control group were participating in other reading centers, which included face-to-face interaction with the teacher as well as other students. According to the research, the students in the control group were at an advantage because their brains could be stimulated by the positive face-to-face interactions they were receiving; thus, providing a better environment conducive for learning through positive social interactions and shared experiences for students in the control group, and leaving the students in the treatment group dependent upon only themselves (and the computer) to facilitate the best possible learning experience.

Student transiency may be another limitation to this study. Based on Fast ForWord recommendations, a student should complete at least two products in order to observe increased levels of reading achievement (Scientific Learning Corporation, 2010; Scientific Learning Corporation, 2012). The Fast ForWord intervention was implemented at Branty Elementary School from October 17, 2011 through May 25, 2012. In this district, students frequently move in and out of the school, potentially causing gaps in their instruction/intervention. This could be a limitation to this study if a transient student was counted in this study as an intervention participant but only received the intervention
for a limited period, which could potentially alter the (lack of) effectiveness of the overall study/program.

A final limitation of this study was the timeframe of the evaluation. The Fast ForWord intervention program was in its first full year of implementation during the 2011-2012 school year, the same year in which data were collected. This could minimize the level of integrity by which the intervention was implemented as teachers, themselves, were also becoming familiar with the program and how it works. The timeframe of the evaluation may have also limited the amount of data available for analysis. Furthermore, in regard to the relation of timeframe and data available for analysis, it would be assumed that a student with a disability would have more difficulty learning than a student without a disability, which would suggest that a student with a disability may require more time to learn and be able to apply the information learned. Therefore, the timeframe of this study may have been a limitation in that it did not allow for an ample amount of “learning” and “development” time for students with disabilities.

**Implications for Future Research**

As there seems to be little research available independent of the studies conducted by the Scientific Learning Corporation on the effectiveness of the Fast ForWord program, additional research in this area is important. The No Child Left Behind Act of 2001 (No Child Left Behind [NCLB], 2002) requires schools to select programs and instructional methods dependent on scientifically-based research. Scientifically-based research “involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs” (Zucker, 2004, p. 2). Therefore, it is important that independent research is conducted on the Fast
ForWord program in order to make it a more reliable and valid program for intervention use.

Future research based on the present study could expand the size of the sample to include more student participants. It could also categorize the sample to include a population of students with disabilities and a population of students without disabilities, and examine the data of these student participants’ test scores each year to monitor change. An individualized program evaluation could also be conducted for each student who participated in the intervention, and his or her growth could be monitored over an extended period of time. In this type of evaluation, it would be important to also monitor the student’s CAPS (completion, attendance, participation, and sequence of products) as suggested by the Scientific Learning Corporation. Further, in order to obtain a more detailed analysis, the data could be compared between those students who continue participating in the Fast ForWord program and those who do not continue with their participation. Treatment acceptability data to assess the “likeability” of the program could be collected by both the treatment agents (i.e., teachers) and the students who participate. In addition, treatment fidelity data could also be collected to ensure successful implementation of the intervention. Each of these research implications would aid in making a more objective determination of the effectiveness of the Fast ForWord program.

Conclusion

Program evaluation is a method of evaluating a particular entity for the purpose of decision making. The current program evaluation was conducted to evaluate Scientific Learning Corporation’s Fast ForWord intervention program at Branty Elementary
School. Based on the information and data gathered and analyzed, it was concluded that the Fast ForWord program was not effective in increasing the reading scores on the Ohio Achievement Assessment (OAA) for student participants. It is suggested, however, that additional data be collected from a larger sample of participants over an extended period of time in order to determine the effectiveness of the program.
REFERENCES


http://education.ohio.gov/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&
TopicRelationID=463&ContentID=732&Content=139466.

Ohio Department of Education. (2007). *Alignment of five essential components with ohio english language arts standards, grade level indicators and benchmarks for grades k-3*. Retrieved August 1, 2008 from

http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&
TopicRelationID=892&ContentID=7388&Content=39754.


http://ilrc.ode.state.oh.us/Districts/District_Questions.asp?sel=044669,BrantyCity,
SciotoCounty.


http://www.renlearn.com/se/statemap.aspx#OH.


Scientific Learning Corporation (2010). *Professional development resource guide*


University of Oregon Center on Teaching and Learning. (2012). *UO DIBELS data*


APPENDIX A

IRB MATERIALS AND CONSENT LETTER

UNIVERSITY OF DAYTON - CONSENT TO PARTICIPATE IN RESEARCH

TITLE OF STUDY
Program Evaluation: The Impact of Using Fast ForWord as an Intervention to Improve Reading Achievement in an Appalachian Ohio Elementary School

You are asked to participate in a research study conducted by Talitha Malone, School of Education and Allied Professions of the University of Dayton. Your participation in this study is voluntary. Read the information below, and ask questions about anything you do not understand, before deciding whether or not to participate.

SPONSOR OF STUDY
Talitha C. Malone, as partial fulfillment of the requirements for the degree of Educational Specialist in School Psychology in the School of Education and Allied Professions of the University of Dayton.

PURPOSE OF THE STUDY
The primary purpose of this study is to evaluate the impact of the Fast ForWord computerized software program as an intervention for increasing the reading achievement of at-risk students attending Branty Elementary School. The evaluation will primarily focus on the improvement (or lack of improvement) of students’ high-stakes test scores by comparing students’ test scores over a one-year period.

PROCEDURES
If you volunteer to participate in this study, we would ask you to do the following things:

Your district will participate in this study by providing the results of the reading portion of the Ohio Achievement Assessments (OAA) of students selected to participate in the study. Student participants will include approximately sixty-nine 5th and 6th grade students who participated in the Fast ForWord program during the 2011-2012 school year. These students must have OAA reading test scores for the
2010-2011 and 2011-2012 school years. An additional sample of approximately sixty-nine 5th and 6th grade students will also be selected. These students must be students who did not participate in the Fast ForWord program, but who also have OAA reading test scores from the 2010-2011 and 2011-2012 school years. The results of this group of students will be used as comparison data. The data collected for analysis will be used to complete a summative evaluation to help determine the effectiveness of the Fast ForWord program in helping to improve reading achievement.

This project is expected to be complete in the summer of 2013 when the final results are presented.

**POTENTIAL RISKS AND DISCOMFORTS**

As there will be no direct contact with student participants, there are no foreseeable risks or discomforts involved. Evaluation outcomes will be reported as a summary of results; there will be no reports of individual names or test results.

**ANTICIPATED BENEFITS TO PARTICIPANTS**

There are no direct benefits to student participants as outcomes will be reported as a summary of results. There are, however, anticipated benefits for you as a district. As a result of this study, you will obtain information that may help you determine the effectiveness of the Fast ForWord program. This information can be used to help you in the decision-making process in regards to the continuation of implementing the Fast ForWord program in the schools within your district.

**PAYMENT FOR PARTICIPATION**

You, or members of your school/district, will not be offered any monetary payment for your participation in this study.

**IN CASE OF RESEARCH RELATED ADVERSE EFFECTS**

If you are experiencing any kind of discomfort as a result of your participation in this study, you may contact Talitha Malone, Principal Investigator, at 678-481-0606 or by email at Talitha.Malone@gmail.com. You can also contact her Faculty Advisor, Dr. Susan Davies, at 937-229-3652 or by email at sdavies1@udayton.edu.

**CONFIDENTIALITY**

When the results of the research are published or discussed in conferences, no information will be included that would reveal the identity of student participants. Furthermore, the data obtained will be pooled with data from other student participants, and only summary results will be made public.

Authorized representatives of the University of Dayton may need to review records of
student participants. These representatives are bound by rules of confidentiality not to reveal information to others. Nonetheless, only a randomly assigned identification number will be recorded with student data; therefore, a student’s name will not be recorded with the data.

All information gathered and data collected will be compiled and input onto various computer software systems (including Microsoft Word, Microsoft Excel, and SPSS), and will be stored on a password protected hard drive. Any hardcopy materials will be kept in a securely locked file cabinet. All data will be kept and stored for the duration of the study, and will be destroyed within six months of the completion of this project.

PARTICIPATION AND WITHDRAWAL

Your participation in this research is voluntary. If you choose not to participate, that will not affect your relationship with the University of Dayton or other services to which you are otherwise entitled. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without prejudice or penalty. The investigator may withdraw you from participating in this research if circumstances arise which warrant doing so.

NEW FINDINGS

During the course of the study, you will be informed of any significant new findings (either good or bad), such as changes in the risks or benefits resulting from participation in the research or new alternatives to participation, that might cause you to change your mind about continuing in the study. If new information is provided to you, your consent to continue participating in this study will be re-obtained.

IDENTIFICATION OF INVESTIGATORS

If you have any questions about this research, please contact one of the investigators listed below.

Talitha Malone, Principal Investigator, University of Dayton, School of Education and Allied Professions, 678-481-0606, Talitha.Malone@gmail.com.

Dr. Susan Davies, Faculty Advisor, University of Dayton, School of Education and Allied Professions, 937-229-3652, sdavies1@udayton.edu.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu.
SIGNATURE OF RESEARCH PARTICIPANT (or legal guardian)

I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form. **I certify that I am at least 18 years of age.**

Name of Participating School/District (please print) ______________________________

Name/Title of District Representative (please print) ______________________________

Address ________________________________________________________________

Signature of Representative ____________________________ Date_________________

SIGNATURE OF WITNESS

My signature as witness certifies that the Participant signed this consent form in my presence.

Name of Witness (please print) _____________________________________________

Signature of Witness _________________________________________ Date___________

(Must be same as participant signature date)
## APPENDIX B

### EVALUATION AUDIENCE CHECKLIST

<table>
<thead>
<tr>
<th>Individuals, Groups, or Agencies Needing the Evaluation’s Findings</th>
<th>To Make Policy</th>
<th>To Make Operational Decisions</th>
<th>To Provide Input to Evaluation</th>
<th>To React</th>
<th>For Interest Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developer of the program</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Funder of the program</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Person/agency who identified the local need</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Boards/agencies who approved delivery of the program at local level</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Local funder</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Other providers of resources (facilities, supplies, in-kind contributions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top managers of agencies delivering the program</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Program managers</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program deliverers</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponsors of the evaluation</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Direct clients of the program</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Indirect beneficiaries of the program (parents, children, spouses, employers)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Potential adopters of the program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Groups excluded from the program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Groups perceiving negative side effects of the program or the evaluation</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Groups losing power as a result of use of the program</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Groups suffering from lost opportunities as a result of the program</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Public/community members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

60